



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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Join us for Skyscrapers'

September Monthly Meeting

Featuring Dr. Jonathan Pober, Brown University

at Seagrave Memorial Observatory

Saturday, September 6, 2025

Social hour at 6:30pm, Presentation at 7:00pm, Observing at 8:00pm, weather permitting

Join Zoom Meeting

<https://us06web.zoom.us/j/82313163848?pwd=7S5gGYECI21QHqKn5qbriqTU2zSU3.1>

Meeting ID: 823 1316 3848 Passcode: 671453

Exploring Our Universe from the Far Side of the Moon

After the Big Bang, our Universe entered a period without stars or galaxies, known as the cosmic "Dark Ages." As the name suggests, the dark ages are nearly unobservable, given the complete lack of luminous sources that existed at the time. However, low-frequency radio observations can measure the distribution of hydrogen gas during this era, providing a look into this heretofore-yet-unseen period of cosmic history. The very long wavelengths (greater than 10 meters) associated with this signal cannot be observed from the ground due to the earth's atmosphere, necessitating a space-based mission. In this talk, I will further describe the motivations for such an experiment and highlight the design considerations that will be required to make

this ambitious project a reality.

Professor Pober works in the field of "21 cm cosmology" -- a program of research to observe neutral hydrogen from the early universe through its hyperfine 21 cm emission line. His interests include both the development of new radio astronomy techniques to make these observations possible, and the physics of early universe galaxy formation and cosmology that they probe. He is a member of several ground-based radio telescope collaborations, including the Murchison Widefield Array in Western Australia. He arrived at Brown in January 2016; prior to that he was a postdoctoral fellow at the University of Washington. He received his PhD from UC Berkeley in 2013.



Observing Events:

Open Nights at Seagrave Observatory*

September 6, 8-10 PM
September 13, 8-10 PM
September 20, 8-10 PM
September 27, 8-10 PM

*Members are encouraged to attend

Off-site Public Observing**

River Bend Farm, Uxbridge MA
Friday, September 19, 7:30 - 9:30 PM
POC: Francine Jackson/Jim Hendrickson

Chase Farm, Lincoln
Thursday, September 25, 7:45 - 9:15 PM
Cloud date: Thursday, October 2
POC: Francine Jackson/Jim Hendrickson

**Volunteers with telescopes, binoculars, or just a love of the night sky, are always welcome

President's Message

by Linda Bergemann

A Star Party every Saturday night! That's right; thanks to the members of our Observatory Committee, Seagrave Memorial Observatory is open every Saturday night throughout the year, weather permitting. Many think that open nights are for the public only. But, open nights are for everyone, members included.

I invite you to bring your telescope to the observatory on a Saturday night and setup on the property to observe the night sky with other members. If you don't have a telescope of your own, you may setup and use one of the Society's portable telescopes, and use it for the evening. If you're interested, we can train you to use one of our permanently-mounted telescopes. Or, just stop in for a visit. In any case, you will have

the opportunity to interact with and get acquainted with other amateur astronomers.

If you happen to be interested in outreach, we can always use more people on the Observatory Committee. We always need trained individuals to operate the telescopes. But, we also need members willing to welcome our visitors and tell the story of Skyscrapers - no observing experience required. Contact me or Steve Siok (ssiok@cox.net) with any questions, or if you would like to join us.

There's a star party every Saturday night; join the party!

Until next time,
Linda
401-322-9946
lbergemann@aol.com

New Member Welcome to Skyscrapers

Stephen Bach
of Providence

Skyscrapers Official Merchandise

<https://www.bonfire.com/store/skyscrapers/>

<https://business.landsend.com/store/skyscrapersinc/>



Skyscrapers Presentations on YouTube

Many of our recent monthly presentations on Zoom have been recorded and published, with permission, on the Skyscrapers YouTube channel. Go to the URL below to view recent presentations.

<https://www.youtube.com/c/SeagraveObservatorySkyscrapersInc>



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 at hendrickson.jim@gmail.com.

E-mail subscriptions

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

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Jeff Padell

Greg Shanos Earns ALPO Walter H. Haas Observers Award

by Greg Shanos

The Association of Lunar and Planetary Observers (ALPO) is a scientific and educational organization founded in March 1947 by Walter H. Haas. Skyscrapers member Gregory Shanos joined the ALPO in 2021 and has since submitted over 575 obser-

vations of the planets. The 2025 Walter H. Haas Observers Award is bestowed to Greg Shanos.

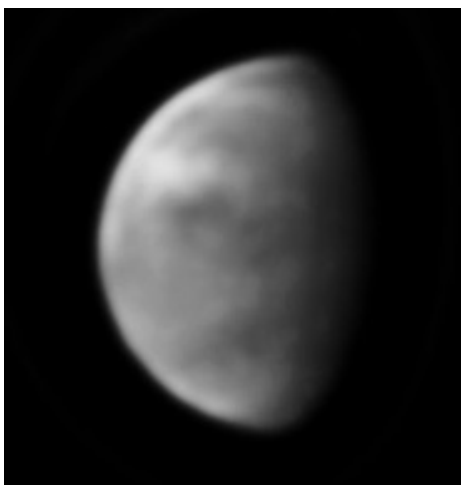
Most amateur astronomers gravitate (pun intended) towards deep sky observing and astrophotography. The planets being a

mere after thought. Nothing could be further from the truth. The light from deep sky objects took millions to billions of years to reach our telescopes whereas reflected light from the planets took only light minutes. In addition, the planets exhibit changes on a daily basis. For example, not only are the phases of Venus of interest but unbeknown to many, the upper and middle clouds of Venus are visible in ultraviolet and infrared wavelengths respectively. Today's CMOS chips are also sensitive in the UV and IR and by using the proper filters, these wavelengths are enhanced and the clouds become visible on Venus. The clouds appear dark due to an unknown ultraviolet absorber. At 1010nm (1 micron) the surface features on Venus become visible and are able to be imaged!

Mars exhibits dark albedo features at specific central meridians which rotate with the planet. Syrtis Major, Hellas Basin and Olympus Mons are examples of such features. Mars exhibits seasons like the Earth. During Martian winter the seasonal ice caps, composed of carbon dioxide, form and grow, then shrink again the spring and summer. Dust storms typically develop, and may engulf the planet. During the 2018 apparition of Mars, a global dust storm



The author with the Walter H. Haas Observers Award. The plaque reads "In recognition of your contributions to the ALPO, specifically in the field of photographing the planets with filters. Greg has become a valuable asset to ALPO, readily sharing his knowledge and experience in photographing the planets in infrared, ultraviolet and other wavelengths to reveal details not seen in visible wavelengths. His lectures at ALPO conferences and on YouTube webinars have generated great interest. ALPO members have also commented on his one-on-one correspondence to help them become successful in their own photographic pursuits. The ALPO recognizes and values your expertise and commends you and your dedication to our organization."



Venus in ultraviolet

engulfed the entire planet, and no albedo features were visible from Earth for several months until the dust began to clear. Clouds typically form near the limb and over the volcanoes. These clouds are easily visible from Earth especially with the use of a blue/violet filter. During the 2022 apparition, Greg was involved in a blue clearing study with ALPO Mars Section Coordinator Roger Venable MD. Blue clearing is a phenomenon whereas albedo features not typically visible with a blue/violet filter become visible. Greg submitted 61 images of Mars taken under strict protocols that were analyzed by Dr. Venable and published in the Winter 2025 issue of *The Strolling Astronomer* - the Journal of the Association of Lunar and Planetary Observers.

Jupiter, being a gas giant, exhibits atmospheric clouds with storms such as cyclones, anticyclones, festoons and of course, the Great Red Spot. The colors of the atmospheric bands, including the Great Red Spot, also vary at unpredictable intervals. The four Galilean moons, Io, Europa, Ganymede and Callisto regularly transit the planet and cast their shadows. These shadow transits are predictable and the free program [WinJupos](#) will alert you to which moon and at what time and date the shadow transit will occur.

Saturn is by far the “Lord of the Rings”. The most obvious feature is the tilt of the rings. Typically, the A, B, C & D rings are visible, as well as the Encke and Cassini divisions. The rings also cast a shadow on the planet. In reciprocation, Saturn itself also casts a shadow on the rings. Around opposition, the rings appear brighter due to the Seeliger effect, whereas shadows of the individual ring particles temporarily disappear from our view. Every 13.7 to 15.7 years, as Earth’s orbit passes through Saturn’s ring

plane, the rings appear thin and edge-on. During this time, shadow transits of the moons Titan, Dione, Mimas, Enceladus are able to be observed. Saturn’s disk appears to be yellow-brown in color due to cloud bands with subtle color variations. These cloud bands do not change appearance as rapidly as those on Jupiter. Transient features such as storms, eddies and bright spots are of particular interest. Saturn’s rings and disk are always a delight.

The more difficult planets to image are Mercury, Uranus and Neptune. Mercury, being low on the horizon, is always a challenge, however, I have been able to image the larger impact craters on its surface. Mercury is best observed during morning apparitions since it rises higher in the sky instead of setting during the evening. Uranus and Neptune show a disk which is blue green in color with the poles appearing white.

As you can see, planetary astrophotography has much to offer. Since the planets are bright objects, the method utilized is different from that of deep sky astrophotography. The basic technique is to take a short 60 to 90 second uncompressed AVI/SER video of the planet using a dedicated uncooled planetary camera, align and stack the individual frames, sharpen and you are essentially finished. The software utilized is Firecapture, or SharpCap to acquire the video, Autostakkert or Astrosurface to align and stack the individual frames and Registax or WaveSharp to sharpen the final image and GIMP for further post-processing. Best of all these programs are FREE! Derotation of images in WinJupos further reduces noise and increases resolution.

For planetary, larger is better since a long focal length is required. Most planetary imagers use at least an 8-to-14-inch Schmidt-Cassegrain telescope with a Barlow lens. You can even be altazimuth mounted since Autostakkert/Astrosurface will eliminate any field rotation during the aligning and stacking process.

The high quality of planetary images by today’s amateur astronomers has caught the attention and interest of professional planetary scientists. ALPO serves as a database where amateur astronomers to submit their images with pertinent scientific information such as Date, Universal Time, Central Meridian, Telescope, Camera, Optics utilized etc. International databases include [hstjupitergroups.io](#), Planetary Virtual Online Library, British Astronomical Association, and ALPO-Japan. I submit my images

to all these organizations. I have received alerts on the [hstjupitergroups.io](#) that the Juno spacecraft will be at a certain position taking photographs of Jupiter during a certain time frame. All images of Jupiter from amateur astronomers are needed to compare with those of the spacecraft.

In conclusion, planetary astrophotography is a rewarding endeavor worth pursuing by amateur astronomers who have an interest in astrophotography. While you’re imaging a deep sky object with a refractor, turn your Schmidt-Cassegrain to whatever planet is visible during the observing session. You will be pleased with the results.

Free Programs/Websites for Planetary Imaging

ALPO

<https://www.alpo-astronomy.org/>

PVOL

<http://pvol2.ehu.eus/pvol2/>

WinJupos

<https://jupos.org/gh/download.htm>

FireCapture

<https://www.firecapture.de/>

SharpCap

<https://www.sharpcap.co.uk/>

Autostakkert

<https://www.autostakkert.com/>

AstroSurface

<https://astrosurface.com/pageuk.html>

Registax

<https://www.astronomie.be/registax/>

LuckyStackWorker

<https://www.wilcokas.com/luckystack-worker>

GIMP

<https://www.gimp.org/>

Planetary Cameras

ZWO

<https://www.zwoastro.com/>

QHY

<https://www.qhyccd.com/>

Player One

<https://player-one-astronomy.com/>

Skylights: September 2025

by Jim Hendrickson

The length of daylight is now drastically less than it was just a few weeks ago, and it is decreasing noticeably each week. September 3 is our last day with 13 hours of sunlight. Days will be shorter than 13 hours until April 8.

The last sunset in the 7:00pm hour is at 7:01pm on the 11th. The next 7:00pm sunset will be March 22nd.

After traversing Leo for the past 37 days, the Sun enters Virgo on the 16th, where it will spend the longest duration in any constellation, 44.5 days.

The **equinox** occurs at 2:19pm on the 22nd. At that moment, the Sun lies directly overhead at Earth's equator, and from a geocentric reference point, the declination of the Sun is 0°. It then moves south of the equator, and remains there until March 20th.

The date of true equinox, that is, equal parts of day and night, comes three days later, on the 25th, when we experience 12 hours of daylight. The difference is due largely to atmospheric refraction of light, and the Sun's apparent diameter of about one-half degree.

Watch the 96.9% waxing gibbous **Moon** occult magnitude 2.9 Deneb Algedi (delta Capricorni) for 64 minutes, beginning at 2:06am on the 6th.

September 7 sees the **Full Corn Moon**, at 2:09pm. September usually gives us the Harvest Moon, perhaps the most familiar of the traditional full Moon names. But why, in 2025, is September's full Moon the Corn Moon?

The reason lies in the definition of the Harvest Moon being the full Moon that is closest to the September equinox, with no distinction of whether it falls before or after. This month's full Moon occurs 15 days and 10 minutes before equinox, and October's lands 14 days, 9 hours and 39 minutes after, giving October the Harvest Moon in 2025.

For this reason, we have an additional named full Moon in September, the Corn Moon, so named, much like the Harvest Moon, to coincide with the time to harvest corn in the northern United States.

Watch the Corn Moon rise at 7:11pm on the 7th, just three minutes past sunset. It sets 12 hours and one minute later, on the morning of the 8th, 53 minutes past sunrise.

You may notice a pale yellow "star" just

to the east of the Moon on this night. This is our best ringed planet Saturn. Its proximity to the full Moon tells us that it is near its opposition, when it is at its closest and brightest for the year.

This Corn Moon also produces a total lunar eclipse, which, unfortunately for us, is visible just about everywhere on Earth except in the Americas. The next total lunar eclipse we will experience is on March 3, 2026.

The Moon, as it enters its waning gibbous phase, remains close to Neptune and Saturn as it rises on the 8th.

Late evening on the 12th, the waning gibbous Moon can be seen 2.5° east-northeast of the Pleiades cluster in Taurus. A spectacular occultation of the Pleiades occurs for observers in the eastern hemisphere, but for us, the Moon rises three hours after it concludes. With binoculars, you can find Uranus in the same field of view, 4.9° to Moon's the south-southwest.

The Moon is last quarter in Aries, at 6:33am on the 14th. Before the onset of morning twilight, the Moon can be seen near Elnath (beta Tauri).

Just after midnight on the 15th, the Moon is 3.3° north-northeast of M35, an open cluster in Gemini. The next day, the waning crescent is 4.1° north of Jupiter.

The waning crescent Moon joins Jupiter and the twins Castor and Pollux on the 16th.

On the 19th, don't miss the spectacular arrangement of the 5.7% illuminated crescent in a line with Venus and Regulus, all within a 1.3° low power telescope field of view. The Moon rises at 4:02am, and the entire arrangement can be seen through twilight, with the best linear arrangement occurring around 5:30am, and the Moon's southern limb closest to Venus, 0.3°, at 6:30am.

The next morning, the 20th, watch a very old (just 35 hours from new), 1.9% illuminated Moon rise at 5:02am. The remarkably thin crescent rises just before the start of astronomical twilight from an azimuth of 79.6°, about 10.3° to the 6:30 position of Jupiter.

The Moon is new at 3:54pm on the 21st, beginning Luration 1270.

The 9.0% waxing crescent Moon makes an appearance near Mars after sunset on the 24th. Find the Red Planet 6.4° to the 2:30 position from the Moon. Also take note

Events in September

1	Equation of Time = 0
1	04:00 Venus 1.2° S of M44
2	05:30 Mercury 1.2° N of Regulus
3	06:13 Last day with 13 hours of daylight (13:01:18)
4	04:00 Uranus 4.4° SSE of M45
6	00:55 Uranus Stationary
6	02:06 Moon (waxing 96.9%) occults Deneb Algedi (mag. 2.9; in: 02:06; out: 03:10)
7	14:09 ● Full Corn Moon
8	20:00 Moon (waning 97.7%) 4.9° NE of Saturn
8	21:00 Moon (waning 97.5%) 3.4° NE of Neptune
11	19:01 Last 7:00pm sunset
12	22:00 Moon (waning 64.5%) 2.5° ENE of M45
12	23:00 Moon (waning 64.0%) 4.9° NNE of Uranus
13	06:52 Mercury Superior Conjunction
13	19:05 Latest Mercuryset
13	20:00 Mars 2.2° NE of Spica
14	06:33 ◐ Last Quarter Moon
14	23:00 Pallas 5.6° ESE of Altair
15	00:00 Moon (waning 40.8%) 3.3° NNE of M35
16	16:00 Sun in Virgo (44.5d)
19	05:00 Venus 0.6° E of Regulus
19	05:00 Moon, Venus & Regulus within 1.3°
21	01:46 Saturn Opposition
21	04:00 Jupiter 0.9° N of C39
21	15:54 ○ New Moon (Luration 1270)
21	20:00 Vesta 3.8° NNE of Dschubba
21	21:00 Vesta 0.7° NE of Acrab
22	14:19 Equinox
23	08:54 Neptune Opposition
24	19:30 Vesta 0.1° W of Jabbah
25	06:36 Last day with 12 hours of daylight (12:00:34)
27	20:00 Moon (waxing 31.4%) 2.7° SE of Antares
27	20:00 Moon (waxing 31.4%) 3.7° ESE of M4
29	19:54 ► First Quarter Moon
29	20:00 Moon (waxing 50.2%) 1.8° ENE of Kaus Media

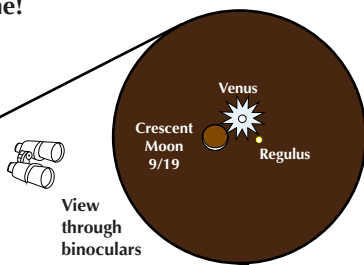
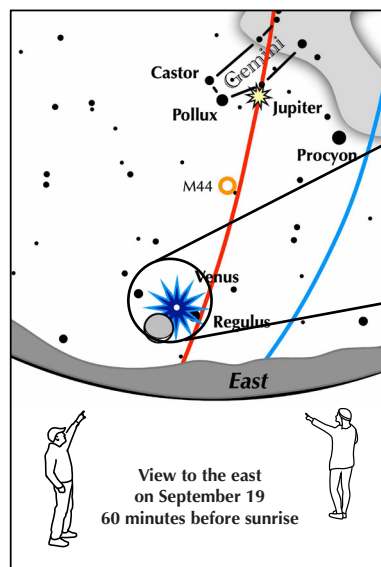
Ephemeris times are in EDT (UTC-4) for Seagrave Observatory (41.845N, 71.590W)

of the angle of the illuminated portion of the Moon with respect to the horizon. The cusps of the crescent are close to vertical. This is due to the low angle of the ecliptic on our southwestern horizon during autumn evenings, combined with the Moon's own offset angle, being near its most southerly position.

The waxing crescent Moon passes 2.7° southeast of Antares, in Scorpius, on the 27th. First quarter occurs at 7:54pm on the 29th, in Sagittarius, the most southerly first quarter Moon of the year.

September is not a particularly good

If you can see only one celestial event in the morning this September, see this one!



View through binoculars
Crescent moon meets brilliant Venus and the star Regulus

On the morning of September 19, the crescent moon, full with earthshine, joins brilliant Venus and the brightest star in Leo, Regulus, for a dramatic sight. Look low in the east-northeast 60 minutes before sunrise.

Be sure to use binoculars to cleanly separate this celestial trio!

Above them all shines bright Jupiter, itself forming an attractive isosceles triangle with the twin stars of Gemini, Castor and Pollux. To their lower right shines the bright star Procyon.



month for viewing **Mercury**.

You may be able to spot it just 1.2° north of Regulus on the 2nd, when it rises just under an hour before sunrise.

Mercury reaches superior conjunction on the 13th, and then it returns to the evening sky for its most unfavorable apparition of the year. Later in the month, its nightly motion has it moving towards the south, parallel to the horizon, yet attaining no significant elevation, making observing the innermost planet difficult as it sets within a half-hour of sunset over the next few weeks.

Venus spends the first few days of the month within a binocular field of view of the Beehive cluster, M44, in Cancer. It is closest on the 1st, when it is just 1.2° south of the open cluster.

Look at Venus with binoculars or a telescope on the morning of the 2nd, when it will be just 0.2° northeast of Asellus Australis (delta Cancri), a 4.0 magnitude type K giant star that lies 131 light years distant. The eight step difference in apparent magnitude between Venus and the star represents a difference of nearly 1500 in intrinsic brightness.

The brilliant planet crosses into Leo on the 9th, and appears 1.2° closer to Regulus each morning until the 21st, when it is joined by the 5.7% crescent Moon 0.3° to its north, while simultaneously passing just 0.6° north of Leo's brightest star.

Later in the month, Venus rises 2½ minutes later each morning, and is appearing noticeably lower in the sky before sunrise than it was just a few short weeks ago.

Through a telescope, Venus shows a diminishing size as it moves towards the opposite side of its orbit relative to Earth, and its illuminated fraction gradually increases from 84% to 91% through September.

Mars is low in the west after sunset, in Virgo. It becomes increasingly difficult to observe, though not completely out of view, as the month progresses.

Mars passes Spica on the 13th, coming to within 2.2° to the north-northeast of the brightest star in Virgo, but both objects will be difficult to observe without binoculars and a clear western horizon after sunset.

The Red Planet remains above the horizon for just an hour after sunset during the latter half of the month, setting just outside of nautical twilight. The waxing crescent Moon points the way to the Red Planet, just 6.4° to its southeast, on the 24th.

Jupiter is in Gemini, and rises during the early morning hours. On the 6th and 7th, it passes within 0.2° of magnitude 3.5 Wasat (delta Geminorum).

The waning crescent Moon passes 4.1° north of Jupiter on the morning of the 16th.

The **Galilean moons** are arranged in order of their orbital distance from the planet, and spaced approximately equally, to the west of the planet on the 17th. On the following morning, Jupiter appears to have just two moons, as both Europa and Ganymede are behind the planet and in its shadow.

On the 25th, watch Ganymede emerge from eclipse at 3:24am. Europa then goes into eclipse at 4:22am, as Ganymede goes

into occultation behind Jupiter at 5:14am.

Io goes into eclipse at 3:38am on the 26th.

Both Io and Europa, as well as their shadows, transit Jupiter's globe on the 27th. Europa's shadow is already on the cloud-tops as Jupiter rises at 12:28am, so it will be difficult to see. Io's shadow begins transiting at 12:54am. Europa begins transiting at 1:26am, and its shadow ends its transit at 1:40am. At 2:10am, Io begins transiting, just as its shadow is about at the central meridian of Jupiter. Io's shadow begins to depart the eastern limb of the planet at 3:10am, and Europa and Io conclude their transits at 4:14am and 4:23am, respectively. At 4:59am, Io begins to overtake Europa, while being partially eclipsed by it. This partial eclipse ends about 20 minutes later.

Jupiter is 5.801 au from Earth and is located within Gemini. Its 99.5% illuminated disk is 34.0 arcseconds across, and shines at magnitude -2.0. Jupiter rises at 2:07am.

Saturn is at its best in September. Located in Pisces, the ringed planet is visible all night.

Saturn's opposition is on the 21st, at a distance of 8.547 au. Observing Saturn on this night, and for several nights before and after, will show the planet and rings devoid of any shadows. This will look especially interesting this year, as the ring plane angle is just 2.2° relative to our line of sight. The relative tilt continues to become more narrow until November 24, when it will be just 0.5°.

As it is moving retrograde, Saturn retreats from Pisces and back into Aquarius on the 29th. It remains within the celestial water bearer until mid-January.

September continues to provide some notable events involving Saturn's largest moon, Titan.

A shadow transit of Titan begins just after 1:00am on the 4th. A week later, the moon goes into eclipse beginning at 11:14pm on the 11th. It begins to emerge from the southwestern limb of the planet at 3:31am.

Following another week, just after 1:30am on the 19th, Titan's shadow transits Saturn's northern hemisphere, and finally, the moon is occulted by Saturn on the 27th, beginning at 9:38pm. It reemerges from the thin shadow just beyond the planet's southwestern limb beginning at 2:05am.

With Saturn's opposition, combined with having a bit less light coming from the planet's rings, now is a good time to observe some of the planet's other moons.

Tethys, Dione, and Rhea can be seen rel-

actively easily on a dark, transparent night, using a telescope as small as 6 inches, but Mimas and Enceladus can be a bit more of a challenge, due to their smaller size, making them dimmer, plus their proximity to the planet.

We'll start with Enceladus, which at 500 kilometers is comparatively small, but also one of the brightest objects in the solar system, as its surface is covered with ice. At its closest, over the next few weeks, it shines at magnitude 11.8, and extends to a maximum elongation of 39 arcseconds on either side of Saturn, which occurs twice during its 33-hour orbit.

Mimas, with an orbital period of just under 23 hours, shines at magnitude 12.9, and is elongated as much as 30 arcseconds from Saturn. A 10-inch telescope with high magnification on a steady night should reveal the 400-kilometer moon, or use a well-calibrated planetary imaging setup.

Uranus, at magnitude 5.7, is an easy-to-locate object within the same binocular field of view as the Pleiades cluster in Taurus. From Atlas, the easternmost of the brightest member stars, look 4.2° to the south-southeast to see the pale blue-green glow of Uranus, about 19 au distant.

Uranus becomes stationary in its apparent motion on the 17th, and will continue moving westward through February 4.

On the 23rd, the 64.5% waning gibbous Moon lies 2.6° to the east of the Pleiades and 4.9° north of Uranus, placing the three objects within the same binocular field of view.

Neptune, like Saturn, is moving retrograde through Pisces, and reaches opposition on the 23rd, just two days after Saturn. The two planets can be seen within the same wide field of view of small telescopes throughout the month, ranging in apparent separation from 1.8° on the 1st to 3.0° on the 30th, as Saturn moves westerly at a faster rate than Neptune, due to its closer position relative to Earth.

Neptune's opposition on the 23rd brings it to its closest distance at 28.884 au. It shines at magnitude 7.7, and shows a tiny globe just 2.4 arcseconds across through large telescopes. It can be found in Pisces, 2.4° northeast of Saturn.

Neptune being closest to Earth is also a good time to view its largest moon, Triton. At $\frac{3}{4}$ the size of Earth's Moon, Triton orbits Neptune at a distance of 355,000 kilometers, just slightly less than the Earth-Moon distance. This puts it at a maximum separation from Neptune, near opposition, at 17 arcsec-

onds. Its orbital period of 5.8 days puts it in favorable viewing position approximately every three nights, although its orbital inclination around Neptune, and the Neptune system's orientation with respect to Earth, currently allows continuous visibility, with the large moon not getting closer than 9 arcseconds from the planet. Given that its magnitude of 13.4 is approximately 1/200th the brightness of Neptune, it is still best to look for it at its maximum elongations, which occur on the nights of the 14th-15th, 17th-18th, 20th-21st, 23rd-24th, 26th-27th, and the 29th-30th. After that, bright moonlight begins to interfere with observations.

As the bright Moon moves out of the late evening sky past mid-month, an opportunity opens to observe the two closest dwarf planets.

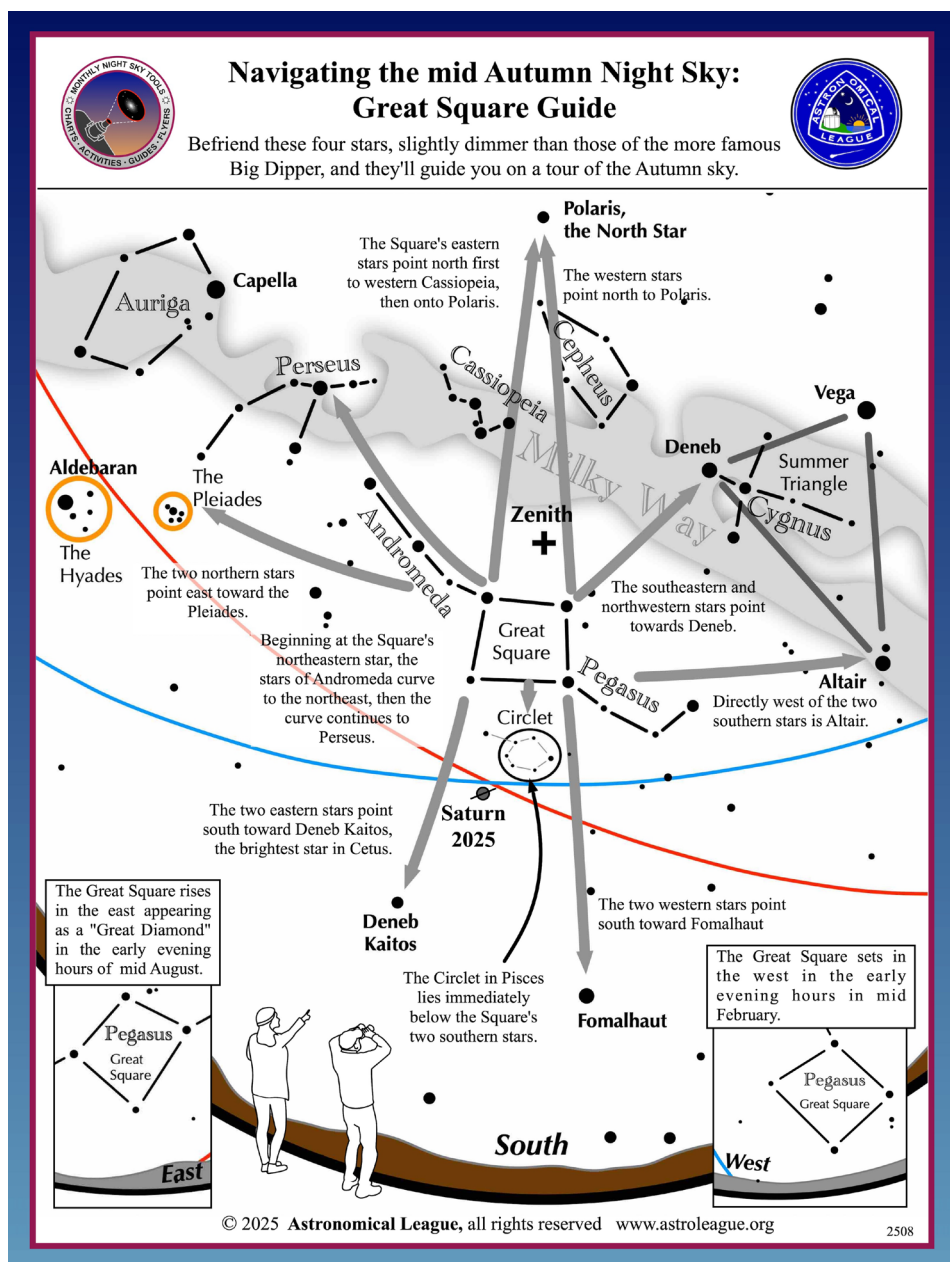
Although not the closest, we'll start at

Pluto since it is closer to the meridian after dusk. Starting at Dabih, and moving southward 8.9°, the magnitude 14.5 object should be detectable in a large telescope, or with an astroimaging setup.

Pluto is 34.733 au from Earth and is located within Capricornus. Its 100.0% illuminated disk is 0.1 arcseconds across, and shines at magnitude 14.5. Pluto sets at 01:51am.

Ceres is located in Cetus, about 18.0° east-southeast of Saturn. It is fairly close to eta Ceti, coming within 0.7° to the north-northwest of the magnitude 3.5 star on the 21st. Ceres continues to move west-southwestward at about 0.2° per day.

Asteroid **4 Vesta**, the brightest of the asteroids, crosses into Scorpius on the 20th. Shining at magnitude 7.7, Vesta is within a few arcminutes of magnitude 4.0 Jabbah (nu Scorpii) on the 24th. Jabbah itself de-



serves attention as it is not only listed on the Astronomical League's Double Star Observing Program, but it is a multiple star system, with four components resolvable in amateur telescopes, not unlike the more familiar Double Double in Lyra. Jabbah's pairs are separated by 41 arcseconds, with the brighter pair separated by a challenging 1.3 arcseconds, and the dimmer one at 2.4 arcseconds. Jabbah's low elevation in our sky means that splitting them requires the steadiest of skies.

Asteroid **2 Pallas**, which was at opposition in early August, can be seen moving southward through Delphinus in early September, crossing into eastern Aquila on the 7th.. At the start of September, it is about midway between Altair, to its west, and the globular cluster Caldwell 47 (NGC 6934), to its east in Delphinus. The asteroid is 2.57 au away and shines at magnitude 9.5.

Asteroid **6 Hebe**, which reached opposition in late August, is magnitude 7.7, in Pisces. On the 5th and 6th, it passes 1.2° to the west-northwest of Caldwell 63 (NGC 7293), the Helix planetary nebula. The asteroid continues to move south-southwestward at about 0.3° per day.

September's night skies offer us a near perfect combination of conditions to make this one of the most ideal times of year for skywatching. Darkness sets in early enough to get several hours of observing before midnight. The summer Milky Way is in prime viewing position immediately following twilight, arcing high overhead, offering some of the best sights during those early evening hours, and the lower humidity and cooler nights give way to more transparent skies.

Looking to the west, we see the beacon star of spring, Arcturus, getting lower each passing evening, and its brilliant yellow-orange glow gives way to colorful scintillation as its 37-year-old starlight has to pass through increasingly dense and turbulent layers of our atmosphere before reaching us. To its right, in the northwest, we see the familiar Big Dipper asterism begin to attain its "cup upright" position of early autumn.

To the east of Arcturus, we find that Corona Borealis, host constellation of the still-anticipated Blaze Star, is no longer with us long into the nights, as it also sets around midnight.

To the south, the center of the Milky Way has now crossed to the west of the meridian, which brings the Cygnus portion and the Great Rift into the best viewing position. It is here that we can take a journey to a peculiar group of stars that is easy to

locate and see with any optics, even on the brightest nights.

Amidst the Great Rift, a section of the Milky Way obscured by dust that follows the galactic equator through the familiar Summer Triangle, we turn to a point that lies on the line between Vega and Altair, the western segment of the triangle. About 4/5 of the distance from Altair to Vega, binoculars or a small telescope reveals a distinct pattern of ten stars between magnitude 5 and 7 that was once thought to be an open cluster.

Backyard astronomers know it by its familiar name, the Coathanger, as it is marked by a nearly straight line of six stars in an east-to-west orientation, with a hook extending southward from the midpoint of the bar. The formation is about 1.5° in length by 0.5° in height, making it easy to resolve in binoculars, and filling the field of a low-power telescope, which also reveals a myriad of fainter 8th-10th magnitude stars within and around the brighter pattern.

From a dark site, it is visible to the naked eye as an unresolved patch of light. The first recording of its existence was by Persian astronomer Abd al-Rahman al-Sufi in his catalog *The Book of Fixed Stars*, which was compiled in 964, over six centuries before the advent of the telescope.

Some star atlases identify it as Brocchi's Cluster, named for Dalmiro F. Brocchi, an amateur astronomer who compiled charts for the American Association of Variable Star Observers (AAVSO) in the early 20th century.

Formally known as Collinder 399 (or Cr 399 for short), it is one of the more notable entries in Swedish astronomer Per Collinder's catalog of 471 star clusters without a corresponding NGC designation. The Collinder catalog, compiled in 1931, also contains objects such as the Hyades and Pleiades clusters in Taurus, Orion's Belt, and the Mirfak Cluster in Perseus.

Parallax data from ESA's Hipparcos mission revealed that the cluster's members are spread out much too far to have been gravitationally bound at any point. More accurate positions and parallax from the Gaia mission show that the stars range in distance from 235 to 1,734 light years, and that this "cluster" is just a chance alignment of unrelated stars, rather than an astrophysical object, something we now refer to as an asterism.

The Coathanger is a neat little object to visit whenever the Summer Triangle is visible, even when it is low in the sky. Bright

and easily recognizable, it is an ideal target for public astronomy events and open nights, and be sure to show it to Francine when she visits your telescope.

ALCOR Update

by Jeff Padell

Here we are at the beginning of August and the weather is nice and warm. The weather here at Bright Skies Observatory has been up and down, when it is clear it is very windy up to 30 mph gusts, not good for imaging or staying warm. I have been working on my award programs using the SLOOH telescope array and have gotten confirmation that this way of imaging is acceptable.

For a note – Astronomical League considers the scopes at Seagrave not as remote scopes but as owned scopes because the members of the Skyscrapers technically own them jointly. That is good because that means if you use the Seagrave scopes you are not limited to the programs allowing Remote Scopes.

I have been working on two different programs, the "Galaxy Groups and Clusters" and "The Local Galaxy Group & Galactic Neighborhood" programs I have been working on them since 2021 as there are so many observations or images needed. The Galaxy Groups and Clusters requires 120 observations/images. Also one of the more tedious parts of the programs is documenting what you are observing but at the same time this is one of the most rewarding parts of the programs and you expand your knowledge of the sky and universe as you describe what you are observing. Today on a nice rainy day I have updated my Excel spreadsheets with my latest images and observations. I now have 10 more objects out of 120 left to observe. AND then I need to document all the observations and images from my observing notes.

Remember that there are programs for all skill levels and interests! There are programs that can be done in a month, programs for naked eye, binoculars, telescope and a combination of all. There is even a Outreach program for helping out at open nights and star parties at Seagrave and programs the Skyscrapers do.

If you are a member of the AL pick out a program at <https://www.astroleague.org/alphabeticobserving/> and get started, if you are not, why not join now?

Skywatching for the Birds

by Francine Jackson

How often have you heard a honking noise, looked up, and seen a V formation of geese over your heads? Surprisingly, other birds don't seem to fly in such a pattern; instead, their flyovers almost appear to be in almost random patterns.

Perhaps it's the sheer size of geese that causes them to actually need to fly in this form. And, there does appear there is a reason for this: Apparently flying in this V formation allows each bird to "boost" the others, increasing their flight range significantly. In fact, each bird creates a strong updraft off its wingtips, giving birds behind them a useful current of air. Also, you might sometimes see certain geese appear to trade places with each other, as often the leading goose might need a rest, and it lags behind, allowing a "fresher" one to lead the pack for a while. In addition, it is said the constant honking of the gaggle could be a way to remind the slower, lazier birds that they do have to conform to the rest of the group.

Sometimes, when looking up at the sky, it pays to stop a bit, and watch Nature doing its thing so beautifully.



Rainer Weiss: 1932-2025

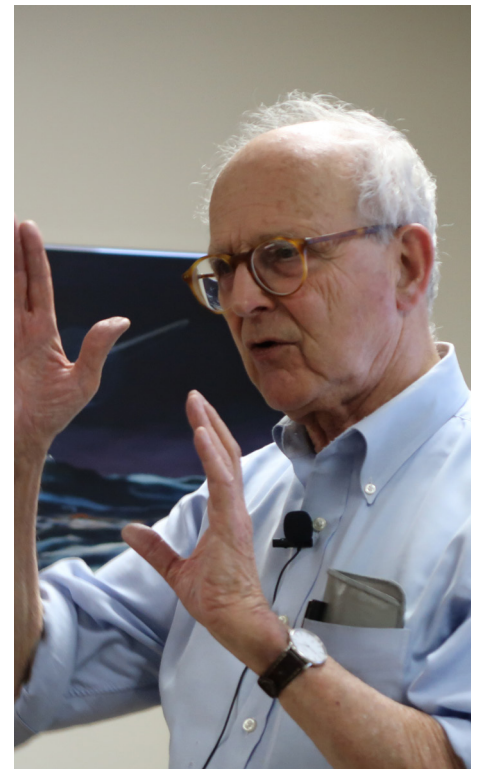
by Ian Dell'Antonio

It is with great sadness we report the passing of the great physicist and educator (and [Skyscrapers presenter!](#)) Rainer Weiss on August 25, 2025. Rainer was central to two landmark experiments in astrophysics, opening up two of the most important fields of study: the measurement of the cosmic microwave background (CMB) and the detection of gravitational waves (the latter of which earned him the [2017 Nobel Prize in Physics](#)). He was also a talented teacher and mentor, training several generations of experimental physicists as part of his professorship at MIT.

In both projects, Rainer demonstrated the importance of taking the long view of experiments. When he joined the Dicke lab at Princeton in 1962, the group was just beginning to design experiments to detect the remnant glow from the early Universe (Dicke's group was "scooped" by Penzias & Wilson at Bell Labs in 1965). Rainer continued making improvements to CMB

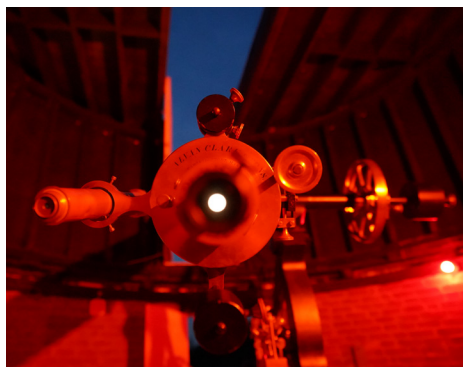
measurements, eventually (27 years later) co-founding the [Cosmic Background Explorer \(COBE\)](#) experiment that first detected the fluctuations in the background that are the signatures of the lumpiness in the Universe out of which all structures formed. Similarly, already in the early 1970s, Weiss had come up with the idea of using laser interferometers to measure gravitational waves. At the time, the technology was not mature enough to build what would eventually be the [Laser Interferometer Gravity Observatory \(LIGO\)](#). Through years of null results, Rainer and his collaborators persevered, culminating in LIGO's first detection in September 2015, more than 40 years later.

Rainer was gracious and generous with his time. I personally treasure how he approached [his visit to Seagrave](#) with no pretensions, showing interest in everyone's work and stories without any signs of pretentiousness and without stressing his status as a world-renowned physicist. Gener-



ations of physicists will miss working and talking with him.

Observing Reports



Seagrave Observatory Night Saturday, July 5, 2025

Weather: Hazy to partly-cloudy, 70° calm

Participants: Bob Horton, Mark Munkacsy, Jim Meltzer, Jim Hendrickson

Attendees: 0

Observed: Moon

Photos: <https://flic.kr/s/aHBqjCkKTZ>

Report by Jim Hendrickson

Saturday, July 5 saw our first open night in eight weeks to not be cancelled due to unfavorable weather. Sky conditions were mostly clear with intermittent haze, making viewing anything other than the 79% gibbous Moon impractical.

Mark Munkacsy opened the 16-inch Meade and reported evidence of a mice infestation. Bob Horton opened the 8-inch refractor, but sky conditions and a lack of visitors had us all gathered in the dome for views of the Moon during most of the hour we stayed.

Two or three bats were on the hunt, silhouetted against the twilight sky over the observatory. About a half-dozen fireflies sparkled sporadically in the backyard, and a lone treefrog was heard in the pond.

Several area fireworks shows could be seen and heard.



Seagrave Observatory Night Saturday, July 12, 2025

Weather: Clear

Participants: Michael Corvese, Francine Jackson, Jim Hendrickson

Attendees: ??

Observed: M17, M13, M16, M6

Photos: <https://flic.kr/s/aHBqjCpVYK>

Report by Jim Hendrickson

Saturday, July 12 was an open observatory night following the monthly meeting, with Michael Corvese on the Clark, myself on the 12-inch Meade, and Francine Jackson directed visitors and had conversations about the solar system and night sky, and gathered people to view a low northern pass of the International Space Station. About 15 members and guests observed with us this evening.

As it doesn't get dark until well after 9:00pm this time of year, the first object visible was Vega, which I was able to align the scope on. Since the Double Double is just 2° from Vega, it was my first shown object until it was dark enough to view other objects, which included Albireo, M11 and M13.

The Moon rose at around 10:00pm, brightening the sky significantly. This limited viewing to the brighter objects. I finished with the Collinder 399, the Coathanger, which showed nicely in the guide scope.



Seagrave Observatory Night Saturday, July 19, 2025

Weather: Clear

Participants: Bob Janus, Jay Baccala, Francine Jackson, Kathy & Steve Siok, Jim Hendrickson

Attendees: 15

Observed:

Photos: <https://flic.kr/s/aHBqjCswkS>

Report by Bob Janus

No moon, so only viewed Antares with the Alvan Clark. Tried to look at

M4, but could not locate it possibly due to the brightness of neighboring Antares.

About 10-15 visitors.

Seagrave Observatory Night Saturday, July 26, 2025

Weather: Cloudy



Seagrave Observatory Night Saturday, August 2, 2025

Weather: Clear

Participants: Bob Janus, Rich Doherty, Jim Hendrickson, Dan Fountain, Michael Kerr

Attendees: 15

Observed: Moon, M51, M13, M27, M57, Albireo, Coathanger

Photos: <https://flic.kr/s/aHBqjCsqu1>

Report by Bob Janus

As indicated in the accompanying photo, there was a problem with the Alvan Clark clock drive last night. Not sure what the problem is. There are no signs of any gear wear (i.e. metal fillings) from either the worm gear or the upper rim of the shaft. Could someone please examine this problem further? I would be available to work with them.

Without the clock drive we still were able to manually keep the Alvan Clark pointed at the moon for folks to enjoy. Very good sky conditions and the waxing gibbous displayed many features. Several people got amazingly good hand held cell phone photos that even captured the Straight Wall.

Even more amazing was the performance of Steve Hubbard's Pegasus imager on the Meade 12!

There was a good turn-out but I do not know the headcount. We closed at 11:00 pm

– Bob



River Bend Farm, Uxbridge MA Friday, August 8, 2025

Weather: Clear, 70° calm

Participants: Francine Jackson, Bob Janus, John Kocur, Jim Hendrickson

Attendees: 25

Observed: Moon, Double-Double, Albireo, Alcor and Mizar, M27, M57.

Photos: <https://flic.kr/s/aHBqjCkKTZ>

Report by Francine Jackson

After a three-month “hiatus,” the skies above River Bend Farm in Uxbridge were beautiful, and Jim Hendrickson, Bob Janus, John Kocur and Francine Jackson set up telescopes on the hill. The main attraction was to be the almost Full Moon as it rose through the trees.

Despite the brightness of the Moon, several deep sky objects were shown, including the double-double, Albireo, Alcor and Mizar, M27, M57, and others..

Also, others brought their equipment with them, including a family who needed Jim’s help to put their telescope together, and Ranger Sherine’s partner Savannah, who placed herself in great position to watch the Moon rise over the pond.

All together, about 25 members of the public came, including several children, and all totally enjoyed the clear summer night under the stars.

Seagrave Observatory Night Saturday, August 9, 2025

Weather: Clear, 73° calm

Participants: Matt White, Mike Kerr, Jim Hendrickson and Francine Jackson

Attendees: 25

Observed: Moon, Double-Double, Albireo, Alcor and Mizar, M27, M57, T Lyrae.

Photos: <https://flic.kr/s/aHBqjCr7yE>

Report by Matt White, Francine Jackson & Jim Hendrickson

Before the scheduled open night last evening, I went up to the observatory and inspected the Alvan Clark telescope. Upon a visual and functional inspection, I could not find any operational issues with the telescope. A functional test revealed that all the clockworks were working as designed, and the RA axis was moving normally. A visual inspection revealed a missing screw on the governor (which we knew about) and the bent weight rod on the pressure plate which is also a pre existing condition. The weight rod can slip, and get in the way of the sector arm, although Mike and Jim have indicated that this wasn’t the case last Saturday evening. Another possibility would be that the RA lock wasn’t tight enough, but I’m not convinced that is the case either. The most likely cause is either the pressure plate worm was not fully engaged, or the RA slow motion control was not set to the “sweet spot” causing the object to drift out of view. The targeted object will drift out of

the field very quickly if the RA slow motion is not in the correct position. I did find a screw to replace the one missing in the governor. As for the pressure plate rod, I’m going to use a small amount of blue Locktite to keep the rod in the north position. If you tighten it down, the bend faces south, exactly what we don’t want to happen.

As soon as the sky got dark enough, I trained the scope over to Vega and locked it down. After fine tuning the slow motion control, the scope held the target rock steady. As soon as the moon came out of the trees, we trained over and showed it for the rest of the evening. Our last guests left around 11:00 pm.

On the Seestar, I showed M57, M16, M17, M27, M31 and M102. I tried to show M57 with the Clark, but it was hiding and I couldn’t see it.

We had almost 40 people come through last evening.

– Matt

It was a beautiful Saturday night, and Matt White, Mike Kerr, Jim Hendrickson and Francine Jackson welcomed the public.

Matt and Mike, while waiting for the Moon to rise, showed the bright star Vega, until the Moon appeared, when everybody wanted a peek through the 8-inch Clark.

Jim, in the 12-inch dome, was able to show M13, M27, M11, the double-double, and other deep sky objects.

Francine spent her time going between the two open domes, answering questions, and making the public aware of what was visible in the telescopes.

Throughout the night, about 25 visitors spend time with us on a clear, moonlit, Seagrave Saturday night.

– Francine

Saturday, August 9 could have been the best night of the year. Skies were clear and transparent, free of the wildfire smoke that had persisted for the previous few days. The temperature was in the low 70s with low humidity and light breeze.

This was my first session using the motorized roof on the 12-inch Meade, which works well, but no longer allows the operator to push the roof farther back on the rails, and it blocks a considerably large chunk of the south. Many objects in Scorpius and Sagittarius are no longer accessible.

The sky is now beginning to get dark enough to start observing by the 9pm start time even when there are no bright planets or Moon available. The first object to appear was Vega, which I aligned the telescope on. I moved to the Double Double and boosted magnification for the first object to show. As the sky darkened, I turned to M13, then had a request for a nebula, so I turned to M27. One of the visitors had talked about seeing a supernova remnant on a previous visit, likely the Crab Nebula, which led to a brief discussion about stellar evolution. We then checked out M57, which was somewhat easier to see. The light from a 99% gibbous Moon limited us to view only the brightest objects available. I then showed M11, one of the finest open clusters in the sky,

About 25 visitors came, some visiting the



scope two and three times. A boy of about 10-12 years in age, filled with curiosity but a little shy to speak up at first, came with his mother, and they spent considerable time with Francine and me at the telescope. This was their first visit, and they were very interested in returning on future Saturday nights.

Observing conditions remained ideal later into the evening, and the rising Sturgeon Moon cast a pleasant light over Seagrave Observatory. Two or three fireflies flashed occasional signals from the back woods, while the crickets and katydids put on a particularly active chorus.

When most of the visitors left, I decided to showcase T Lyrae as the last object of the night. I used the scope's coordinates to slew to the notable carbon star just 2° from Vega, which showed a deep red hue rivaling that of the red lights in the observatory. By this time, though, it was already after 11:00pm, and Matt and Mike were already closing the dome.

– Jim



Seagrave Observatory Night Saturday, August 16, 2025

Weather: Partly Cloudy, 70° calm

Participants: Michael Corvese, Jay Baccala, Jim Hendrickson, Michael Kerr

Attendees: 20

Observed: M15, M92, M29 and M39

Photos: <https://flic.kr/s/aHBqjCsYfq>

Report by Michael Corvese, Jay Baccala

We began the night with high hopes and a clear sky at sundown, but clouds quickly moved in for a mostly cloudy night. During the breaks in the clouds, Jay was able to observe several Messier objects with the 12" and was also able to use the SeeStar on a couple of objects. Even during the breaks, the sky's transparency was poor (only able to see 3 stars of the little dipper), making it difficult to use the Clark. I had hoped to observe some double stars, but even Albireo was difficult to spot visually. Though we couldn't use the Clark, Jim and I entertained our visitors with the design and history of the telescope. We had about 20

visitors to the observatory. I will add a version of this report to NSN.

– Michael

We got off to a cloudy for sure. Once I got Vega centered things got better. I was able to get eyes on M3, M13, M29, M39 and M92. I had M31 and M27 but they were not very visible in the eyepiece. The see-star did join in the action after some fits and starts.... I got M15, M92, M29 and M39 with it. I am attaching some very quick edits of each of them.

– Jay



Seagrave Observatory Night Saturday, August 23, 2025

Weather: Clear, 73° light breeze

Participants: Mark Munkacsy, Bob Janus, Laura Landen, Francine Jackson, Jim Hendrickson

Attendees: 30-??

Observed: Albireo, Alcor and Mizar, M11, M13, M57, NGC 7000, T Lyrae, Garnet Star.

Photos: <https://flic.kr/s/aHBqjCt1p1>

Report by Jim Hendrickson

Our streak of favorable Saturday nights continued on August 24. A sizable group had arrived just before darkness, as we started our seasonally-adjusted earlier start time of 8:00pm.

Mark Munkacsy entertained a steady group in the 8-inch dome with simple explanations of the astrophysical properties of objects he pointed the telescope at, including M57 and M13.

Bob Janus trained the 12-inch on Albireo, in Cygnus and other objects.

Francine welcomed guests and shared her knowledge of constellations and the solar system.

Laura Landen set up the Seestar S30 in back, near the 12-inch roll off, and captured an image of NGC 7000, the North America

Nebula. Jay Baccala set up a Seestar S50 in the front yard and imaged M11, M20, and M23.

This was perhaps the darkest and most transparent skies that can be experienced at Seagrave Observatory, at least at this time of year. Unlike last week, the Milky Way was clearly visible from Cepheus all the way to Sagittarius, with the Great Rift and the Scutum area fairly distinct.

Towards the end of the evening, I helped Bob locate some carbon stars with the 12-inch, starting with T Lyrae, which didn't appear to be as deep red as it did the previous week. We then moved to mu Cephei, the Garnet Star, which appeared rather bright and had a distinct deep golden color.

Seagrave Observatory Night Saturday, August 30, 2025

Weather: Clear, 60°, calm

Participants: Bob Horton, Bob Janus, Dan Fountain, Rich Doherty, Francine Jackson, Jim Hendrickson

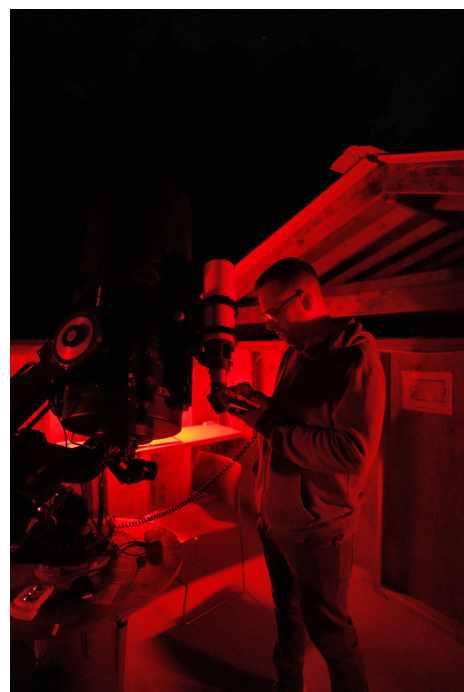
Attendees: 12

Observed: Albireo, Alcor and Mizar, M11, M13, M57, NGC 7000, T Lyrae, Garnet Star.

Photos: <https://flic.kr/s/aHBqjCsH7N>

Report by Bob Janus

Sky conditions similar to last Saturday but with a near to first quarter Moon to see in the early evening. On my first night operating the Meade 16" looked at M 8, 20, 11, 13, 16, 31, 57 and the Moon and Alberio. After people looked through the eyepiece I showed them Hubble images of what they had been viewing.





AstroAssembly 2025

Friday & Saturday, October 3 & 4

Seagrave Memorial Observatory, 47 Peeptoad Road, North Scituate, Rhode Island

AstroAssembly is the annual convention and fund-raising event for Skyscrapers, Inc., owners and operators of Seagrave Memorial Observatory, located in North Scituate, RI. The first "Amateur Astronomical Convention of the Skyscrapers" was held on August 2 & 3, 1952. Through the years, we have welcomed many notable speakers, including well-known astronomers, astrophysicists, scientists, even astronauts. This annual event brings together amateurs from all over the New England area to reconnect with old friends, learn something new, and just have an enjoyable day.

The festivities will begin with **AstroAssembly Eve on Friday night** for those in the area; registration for AstroAssembly is not necessary to attend.

There will not be a Saturday evening banquet and speaker as in years past. We will instead break at 5 PM for light dinner and socializing, as well as distribution of awards and prizes. The program will conclude with our evening speaker at 6:30 PM.

All day Saturday at Seagrave Observatory

Swap Table (please bring your own table), Solar Viewing, Astro-Imaging Contest, Homemade Telescopes (bring yours!).

9:00 AM Registration Open

Morning coffee and pastries provided. Registration includes evening pizza and snacks.

Members: \$25 Non-members: \$30

10:30 AM Skyscrapers Memorial

A celebration of the lives and contributions of members Tina and Dave Huestis. We will also invite those present to share their special memories.

11:00 AM Solar Observing Forum

Come observe the Sun! Check out the varied equipment our members use to capture solar images. If you have something unique to share, bring it along and set up in our courtyard.

Astro-Imaging Contest: Noon to 4:00 PM

See our website for more information.

12:00 PM Deli Lunch

Choice of Grinder (Italian Deluxe, Turkey or Roast Beef), Spinach Pie or Salad (Garden, Garden w/ Grilled Chicken). \$15 per person. Pre-order and payment with registration required.

1:15 PM A. J. Mastrangelo, NBC 10 WJAR Meteorologist

Meteorology & Astronomy - How Each "Sky Science" Relies on the Other

2:30 PM Mark Munkacsy, Skyscrapers, Inc. & AAVSO

Protocols for Observing Variable Stars with Smart Telescopes

3:45 PM Dr. Raymond Simons, Providence College

The Formation of Galaxies over Cosmic Time

5:00 PM Socializing & Light Dinner

Pizza, snacks, soda, water and coffee included with basic registration.

6:00 PM Raffle and Astro-Imaging Awards

6:30 PM Rick Lynch, Skyscrapers, Inc.

The Life and Times of William Tyler Olcott

8:00 PM Observing at Seagrave Memorial Observatory

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

Information & Registration

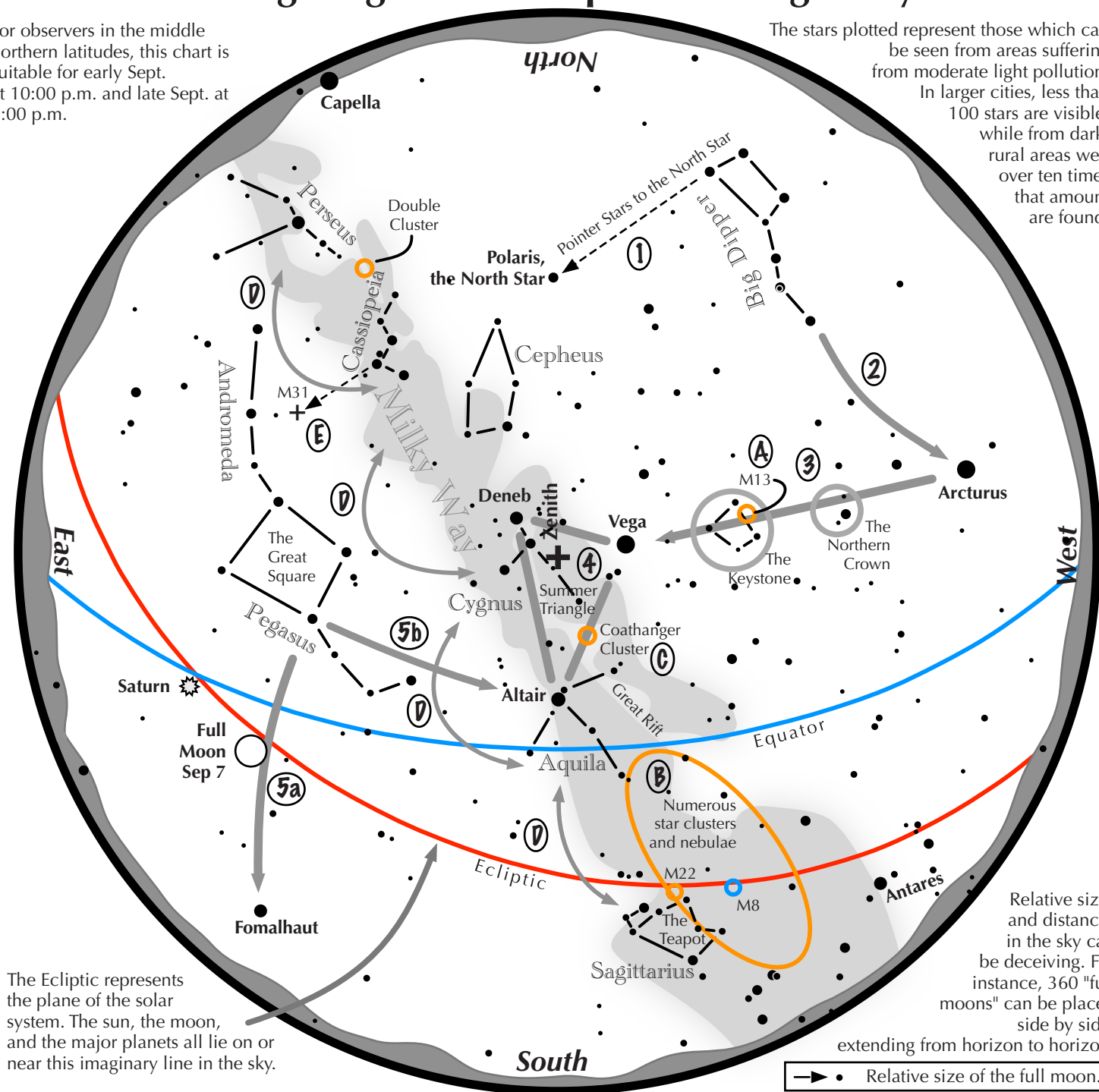


theskyscrapers.org/astroassembly2025

Navigating the mid September Night Sky

For observers in the middle northern latitudes, this chart is suitable for early Sept. at 10:00 p.m. and late Sept. at 9:00 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



Navigating the mid September night sky: Simply start with what you know or with what you can easily find.

- 1 Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
- 2 Follow the arc of the Dipper's handle. It intersects Arcturus, the brightest star in the September evening sky.
- 3 Nearly overhead shines a star of similar brightness as Arcturus, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
- 4 The stars of the summer triangle, Vega, Altair, and Deneb, shine overhead.
- 5 The westernmost two stars of the Great Square, which lies high in the east, point south to Fomalhaut. The southernmost two stars point west to Altair.

Binocular Highlights

- A: On the western side of the Keystone glows the Great Hercules Cluster.
- B: Between the bright stars Antares and Altair, hides an area containing many star clusters and nebulae.
- C: 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger.
- D: Sweep along the Milky Way for an astounding number of faint glows and dark bays, including the Great Rift.
- E: The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval.

Astronomical League www.astroleague.org/outreach; duplication is allowed and encouraged for all free distribution.



The Sun, Moon & Planets in September

This table contains the ephemeris of the objects in the Solar System for each Saturday night in September 2025. 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	6	10 59.8	6 25.1	Leo	-26.8	1904.0	-	-	-	1.008	06:17	12:44	19:11
	13	11 25.0	3 46.5	Leo	-26.8	1907.3	-	-	-	1.006	06:24	12:42	18:59
	20	11 50.1	1 04.4	Vir	-26.8	1910.9	-	-	-	1.004	06:31	12:39	18:46
	27	12 15.2	-1 39.1	Vir	-26.8	1914.6	-	-	-	1.002	06:39	12:37	18:34
Moon	6	21 38.7	-17 36.0	Cap	-12.6	1910.5	157° E	96	-	-	18:48	00:17	05:58
	13	3 54.8	24 33.8	Tau	-12.3	1942.6	109° W	66	-	-	21:32	05:33	13:43
	20	10 31.3	9 36.0	Leo	-8.9	1824.5	21° W	3	-	-	05:10	11:50	18:18
	27	15 49.1	-26 00.6	Sco	-10.9	1773.0	57° E	23	-	-	12:35	16:55	21:12
Mercury	6	10 36.2	10 43.3	Leo	-1.5	5.2	7° W	96	0.333	1.308	05:41	12:23	19:04
	13	11 26.0	5 26.2	Leo	-1.8	4.9	2° W	100	0.372	1.377	06:23	12:45	19:06
	20	12 12.0	-0 06.3	Vir	-1.1	4.8	6° E	99	0.411	1.399	07:01	13:03	19:04
	27	12 54.8	-5 28.1	Vir	-0.6	4.9	11° E	95	0.442	1.387	07:35	13:18	18:59
Venus	6	9 04.6	17 06.0	Cnc	-3.9	12.2	30° W	86	0.720	1.385	03:43	10:50	17:56
	13	9 38.6	14 48.2	Leo	-3.8	11.9	28° W	87	0.719	1.421	03:58	10:56	17:53
	20	10 11.9	12 09.6	Leo	-3.8	11.6	27° W	89	0.719	1.456	04:14	11:02	17:48
	27	10 44.8	9 13.9	Leo	-3.8	11.4	25° W	90	0.718	1.488	04:31	11:07	17:42
Mars	6	13 11.1	-7 19.6	Vir	1.6	4.1	35° E	96	1.574	2.281	09:19	14:54	20:30
	13	13 28.2	-9 07.3	Vir	1.6	4.1	33° E	97	1.565	2.305	09:15	14:44	20:13
	20	13 45.7	-10 53.0	Vir	1.6	4.0	31° E	97	1.557	2.327	09:11	14:34	19:56
	27	14 03.7	-12 35.8	Vir	1.6	4.0	29° E	97	1.548	2.346	09:08	14:24	19:40
1 Ceres	6	1 18.9	-7 39.9	Cet	8.0	0.6	145° W	99	2.942	2.056	21:28	03:02	08:36
	13	1 15.2	-8 18.4	Cet	7.8	0.6	152° W	99	2.939	2.011	20:59	02:31	08:03
	20	1 10.5	-8 56.7	Cet	7.7	0.6	159° W	100	2.936	1.979	20:29	01:59	07:28
	27	1 05.1	-9 32.7	Cet	7.6	0.6	163° W	100	2.933	1.959	19:54	01:21	06:48
Jupiter	6	7 21.2	22 06.1	Gem	-1.9	34.6	55° W	99	5.169	5.682	01:36	09:04	16:32
	13	7 26.2	21 57.0	Gem	-1.9	35.2	61° W	99	5.172	5.592	01:14	08:41	16:08
	20	7 30.7	21 48.1	Gem	-1.9	35.8	66° W	99	5.174	5.495	00:52	08:18	15:45
	27	7 34.9	21 39.7	Gem	-2.0	36.5	72° W	99	5.177	5.395	00:29	07:55	15:21
Saturn	6	0 02.7	-2 25.0	Psc	0.7	19.3	164° W	100	9.555	8.582	19:49	01:42	07:35
	13	0 00.8	-2 38.1	Psc	0.6	19.4	171° W	100	9.552	8.557	19:20	01:13	07:05
	20	23 58.9	-2 51.4	Psc	0.6	19.4	177° W	100	9.550	8.547	18:51	00:43	06:35
	27	23 56.9	-3 04.5	Psc	0.6	19.4	173° E	100	9.548	8.552	18:23	00:14	06:04
Uranus	6	3 57.6	20 14.8	Tau	5.7	3.7	102° W	100	19.511	19.273	22:21	05:40	13:00
	13	3 57.5	20 14.6	Tau	5.7	3.7	109° W	100	19.509	19.158	21:54	05:13	12:32
	20	3 57.2	20 13.9	Tau	5.7	3.7	116° W	100	19.508	19.048	21:26	04:45	12:04
	27	3 56.8	20 12.6	Tau	5.7	3.7	123° W	100	19.507	18.945	20:58	04:17	11:36
Neptune	6	0 06.7	-0 46.0	Psc	7.8	2.4	162° W	100	29.888	28.925	19:47	01:46	07:45
	13	0 06.0	-0 50.5	Psc	7.8	2.4	169° W	100	29.888	28.898	19:19	01:18	07:17
	20	0 05.3	-0 55.2	Psc	7.8	2.4	176° W	100	29.887	28.885	18:51	00:50	06:48
	27	0 04.6	-0 59.9	Psc	7.8	2.4	176° E	100	29.887	28.887	18:23	00:22	06:20
Pluto	6	20 19.4	-23 28.4	Cap	14.5	0.2	138° E	100	35.342	34.588	17:28	22:00	02:31
	13	20 19.0	-23 29.8	Cap	14.5	0.2	131° E	100	35.346	34.678	17:00	21:32	02:03
	20	20 18.6	-23 30.9	Cap	14.5	0.2	124° E	100	35.351	34.778	16:33	21:04	01:35
	27	20 18.3	-23 31.8	Cap	14.5	0.2	117° E	100	35.356	34.886	16:05	20:36	01:07



First Impressions with the Pegasus SmartEye

by Steve Hubbard

So.... I went out on a limb and pre-ordered one of these last March. It arrived at my house in early July. Mine was among the first batch produced, the second is not due till this December and has already gone up in price by about \$400.

I've been evaluating it since then in between lots of crappy weather and humidity. I live in a Bortle 7 zone next to Worcester with LOTS of light pollution.

Here are some screen captures from it from the backyard. All taken with my 14" f/4.6 Skywatcher alt-az motorized dob.

All are 5 or 10 second stacks of about 2 to 3 minutes total each and mirror what you also see through the "eyepiece" part.

This is sort of a combo eyepiece, com-

puter assisted, straight imaging thing.

You can look through the top and see the image building from B+W to color in real time.

You connect this to a phone or tablet via an on board QR code and can control it from either.

There is also a function to share another QR code with others in the area so that they can also see live whatever you are viewing.

The downloaded images mirror what you see through the "eyepiece," only the live view with your eye is brighter and more vivid. There is also a 3D effect with brighter stuff that's nice.

The eye relief is only 12 mm, so you have to jam your eye up to it to fully see the field

of view and there is some coma.

It takes a bit of getting used to. However, it is a lot easier to use than connecting up a camera to a computer and all the wires that can go with it.

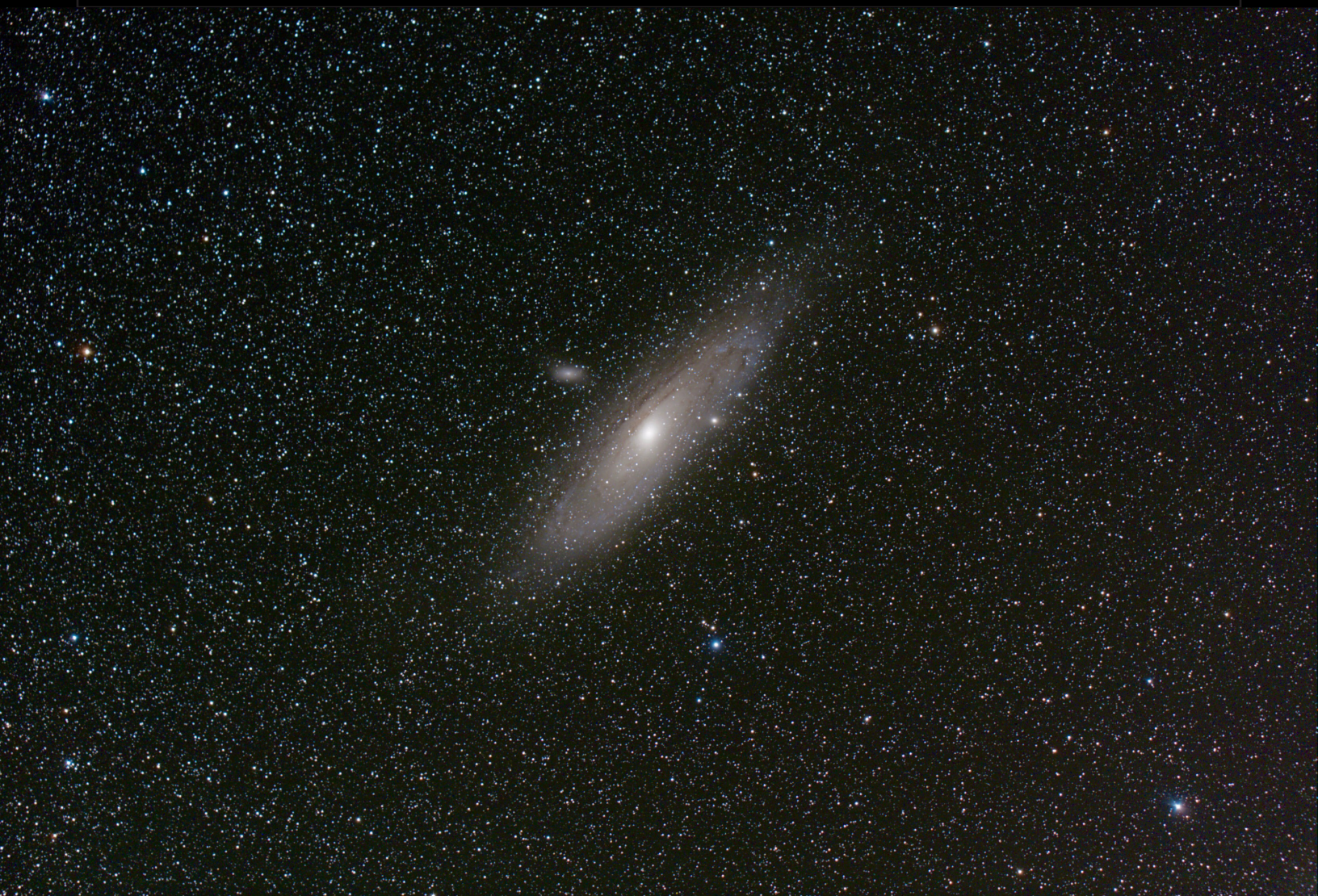
It does a good job at letting me see stuff I can barely see where I live because it's so washed out due to light pollution and in full color

It's got kind of a narrow field of view though, so it's not suitable for large extended objects. It is best on globular clusters, planetary nebulae, galaxies and star clusters.

Here's a link to the Pegasus page about what this is in case you're interested. <https://smarteyepiece.com/>



Astrophoto Gallery



M31 Andromeda Galaxy by Bob Horton

Taken August 28 from Sandwich, NH using 60mm Takahashi refractor and the new AM3 mount.



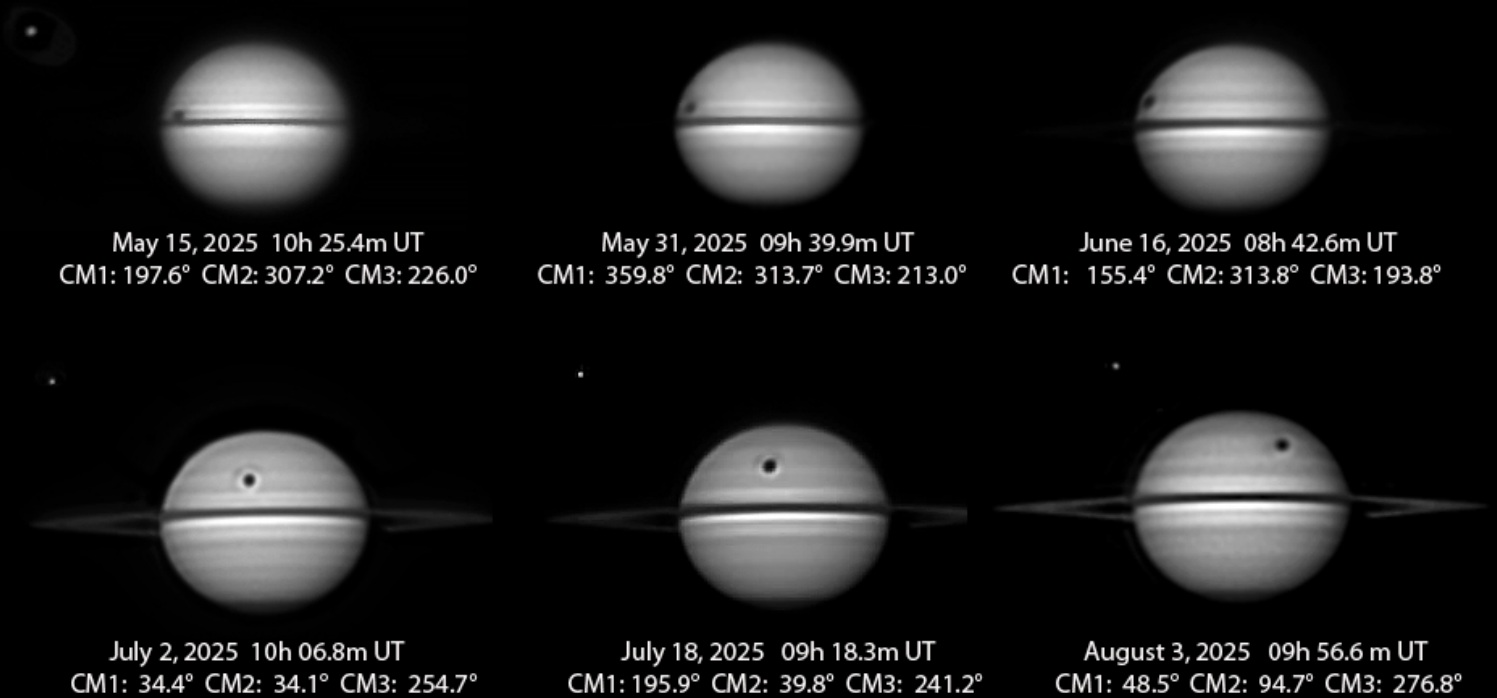
A great solar flare by Conrad Cardano

This was a 2.5 hour [video](#) shoot of the sun on Aug 30, 2025. It went from 8:07am to 10:30am. I took a 1500 frame video of the sun every 4 minutes for 3 hours. There was a total of 250 gigabytes of data.

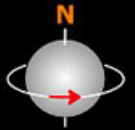
Scope: WO 71mm f/5.9 apo; Camera: ASI174MM; Quark Chromosphere; Captured with SharpCap; Stacked with Autostakkert; Aligned with Astro Art

Notice the solar eruption.
<https://flic.kr/p/2rrtuRH>

Shadow Transits of Titan



Meade LX 200GPS SCT 250mm f/10 ZWO ASI 462MM camera
Baader 610nm R-IR longpass filter Vernonscope 1.25X Barlow
Overall Seeing: Above Ave Overall Transparency: Very Poor, through clouds
All images by Gregory T. Shanos Longboat Key, (Sarasota), Florida USA



Titan Shadow Transits by Greg Shanos

Taken July 6 in a Bortle 8 sky.

Attached are six Shadow Transits of Titan (I was unaware of the April 30th Transit). Four more to go- Aug 19th, Sept 4, Sept 20, and Oct 6th. All are basically a fortnight apart! All images taken with horrific weather conditions through clouds, haze and humidity. Fortunately, the seeing was above average. I chose the best image from each observing session. Consider publishing in the next issue of the Strolling Astronomer.

Note how the shadow begins just above the rings and gets higher and higher on the disk with each successive observation. In addition, the angular diameter of Saturn is increasing. (all images were taken using the same optical hardware). How cool is that!



NGC 7331 with SN 2025rbs by Jay Baccala

Please find attached my 3rd attempt at NGC 7331 with SN2025rbs. My first two tries were with the Seestar and I felt that although you could see the supernova, the resolution was lacking. So I pulled out the big(ger) guns and shot it with my C6 and the ASI585MCpro. Here are the details.

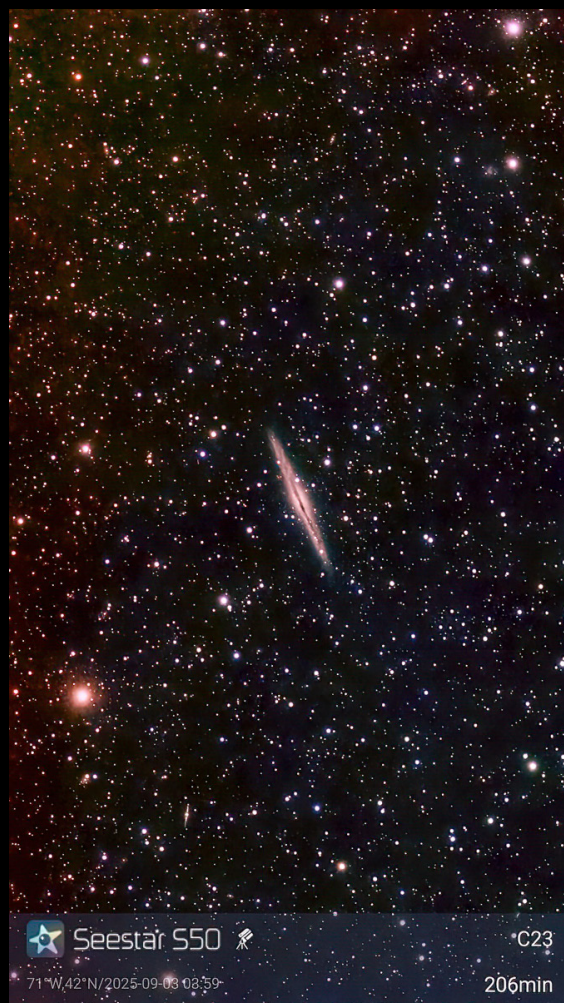
Scope:: C6 with .63 reducer, 945mm focal length; Camera: ZWO ASI585MCPro with svbony UHC filter; 3hrs 15mins (65 x 180 sec); Stacked and processed in pixinsight.

Deep Sky images by Jeff Padell

Put the Seestar S50 out for the entire night of September 2 and got good shots of two different objects.

Caldwell 19 The Cocoon Nebula

Caldwell 23 an edge on galaxy known as the Silver Sliver Galaxy





Cosmic Coffeehouse

*Informal astronomy chat room
meets on the 15th of each month at 7:00pm*

- interactive ZOOM format
- current news
- featured speakers
- equipment reviews
- observing notes
- fun 'n games

To receive your invite, send request to Astro-Geek@comcast.net

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@ 6:30pm

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Prof. Bharat Ratra

Department of Physics, Kansas State University



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STARRY SCOOP

Editor: Kaitlynn Goulette

WHAT'S UP

The densely packed Sagittarius region, home to the galactic center, is moving past "center stage" and preparing to sink below the western horizon this month. The Sagittarius region is on borrowed time, but the Summer Triangle remains high overhead, spanning 30 degrees and staying visible until winter. It's comprised of the 1st magnitude stars, Vega, Deneb and Altair, each the brightest in its respective constellation.

This month, the planets make great celestial targets in both the morning and evening skies. Saturn reaches opposition on the 21st, which means it will be positioned due south at midnight. The Ringed Planet rises earlier each night as the weeks go on, offering excellent telescopic observing opportunities. Jupiter can be spotted in the hours before sunrise, positioned in the constellation Gemini, with Venus peaking over the treeline. The waning crescent moon can be found close to Jupiter on the 16th.

The September equinox occurs on the 22nd, marking the start of fall for those in the Northern Hemisphere. On this day, night and day will be of equal length as the sun shines directly above the equator. This also signals the beginning of shorter days, with nightfall coming earlier and earlier as the weeks pass.

On September 12th, 1962, President John F. Kennedy delivered his historic speech,

"We choose to go to the moon," which sparked the beginning of the Space Race in America. This powerful address outlined the Nation's dedication to science and space exploration and inspired generations of scientists, engineers, and astronomers. His words established the foundation for NASA's Apollo missions and the future of space exploration.

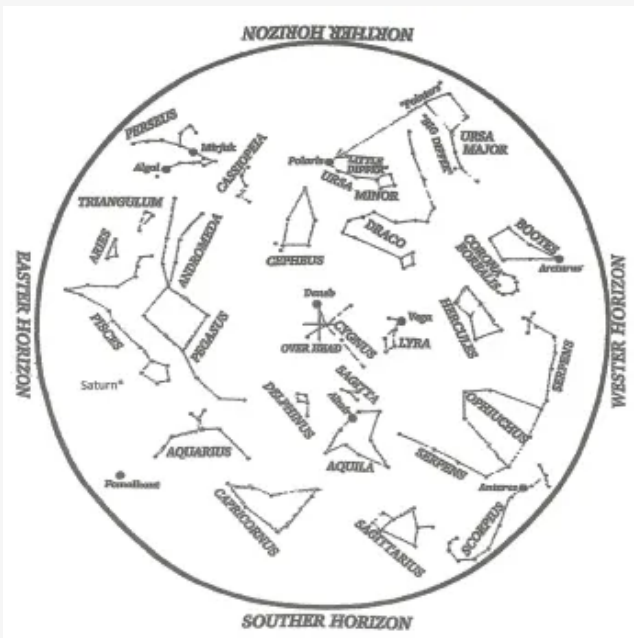
SEPTEMBER'S SKY

7: Full Moon

21: New Moon

21: Saturn at Opposition

22: September Equinox



Credit: Roger B. Culver

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

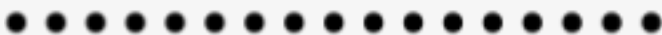
OBSERVATIONS

I recently had the opportunity to attend Arunah Hill Days, an annual event hosted by the Arunah Hill Nature and Science Center in Cummington, MA. Far from major light pollution, Arunah Hill is a popular destination for local astronomers.

During the day, attendees of Arunah Hill Days were guided through the ground's hiking trails and explored wooden cabins built by Boy Scouts several years ago. After they were tired out, the rocket building began. This yearly tradition is one of my favorites and brings a sense of friendly competition that makes the event even more enjoyable.

Before sunset, presentations about various astronomy topics were held for guests. I had the pleasure of sharing my experiences as a young girl in astronomy and how I've shared it with others, alongside Jenny Powers, who spoke on "Women Of the Night Sky." Bob Donahue also presented on the history of constellations and John Nardacci shared his stunning photography of wildlife and the night sky.

After darkness overtook the sky, our gaze shifted upwards. I gave tours of the night sky and a medley of constellations with a green laser pointer and also enjoyed stunning views through Arunah Hill's 17-inch Dobsonian telescope.

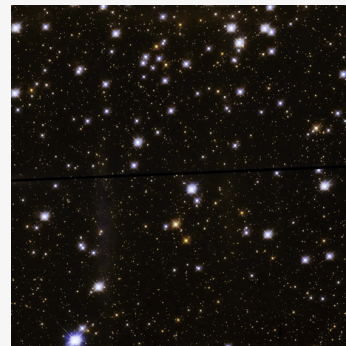


The "Starry Scoop" recently reached its five-year anniversary and to celebrate reaching this milestone, I have launched a new radio show titled "Starry Scoop Live." To watch new episodes, find me on Facebook, Instagram, YouTube, or contact me at starryscoop@gmail.com. Thank you to all my readers for the support I've received throughout the years.

OBJECT OF THE MONTH

The featured object for the month of September is the Wild Duck Cluster, designated Messier 11. Located in the constellation Scutum about 6,000 light-years from Earth, it is one of the most compact open clusters known. The name "Wild Duck Cluster" originates from the V-shaped pattern formed by its brightest stars, which stargazers thought resembled a group of flying ducks. Estimated to be around 220 million years old, the cluster shines with an apparent magnitude of 6.3,

Find this cluster in the constellation Scutum, about two degrees southeast of Beta Scuti. It can be glimpsed with the naked eye under pristine skies, but binoculars or a small telescope resolves more detail. Good luck!



Wild Duck Cluster

Photo Credit: NASA, ESA, STScI and P. Dobbie (University of Tasmania)



Rocket launches at Arunah Hill

Photo Credit: Kaitlynn Goulette

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