the Skyscraper

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May 2025

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

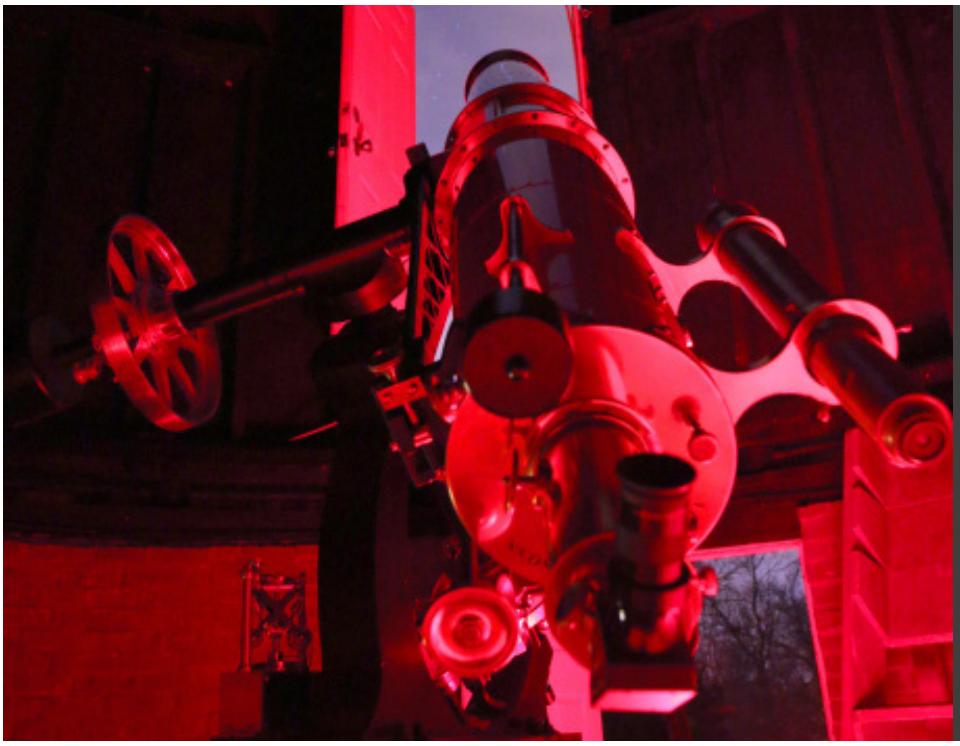
In This Issue:

May Meeting: Searching for Life Beyond Earth by Alessandro Massarotti

Saturday, May 3 @ 6:30pm EDT at Seagrave Memorial Observatory
In-person and on Zoom https://us06web.zoom.us/j/87338930081?pwd=lMhrkhx7Jd3O2ScGHdQt51SzP5W9Lw.1

Professor Massarotti's upcoming talk explores the ongoing search for life beyond Earth. He will introduce the methods used to identify potentially habitable planets orbiting other stars, and highlight discoveries from rovers on Mars, probes exploring asteroids, and missions to the distant moons of Jupiter and Saturn.

Alessandro Massarotti is an Associate Professor at Stonehill College and Director of the Earth and Planetary Science Program. His academic interests span planetary and stellar astronomy, as well as theoretical cosmology. His research focuses on the observational study of planet ingestion by red giant stars, the analysis of photometric data to characterize binary systems in open clusters, and the theoretical determination of cosmological vacuum energy.



Observing Events:

Open Nights at Seagrave*
May 3, 9-11 PM
May 10, 9-11 PM
May 17, 9-11 PM
May 24, 9-11 PM
May 31, 9-11 PM

Off-site Public Observing*

Chase Farm, Lincoln RI
Thursday, May 1, 7:30 - 9:00 PM

North Scituate Public Library
Friday, May 9, 8:00 - 9:00 PM

*Members are welcome and appreciated at all of these events

President's Message

by Linda Bergemann

It is my pleasure to welcome three new members to our Executive Committee: Jay Baccala, elected as Trustee; John Kocur, elected as Member-at-Large; and Francine Jackson as Librarian. Additionally, Jim Hendrickson will add Historian to his current duties of Newsletter Editor and Webmaster. Please thank them for their service to the Society and share any suggestions you may have with them.

Another bright note! I have been informed that Skyscrapers' member John Briggs will be receiving this year's G. Bruce Blair Medal from the Western Amateur Astronomers (WAA). WAA is an organization that promotes liaison between astronomical groups and, in general, educates, encourages, and promotes interest in science and astronomy. The G. Bruce Blair Medal is the highest honor which the Western Amateur Astronomers bestow to an individual. It is considered the "Nobel Prize" of amateur astronomy and is awarded only to a living professional or amateur astronomer who has made an important contribution to amateur astronomy. John is a proud member of Skyscrapers (Rhode Island), Springfield Telescope Makers (Vermont) and Magdalena Astronomical Society (New Mexico). John credits receiving this award to his involvement in these organizations through the years. Upon receiving this award, John will join the ranks of Walter Scott Houston, Clyde Tombaugh, Leslie Peltier and other individuals of note. Please join me in congratulating John on his selection for this honor; it is well-deserved.

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

New Members
Welcome to Skyscrapers

Robert, Lisa, David & Ginette Delaplain of Hope

Steven Dooley of Cranston

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 **May 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.

Introducing Asteroid 15022 Francinejackson

by Jim Hendrickson

On February 24, 2025, the International Astronomical Union Working Group for Small Body Nomenclature (WGSBN) recognized Francine Jackson's contributions to astronomy education and outreach by naming an asteroid in her honor. The designation was announced in WGSBN Bulletin 5, #3, under New Names of Minor Planets.

Francine, a planetarian since 1978, was recently honored for her 50 years of service to Brown University's Ladd Observatory, and over 20 years of writing a weekly email newsletter for the Observatory. A Solar System Ambassador, she spends many nights at star parties for the public.

The asteroid, provisionally designated 1998 SM144, was discovered by Eric Walter Elst, a Belgian astronomer who has 3,866 minor planet discoveries to his credit. It was captured on a photographic plate exposed by the 1-meter Schmidt Telescope at European Southern Observatory's La Silla Observatory in Chile on September 20, 1998. It had been observed as early as 1992, and again in 1996, but was subsequently lost until being rediscovered in 1998.

Located within the main asteroid belt between the orbits of Mars and Jupiter, the asteroid, now officially cataloged as **15022 Francinejackson**, orbits the Sun every 1362.5 days, or 3.73 years.

Its synodic period is approximately 499 days, or 1.37 years, bringing it into opposition every 16 months, on average. As it is not a large object, and never gets closer than about 1 au from Earth, observers are better served to note its closest distance to Earth, a time point that can differ from opposition by several days. This deviation is due to its eccentric orbit, which also causes its closest distance to Earth to vary between 1.0 and 1.8 au.

Its absolute magnitude has been calculated to be 15.70. No solution has yet been provided for its physical diameter or rotation period, and no moons are known to exist. Using albedo properties of other nearby asteroids with comparable magnitudes indicate that the size of 15022 Francinejackson is likely between two and four kilometers.

Unlike many bodies in the main asteroid belt, 15022 Francinejackson has a relatively low orbital inclination. At just 2.25°, it tracks close to the ecliptic, the apparent path of the Sun in our sky. This keeps it close to the plane of the solar system, and it will frequently appear close to, albeit far fainter than, the bright planets.

The next several closest approaches are on March 30, 2026 at 1.407 au, July 16, 2027 at 1.795 au, and November 23, 2028 at 1.046 au. During the closest of its approaches, it remains at a dim 17.5 magnitude, not quite bright enough to see visually with our telescopes, but easily within reach of amateur astroimaging equipment.

Francine Jackson stands in front of Ladd Observatory with a commemorative display made by Jim Hendrickson that includes technical information, orbit diagram, orbital elements, and closest approaches of asteroid 15022 Francinejackson.

Learn more about 15022 Francinejackson

WGSBN Bulletin 5, #3
https://www.wgsbn-iau.org/files/Bulletins/V005/WGSBNBull_V005_003.pdf

IAU Minor Planet Center
https://minorplanetcenter.net/db_search/show_object?object_id=15022

JPL Solar System Dynamics Small-Body Database
https://ssd.jpl.nasa.gov/tools/sbdb_lookup.html#/?sstr=15022

Skylights: May 2025

by Jim Hendrickson

May's evening sky completes the transition from winter to spring, as the mighty hunter Orion sinks out of view early in the month, A perennial observing challenge, how late into the month can you still see Sirius? If you have a good southwestern horizon, you can probably still see it past the 10th, but can you see it as late as the 15th?

The stars of spring, within the constellations Leo, Virgo, Hydra, and Corvus, present themselves at their best position high in the south during early evening in May. Taking a telescopic tour through the Realm of the Galaxies in Leo, Virgo, and Coma Berenices is no longer a late-night adventure, and the big and little bears, Ursa Major and Ursa Minor, are at their highest positions in the northern sky.

A week into the month of May, the most prominent of the spring stars, Arcturus, crosses the meridian high in the south at midnight. If T Coronae Borealis, located about 24° to the east of Arcturus in the Northern Crown, were to flare, May would be the ideal time to watch it.

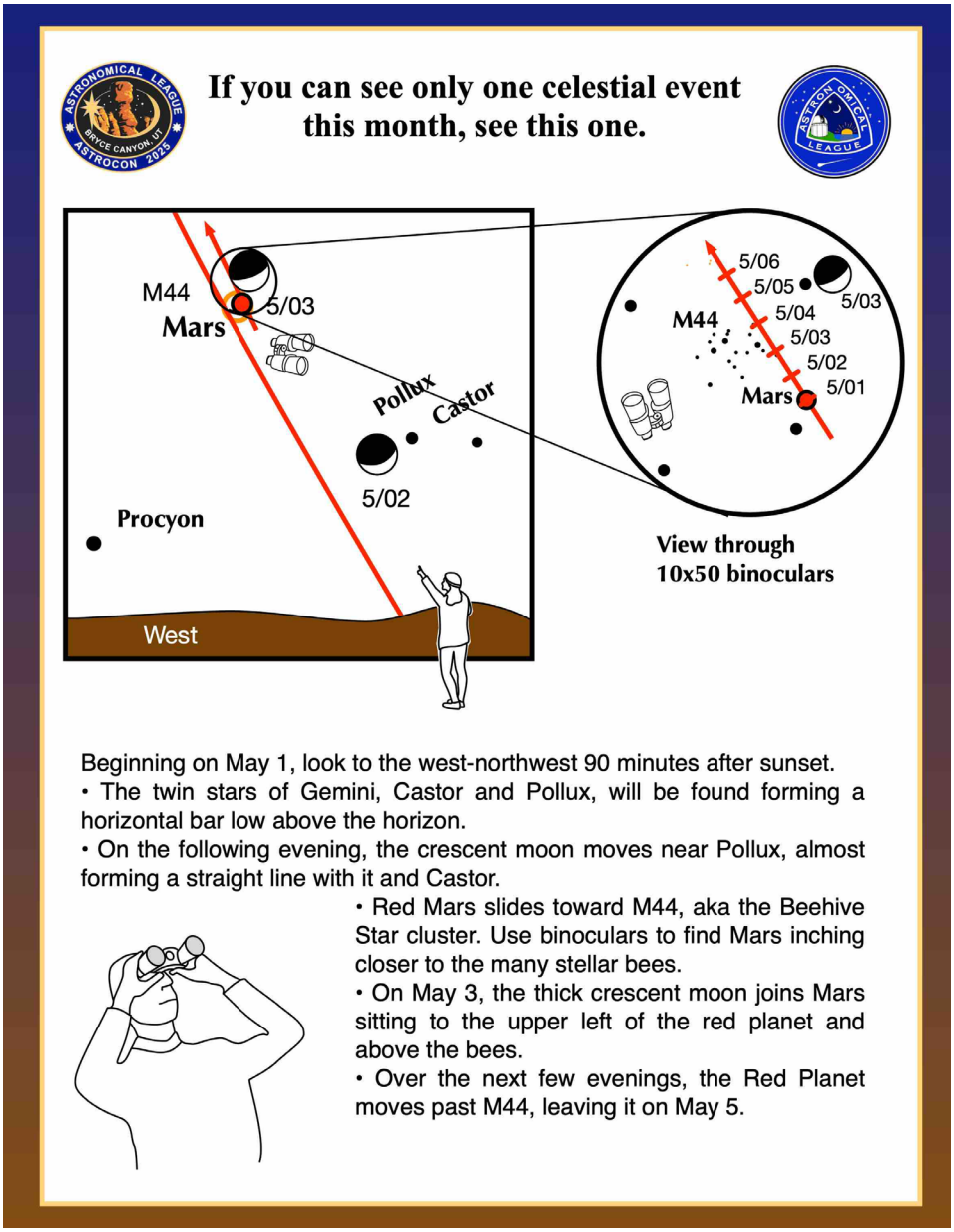
As Capella moves lower in the northwest, notice that Vega is moving higher in the northeast. The two stars appear to be level just after 10:00pm on the 1st, and by mid-month, this position occurs just after twilight. The stars of summer are soon to enter the sky, so enjoy spring while the weather is favorable.

The **Sun** enters Taurus on the 14th, after having spent the past 25.5 days traversing Aries.

The year's first sunset during the 8:00pm hour is on the 16th. Sunsets remain later than 8:00pm until August 4th.

The first day of the year with at least 15 hours of daylight is May 30. Daylight remains longer than 15 hours through August 11th.

On the 1st, the **Moon** reaches its most northerly declination of Lunation 1266, at 28.5° north. Note how far north of west it sets, and how late into the evening the crescent Moon remains visible, until almost 1:00am. Due to the libration angle, this is also a good time to look far across



Events in May

2	01:00	Vesta Opposition (mag. 5.7, 1.181 au)
2	21:00	Moon 2.3° S of Pollux
3	22:00	Moon 1.2° NE of Mars
3	23:00	Moon 1.7° NE of M44
4	00:00	Eta Aquariid Meteor Shower
4	09:52	**First Quarter Moon**
5	01:00	Mars 0.6° NE of M44
5	21:00	Moon 2.6° E of Regulus
6	12:00	Saturn Autumnal Equinox (Earth ring plane -2.722°)
7	04:00	Venus 3.2° NE of Neptune
8	22:00	Jupiter 5.6° S of Elnath
11	22:00	Moon 4.5° SSW of Zubenelgenubi
12	04:49	Earliest Mercuryrise
12	12:56	**Full Flower Moon**
13	22:00	Moon 0.5° SE of M4
13	23:00	Moon 0.8° S of Antares
14		Equation of Time = +3:38 (Sun Fast)
14	03:00	Sun in Taurus (38d)
14	15:00	Juno Opposition (mag: 10.0, dist: 2.372 au)
16	01:00	Moon 0.4° NNE of Kaus Media
16	20:00	First 8:00pm sunset
17	01:00	Moon 4.9° ESE of Nunki
17	01:00	Moon 3.6° ENE of Ascella
17	19:32	Uranus Conjunction
20	07:59	**Last Quarter Moon**
22	04:00	Moon 4.2° W of Saturn
26	23:02	**New Moon** (Lunation 1266)
30	00:13	Mercury Superior Conjunction
30	21:00	Moon 2.3° E of Elnath
31	05:13	First day with 15 hours of daylight (15:00:07)
31	22:00	Venus Greatest Elongation (45.9° W)

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

the eastern limb of the Moon to view two seldom-seen features, Mare Marginis and Mare Smythii.

On the 2nd, the Moon is 2.3° south of Pollux, in Gemini.

A sight not to miss occurs on the 3rd, when the Moon, Mars and M44 all appear within an area of sky just 3° across. This is ideal for viewing with binoculars, but even better with a small telescope. This is one of those occasions to ponder the scale of our solar system, compared to a relatively nearby object in our galaxy. The Moon is just 1.3 light seconds from us. Mars, at 12 light minutes, is over 500 times farther away. The cluster, at 577 light years, is more distant than Mars by a factor of 25 million. If the distance to M44 from Earth were scaled to the distance between Seagrave Observatory and Ladd Observatory, a distance of about 16 kilometers, the scaled distance between Earth and Mars would be no larger than a tardigrade, or about 0.5mm.

The Moon is at first quarter, in Cancer, at 9:52am on the 4th. Later that evening, it appears midway between Mars and Regulus. On the 5th, it appears just 2.6° east of Regulus, in Leo.

The Full Flower Moon occurs on the 12th, in Libra. Because the Moon is full at 56 minutes past noon, we get two consecutive nights to enjoy the Moon's fullness.

On the 11th, the 99.5% illuminated Moon rises at 7:19pm, 35 minutes before sunset. During the evening, look 4.5° north of the Moon to find Zubenelgenubi (alpha Librae), a bright and wide double star with a separation of 331 arcseconds.

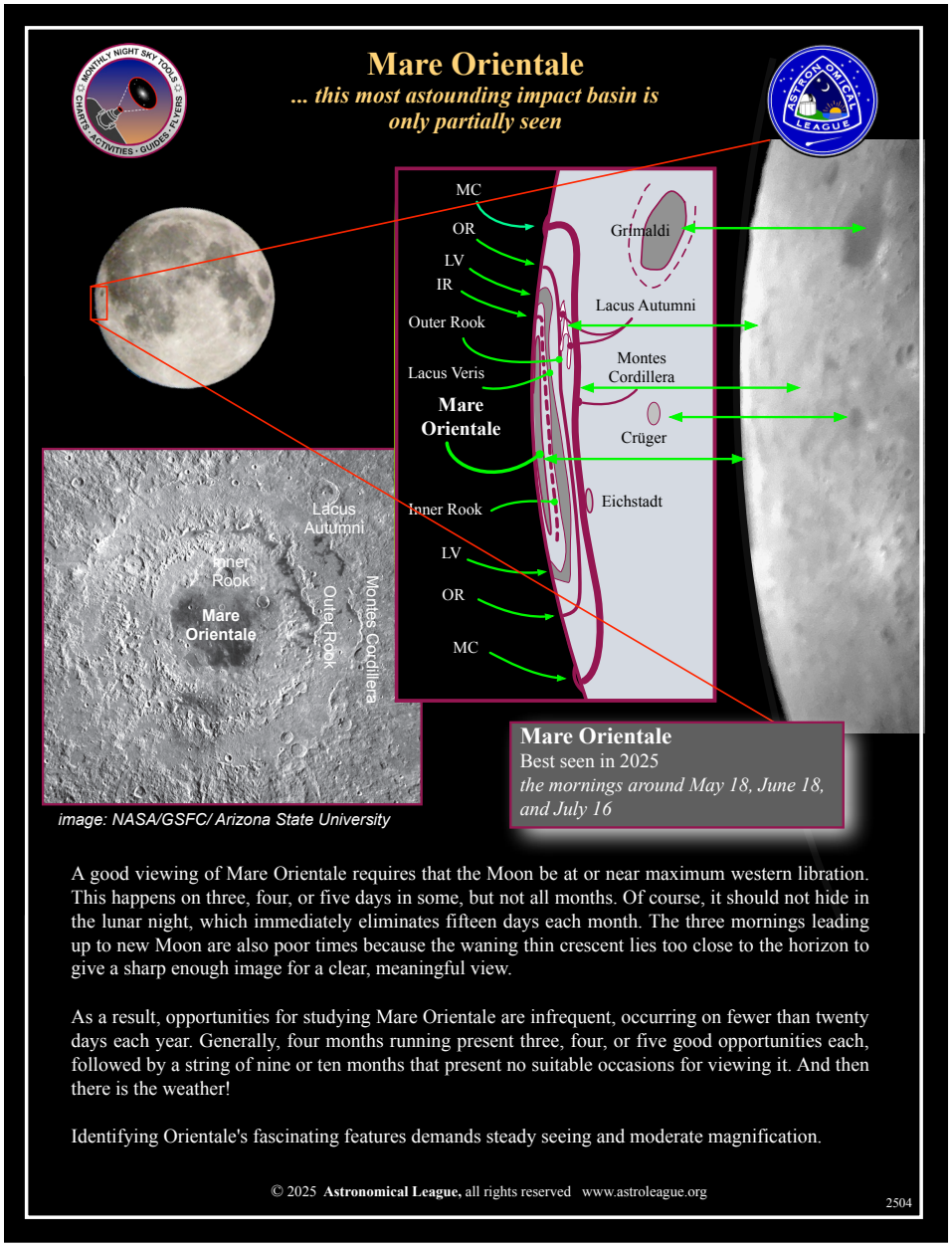
The 99.7% illuminated Moon sets at 5:00am on the 12th. The 99.7% rises at 8:23pm, 28 minutes after sunset, and sets the following morning at 5:30am on the 13th, 3 minutes before sunrise, at 99.4% illumination.

The Moon joins Antares (alpha Scorpii) on the 13th, appearing just 0.8° south of the red supergiant. When the Moon passes south of Antares, it demonstrates how far south the Moon is from the ecliptic. It is at its most southerly declination of -28.5° on the 15th.

Last quarter Moon is at 7:59am on the 20th, in Aquarius.

During its waning crescent phase, the Moon joins Saturn and Venus in the morning sky, rising 4.2° west of Saturn on the 22nd, 7.0° west of Venus on the 23rd, and 7.1° northeast of Venus on the 24th.

New Moon, marking the start of Lunation 1266, is at 11:02pm on the 26th.



For a brief time on the afternoon of the 12th, both **Mercury** and **Venus** will be transiting the non-zodiacal constellation Cetus.

Mercury is visible in the morning sky in early May. During the first week of the month, the innermost planet rises only about 45 minutes before sunrise.

Mercury spends a brief time (just about 2 hours) on the 12th moving through Cetus. It then moves into Pisces.

Mercury becomes difficult to observe after mid-month due to its low apparent angle on the horizon as it moves towards its superior conjunction on the 30th.

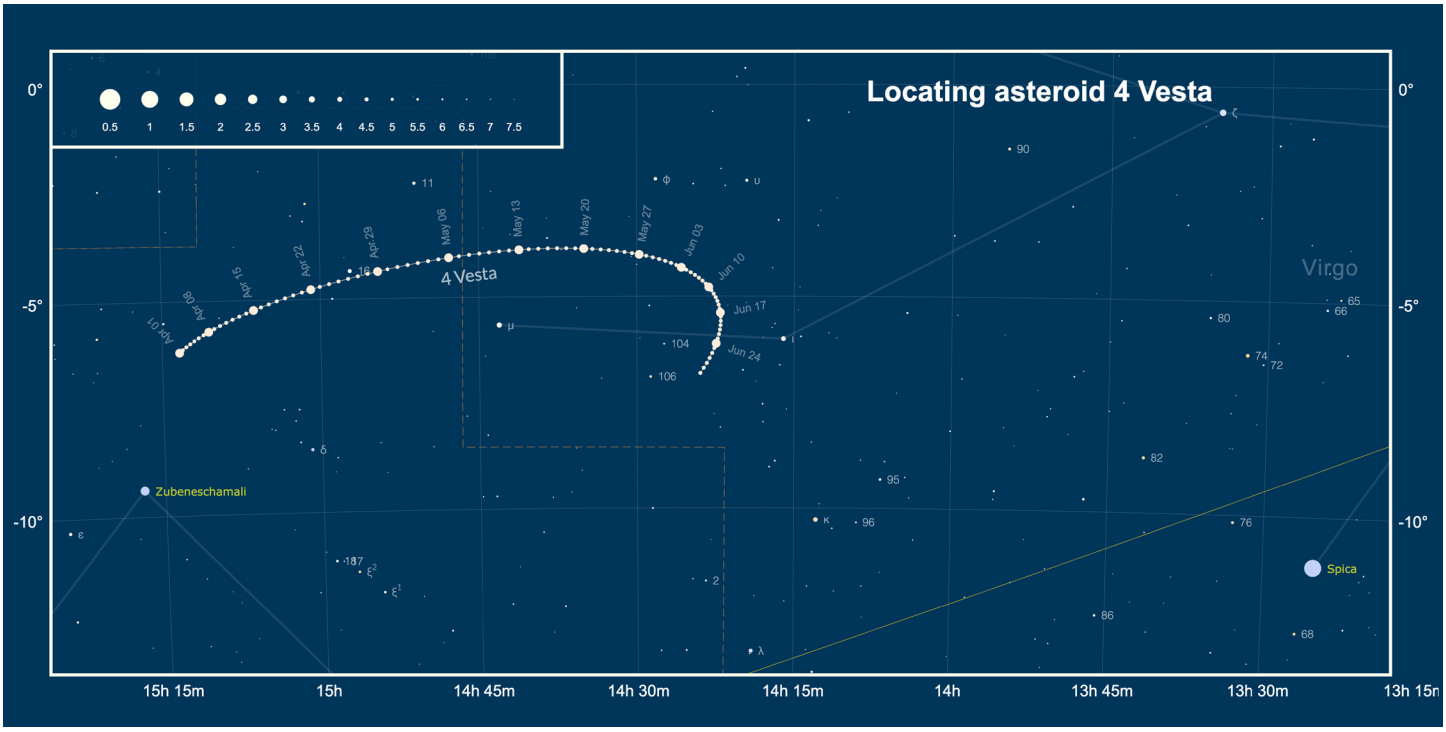
Venus is visible all month as the "Morning Star," and telescopically still appears as a waxing crescent, extending from 29.2% illumination on May 1 to 49.1% on the 31st. Its angular diameter diminishes from 36.3 to 24.0 arcseconds.

Venus spends most of the month in Pisces, but spends two days in Cetus, from the 12th to the 13th, briefly sharing the whale constellation with dwarf planet Ceres, about 13° to its south-southwest.

The waning crescent Moon joins Venus on the 23rd and 24th.

By the end of the month, Venus is visible two hours before sunrise, and reaches its greatest elongation, 45.9° west of the Sun, on the 31st.

Mars remains in our evening sky throughout May, traversing the gulf between both the twin stars of Gemini and Regulus in Leo, which is occupied by the dim stars of Cancer. Early May presents a spectacular viewing opportunity, as the Red Planet moves across the open star cluster M44, the Beehive. It lies within 1° of the cluster from the 2nd through the 6th, appearing within the cluster's northernmost members on the 4th. The highlight of the passage, however,



is on the evening of the 3rd, when the 44.3% waxing crescent Moon, Mars, and M44 all appear within a 3° field. A small telescope will provide the best view.

Mars is now considerably distant, passing 1.5 au on the 9th, but remains at first magnitude, putting it on par with Pollux and Regulus. Mars presents a rather small 6 arcsecond gibbous disk, requiring a large telescope to discern any surface details.

Mars enters Leo on the 25th, and the Moon pairs with Mars again on the 31st, although a few degrees more distant than the one earlier in the month.

At the beginning of the month, **Jupiter** lies along the line extending from Sirius through Betelgeuse. Moving eastward through Taurus, Jupiter is being chased lower in the sky by increasing later twilight. The planet is 1.0° north of M1, the Crab Nebula, on the 14th.

The 22-hour-old, 1.3% illuminated crescent Moon is 8.9° west-northwest of Jupiter on the 27th, and the following evening, the 5.2% crescent appears almost directly above it, by 7.6°, on the 28th.

Jupiter and its moons remain bright enough to be observed even through twilight and while low in elevation.

Moons of Jupiter: See a triangle of Io, Europa, and Callisto that appears to be pointing towards Jupiter at 9:30pm on the 2nd. The 3rd sees a tight grouping of Callisto, Io, and Ganymede to the west of Jupiter, with Europa close by to the east. Io and Europa are spaced equidistant to the east, and west of Jupiter, respectively, on the 5th, with Ganymede and Callisto farther out on either side. On the 7th, Ganymede and Io form a perpendicular line on the east side of Jupiter, with Europa close to the planet's limb on the west, while its shadow remains on the planet's disk. Callisto is farther out. Europa and Io form a perpendicular pair to the east of Jupiter on the 9th, with Ganymede and Callisto extended out to the west. On the 11th, with Io and Europa visible to the east and west of Jupiter, and Ganymede in shadow, Callisto grazes Jupiter's northern limb. On the 31st, all four moons are positioned close to their maximum elongation from Jupiter, with Callisto and Europa to the east, Io and Ganymede to the west of the planet.

Saturn is visible low in the east before twilight, in Pisces. It is slowly overtaking Venus in elevation, with the two planets being parallel to the horizon on the 6th.

Saturn reaches equinox on the 6th. This is the point at which the subsolar latitude on Saturn is 0°, which is also when the ring plane is illuminated edge-on. Since neither side of the rings are in direct sunlight, the only illumination is primarily from Saturnshine.

As Earth passed the ring plane several weeks ago, we are now looking at a 2.7° angle of incidence onto the southern face of the rings. Saturn is still low in the east before sunrise, but observers using a larger telescope should see the dimly-lit rings, which are casting no discernible shadow on the globe of the planet.

The waning crescent Moon joins Saturn in the morning sky on the 22rd, appearing 4.2° west of the ringed planet. On the following morning, the Moon appears between Saturn and Venus.

With Saturn's low ring plane angle, the opportunity exists to watch its moons and their shadows transit the disk of the planet. Many of Saturn's moons are too small to easily detect without large telescopes and exceptionally good sky conditions, in addition to having Saturn well-placed above the horizon. The moon whose shadow is the easiest to see is Titan, the second largest moon in the solar system. Titan orbits Saturn every 15.9 days, and its shadow has been appearing on Saturn's cloud tops at this regular interval since last year. Unfortunately for us, the timing of Titan's shadow transits has had them occurring when Saturn was either below the horizon, or during daylight. Fortunately, we can look forward to beginning to see them in July.

Located in Taurus, **Uranus** is at conjunction on the 17th, and will not be easy to observe until later in June.

During conjunction, Uranus will be occulted by the Sun's disk for approximately 8.5 hours starting at 3:00pm. This isn't a particularly rare occurrence, but it does only occur when Uranus passes through certain portions of its orbit. Occultations began in 2024 and continue through 2033. There is then a gap of non-occultation conjunctions until 2064.

Neptune is low in the east before dawn, in the vicinity of Venus and Saturn. At magnitude 7.8, it isn't very well placed for observing until later in the month.

Venus is located 3.2° northeast of Neptune on the 7th. On the 9th, draw a line between Venus and Saturn. Neptune lies directly on this line, 4.3° from Venus and just 2.8° from Saturn.

Asteroid **4 Vesta**, located in Libra, is at opposition on the 2nd. The magnitude 5.7 asteroid is 1.181 au from Earth, and can be seen 2.2° northeast of mu Virginis, and 9.7° southwest of the large and bright globular cluster M5. It is moving westward about ¼° per day, and crosses from Libra into Virgo on the 9th.

Also at opposition in May is asteroid **3 Juno**. At twice the distance and 1/50th as bright, Juno is located about 15* east of Vesta, in Serpens. Juno can be found about 0.2° north of magnitude 3.5 mu Serpentis on the 5th, and tracks eastward throughout the month, getting no brighter than magnitude 10.0.

2 Pallas, at 10th magnitude, is moving northeastward in eastern Delphinus. By the end of the month, it moves within 1.5° of the globular cluster Caldwell 42 (NGC 7006).

Located a few degrees below Saturn, dwarf planet **Ceres** remains low in the southeast before sunrise. Prospects for observing the 9th magnitude object improve in June.

The **eta Aquarid meteor shower** is a long-duration shower that is active for nearly a month, beginning in late April, with best prospects for seeing meteors within a few days of the peak on May 3rd-4th. The shower favors southern hemisphere observers, and doesn't gain much attention in the north due to the radiant being located near the water jar asterism of Aquarius near the peak activity period, and this area of sky is only above the horizon for about two hours before twilight. The waxing crescent Moon will be out of the sky during the morning hours.

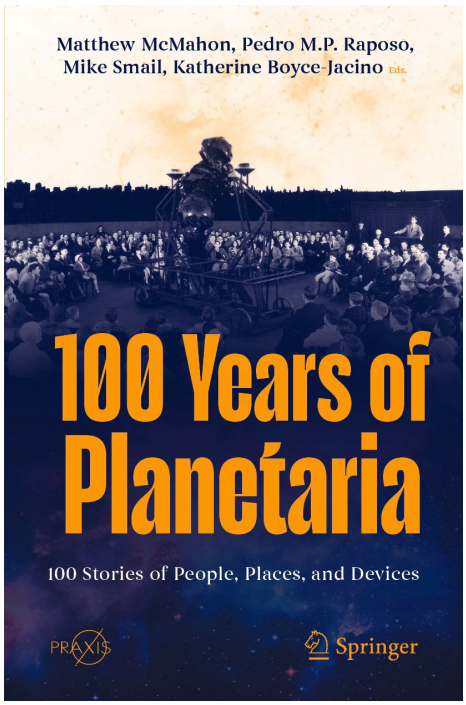
The eta Aquarids are one of two significant meteor showers that originated from Comet 1P/Halley, which replenishes the meteor stream every 76 years.

Book Review

100 Years of Planetaria: 100 Stories of People, Places, and Devices

by Matthew McMahon, et al., Nature Switzerland AG: Springer, 2024, ISBN 978-3-031-75495-1, paperback, $29.99, US

Reviewed by Francine Jackson



At first glance, the reader might believe this book is just a year-by-year history of the planetarium from 1923 on; but, instead, it's a lot more. Not only are there stories of the planetarium from first thought to the incredible facilities of today, but there are personal accounts of the people who are a part of this profession, not only from just performing programs, but who also made this a great place to work, one that anybody venturing into it takes great pride, knowing it's not just a short teaching moment, but a way to inform the public as to the beauty of the sky.

The term "planetarium" is older than the machine now normally in the center of a circular room: it began centuries ago as another term for an orrery, many of which can now be found in museums all over the world.

From 1923, with Walter Bauersfeld's invention of the projection system, the concept of sitting in a room and seeing what now many cannot see, a beautiful, dark, night sky, became at first a privilege. But, then came Armand Spitz, who believed everyone should have this incredible experience. Now, there are thousands of planetarium facilities, as part of museums, in schools, or even stand-alone structures

In addition, other implements, some small – pointers, handmade special effects projectors – and large – slide projectors, laser projection – and more yet to be invented, all make the visitor's time in the dark a wonderful experience.

May Night Sky Notes:

How Do We Find Exoplanets?

By Dave Prosper, Updated by: Kat Troche

Astronomers have been trying to discover evidence that worlds exist around stars other than our Sun since the 19th century. By the mid-1990s, technology finally caught up with the desire for discovery and led to the first discovery of a planet orbiting another sun-like star, 51 Pegasi b. Why did it take so long to discover these distant worlds, and what techniques do astronomers use to find them?

The Transit Method

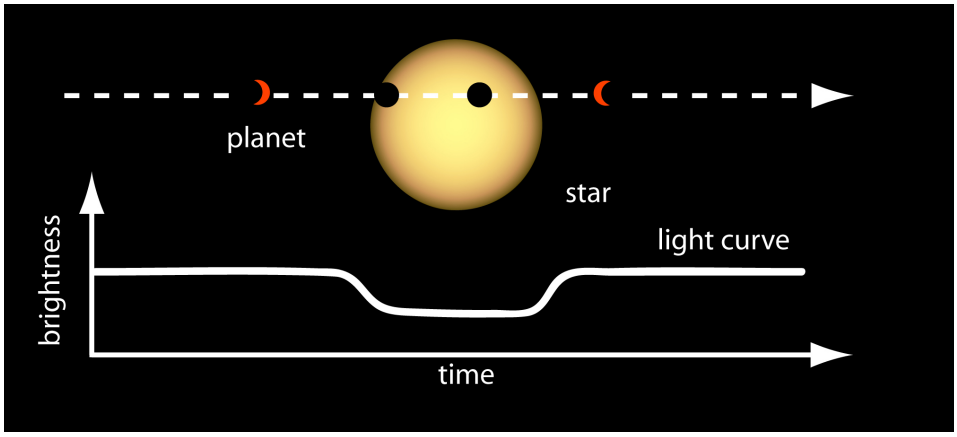
One of the most famous exoplanet detection methods is the **transit method**, used by Kepler and other observatories. When a planet crosses in front of its host star, the light from the star dips slightly in brightness. Scientists can confirm a planet orbits its host star by repeatedly detecting these incredibly tiny dips in brightness using sensitive instruments. If you can imagine trying to detect the dip in light from a massive searchlight when an ant crosses in front of it, at a distance of tens of miles away, you can begin to see how difficult it can be to spot a planet from light-years away! Another drawback to the transit method is that the distant solar system must be at a favorable angle to our point of view here on Earth – if the distant system's angle is just slightly askew, there will be no transits. Even in our solar system, a transit is very rare. For example, there were two transits of Venus visible across our Sun from Earth in this century. But the next time Venus transits the Sun as seen from Earth will be in the year 2117 – more than a century from now, even though Venus will have completed nearly 150 orbits around the Sun by then!

The Wobble Method

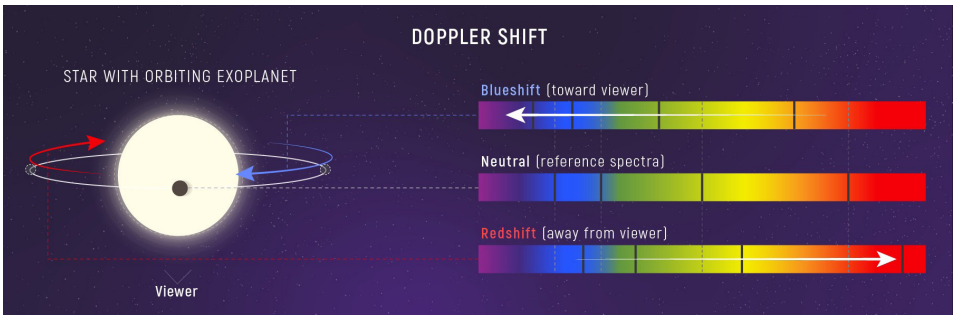
Spotting the Doppler shift of a star's spectra was used to find Pegasi 51b, the first planet detected around a Sun-like star. This technique is called the **radial velocity or "wobble" method**. Astronomers split up the visible light emitted by a star into a rainbow. These spectra, and gaps between the normally smooth bands of light, help determine the elements that make up the star. However, if there is a planet orbiting the star, it causes the star to wobble ever so slightly back and forth. This will, in turn, cause the lines within the spectra to shift ever so slightly towards the blue and red ends of the spectrum as the star wobbles slightly away and towards us. This is caused by the blue and red shifts of the planet's light. By carefully measuring the amount of shift in the star's spectra, astronomers can determine the size of the object pulling on the host star and if the companion is indeed a planet. By tracking the variation in this periodic shift of the spectra, they can also determine the time it takes the planet to orbit its parent star.

Direct Imaging

Finally, exoplanets can be revealed by **directly imaging** them, such as this image of four planets found orbiting the star HR 8799! Space telescopes use instruments called **coronagraphs** to block the bright light from the host star and capture the dim light from planets. The Hubble Space Telescope has captured images of giant planets orbiting a few nearby systems, and the James Webb Space Telescope has only



A planet passing in front of its parent star creates a drop in the star's apparent brightness, called a transit. Exoplanet Watch participants can look for transits in data from ground-based telescopes, helping scientists refine measurements of the length of a planet's orbit around its star. Credit: NASA's Ames Research Center



As a planet orbits a star, the star wobbles. This causes a change in the appearance of the star's spectrum called Doppler shift. Because the change in wavelength is directly related to relative speed, astronomers can use Doppler shift to calculate exactly how fast an object is moving toward or away from us. Astronomers can also track the Doppler shift of a star over time to estimate the mass of the planet orbiting it. Credit: NASA, ESA, CSA, Leah Hustak (STScI)

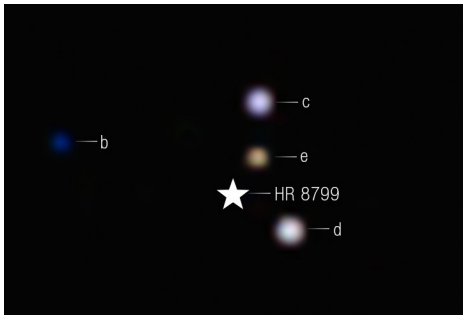


Image taken by the James Webb Space Telescope of four exoplanets orbiting HR 8799. Credit: NASA, ESA, CSA, STScI, Laurent Pueyo (STScI), William Balmer (JHU), Marshall Perrin (STScI)

improved on these observations by uncovering more details, such as the colors and spectra of exoplanet atmospheres, temperatures, detecting potential exomoons, and even scanning atmospheres for potential biosignatures!

You can find more information and activities on NASA's Exoplanets page, such as the Eyes on Exoplanets browser-based program, The Exoplaneteers, and some of the latest exoplanet news. Lastly, you can find more resources in our News & Resources section, including a clever demo on how astronomers use the wobble method to detect planets!

The future of exoplanet discovery is only just beginning, promising rich rewards in humanity's understanding of our place in the Universe, where we are from, and if there is life elsewhere in our cosmos.

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

Observer's Challenge:

NGC 3893 and NGC 3896:

Galaxy Pair in Ursa Major

by Glenn Chaple

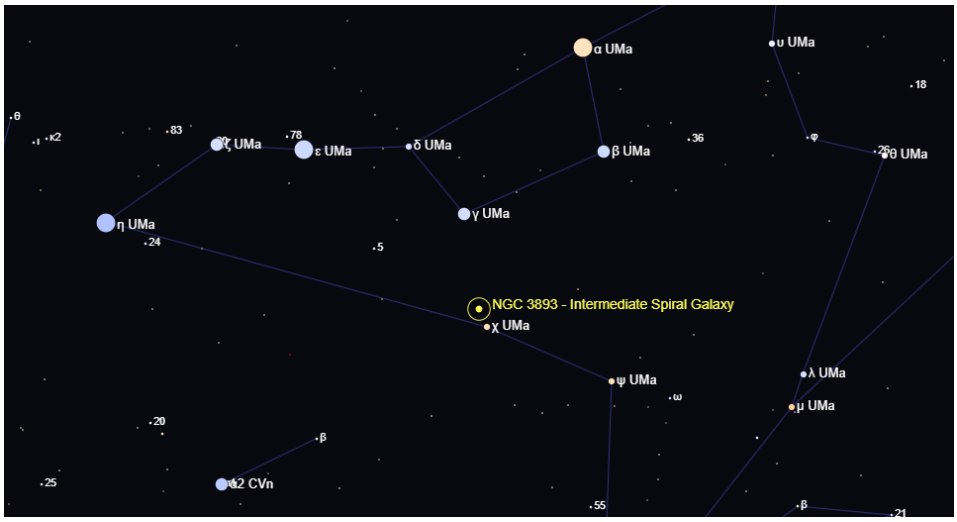
(NGC 3893: Magnitude 10.5; Size 4.5' X 2.8'; NGC 3896: Magnitude 13.6; Size 1.4' X 0.9')

This month and next, the Observer's Challenge will feature galaxy pairs in Ursa Major. This month's galactic two-some is comprised of the 10th magnitude spiral NGC 3893 and its 13th magnitude lenticular partner NGC 3896. William Herschel discovered them on February 9, 1788 and cataloged them as Class II (Faint Nebulae) objects.

NGC 3893 is located at the 2000.0 coordinates RA 11h48m38s and DEC +48o42'39", about one degree north-northeast of the golden yellow 4th magnitude star chi (χ) Ursae Majoris. In my 10-inch f/5 reflecting telescope at 139X under magnitude 5 skies, it appeared as a roundish glow, bright enough to be seen with direct vision. There was no sign of NGC 3896, which lies 4 arc-minutes further southeast at RA 11h48m56s, DEC +48o40'28". Under dark skies, NGC 3893 should be visible in a 4 to 6-inch scope, while NGC 3896 will require twice that aperture.

NGC 3893 and 3896 are about 50 to 55 million light years distant. The former has a calculated diameter of around 75,000 light years, some three times larger than NGC 3896.

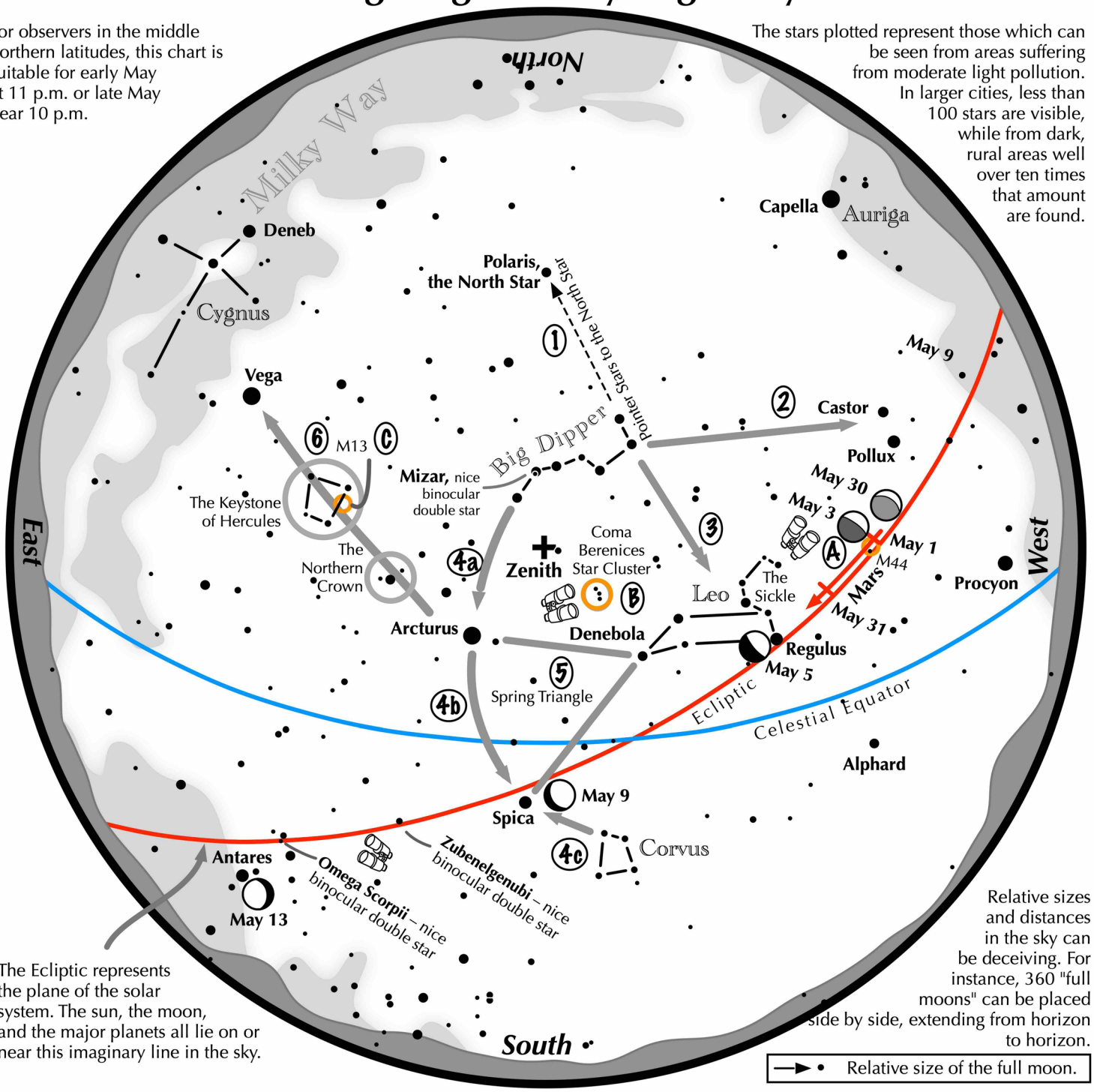
This one took effort, I captured the galaxy in Lum with my 32 inch this past December from Gloucester, but did not have enough night to get it in color. I tried down here in Florida, but it lacks the detail of the 32 incher as it is only 4.5 by 2,4 arc minutes, thus needs the 32 inch for detail. But.. I then used a process in pixinsight to combine images from 2 different optical systems, and it worked. So.. lum from 32 inch scope with about 75 minutes lum ZWO 6200 camera, then RGB from C14 scope in Florida again ZWO 6200, (about 70 min total), processed then combined with dynamic alignment tool in Pixinsight. Note NGC 3896 close by to the immediate southeast. Mario Motta



Navigating the May Night Sky

For observers in the middle northern latitudes, this chart is suitable for early May at 11 p.m. or late May near 10 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.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

Relative size of the full moon.

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

1. Extend a line northward from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
2. Through the two diagonal stars of the Dipper's bowl, draw a line pointing to the twin stars of Castor and Pollux in Gemini.
3. Directly below the Dipper's bowl reclines the constellation Leo with its primary star, Regulus.
4. Follow the arc of the Dipper's handle. It first intersects Arcturus, then continues to Spica. Confirm Spica by noting that two moderately bright stars just to its southwest form a straight line with it.
5. Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.
6. Draw a line from Arcturus to Vega. One-third of the way sits "The Northern Crown." Two-thirds of the way hides the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.

Binocular Highlights
A: M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux. **B:** Look near the zenith for the loose star cluster of Coma Berenices. **C:** M13, a round glow from a cluster of over 500,000 stars.

The Sun, Moon & Planets in May

This table contains the ephemeris of the objects in the Solar System for each Saturday night in May 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	**3**	2 41.5	15 41.1	Ari	-26.8	1904	-	-	-	1.008	05:39	12:43	19:47
	10	3 08.6	17 37.8	Ari	-26.8	1900.9	-	-	-	1.01	05:30	12:42	19:55
	17	3 36.2	19 20.1	Tau	-26.8	1898	-	-	-	1.011	05:23	12:42	20:02
	24	4 04.2	20 46.4	Tau	-26.8	1895.3	-	-	-	1.013	05:18	12:43	20:08
	31	4 32.6	21 55.2	Tau	-26.8	1893.1	-	-	-	1.014	05:13	12:44	20:14
Moon	**3**	7 43.5	25 34.5	Gem	-11.5	1922.4	71° E	34	-	-	10:46	18:36	02:12
	10	13 13.2	-10 29.2	Vir	-12.4	1780.8	151° E	94	-	-	18:16	23:31	04:37
	17	19 07.8	-27 46.6	Sgr	-12.4	1798.1	132° W	83	-	-	00:10	04:30	08:54
	24	1 05.9	8 37.6	Psc	-10.6	1960.4	44° W	14	-	-	03:20	10:16	17:27
	31	8 18.9	23 08.4	Cnc	-10.9	1922.8	52° E	20	-	-	09:41	17:17	00:40
Mercury	**3**	1 11.9	4 32.3	Psc	0.0	6.6	25° W	62	0.434	1.024	04:54	11:14	17:36
	10	1 51.9	8 52.4	Psc	-0.3	6.0	21° W	73	0.401	1.131	04:50	11:27	18:05
	17	2 38.8	13 45.2	Ari	-0.8	5.5	15° W	85	0.361	1.229	04:51	11:47	18:45
	24	3 33.8	18 40.6	Tau	-1.6	5.2	7° W	96	0.324	1.301	04:59	12:15	19:33
	31	4 36.6	22 46.1	Tau	-2.3	5.1	1° E	100	0.308	1.320	05:17	12:51	20:27
Venus	**3**	0 03.6	1 14.1	Psc	-4.5	35.9	42° W	31	0.725	0.472	03:57	10:04	16:11
	10	0 22.4	2 11.1	Psc	-4.4	32.3	44° W	36	0.726	0.525	03:45	09:55	16:07
	17	0 43.7	3 35.8	Psc	-4.4	29.2	45° W	41	0.727	0.579	03:33	09:49	16:06
	24	1 07.0	5 21.3	Psc	-4.3	26.7	46° W	45	0.728	0.635	03:23	09:45	16:08
	31	1 31.9	7 20.9	Psc	-4.2	24.5	46° W	49	0.728	0.691	03:13	09:43	16:13
Mars	**3**	8 37.7	20 32.2	Cnc	1.0	6.5	84° E	90	1.665	1.440	11:16	18:37	01:58
	10	8 51.2	19 32.4	Cnc	1.1	6.2	80° E	90	1.663	1.504	11:07	18:23	01:39
	17	9 05.1	18 27.5	Cnc	1.1	6.0	77° E	90	1.662	1.566	10:57	18:09	01:21
	24	9 19.2	17 17.4	Cnc	1.2	5.8	74° E	91	1.659	1.627	10:49	17:56	01:03
	31	9 33.6	16 02.3	Leo	1.3	5.5	71° E	91	1.656	1.687	10:41	17:43	00:44
1 Ceres	**3**	23 57.5	-9 47.1	Aqr	9.3	0.3	48° W	98	2.975	3.555	04:30	09:57	15:25
	10	0 06.6	-9 02.1	Cet	9.3	0.4	52° W	98	2.974	3.483	04:09	09:39	15:09
	17	0 15.3	-8 20.0	Cet	9.3	0.4	57° W	98	2.973	3.406	03:47	09:20	14:52
	24	0 23.8	-7 40.9	Cet	9.3	0.4	61° W	98	2.972	3.326	03:26	09:01	14:36
	31	0 31.9	-7 05.4	Cet	9.2	0.4	66° W	98	2.971	3.241	03:04	08:41	14:18
Jupiter	**3**	5 24.2	22 57.0	Tau	-1.8	33.5	39° E	100	5.124	5.869	07:51	15:23	22:55
	10	5 30.5	23 02.7	Tau	-1.8	33.1	34° E	100	5.127	5.937	07:30	15:02	22:34
	17	5 36.9	23 07.6	Tau	-1.8	32.8	28° E	100	5.129	5.996	07:08	14:41	22:13
	24	5 43.6	23 11.5	Tau	-1.8	32.5	23° E	100	5.132	6.047	06:47	14:20	21:53
	31	5 50.3	23 14.3	Tau	-1.8	32.3	18° E	100	5.134	6.089	06:26	13:59	21:32
Saturn	**3**	23 56.0	-2 37.0	Psc	1.2	16.1	45° W	100	9.593	10.282	04:02	09:55	15:48
	10	23 58.5	-2 22.1	Psc	1.2	16.2	51° W	100	9.591	10.196	03:37	09:30	15:24
	17	0 00.9	-2 08.6	Psc	1.1	16.4	57° W	100	9.589	10.102	03:10	09:05	14:59
	24	0 03.0	-1 56.4	Psc	1.1	16.6	63° W	100	9.587	10.001	02:44	08:40	14:35
	31	0 04.9	-1 45.8	Psc	1.1	16.7	69° W	100	9.585	9.894	02:18	08:14	14:10
Uranus	**3**	3 36.7	19 08.7	Tau	5.8	3.4	14° E	100	19.533	20.511	06:21	13:35	20:50
	10	3 38.4	19 14.4	Tau	5.8	3.4	7° E	100	19.531	20.532	05:54	13:09	20:25
	17	3 40.0	19 20.1	Tau	5.8	3.4	1° E	100	19.530	20.541	05:28	12:44	19:55
	24	3 41.7	19 25.7	Tau	5.8	3.4	5° W	100	19.529	20.537	05:02	12:18	19:34
	31	3 43.4	19 31.2	Tau	5.8	3.4	12° W	100	19.528	20.519	04:35	11:52	19:08
Neptune	**3**	0 06.3	-0 42.7	Psc	7.9	2.2	42° W	100	29.891	30.636	04:06	10:05	16:05
	10	0 07.0	-0 38.1	Psc	7.9	2.2	48° W	100	29.891	30.554	03:39	09:39	15:38
	17	0 07.7	-0 34.0	Psc	7.9	2.2	55° W	100	29.891	30.462	03:12	09:12	15:12
	24	0 08.3	-0 30.4	Psc	7.9	2.2	61° W	100	29.890	30.362	02:45	08:45	14:45
	31	0 08.8	-0 27.3	Psc	7.9	2.3	68° W	100	29.890	30.256	02:17	08:18	14:18
Pluto	**3**	20 28.1	-22 44.6	Cap	14.5	0.2	99° W	100	35.255	35.084	01:53	06:28	11:02
	10	20 28.1	-22 46.0	Cap	14.5	0.2	106° W	100	35.260	34.972	01:26	06:00	10:35
	17	20 28.0	-22 47.6	Cap	14.5	0.2	113° W	100	35.265	34.865	00:58	05:33	10:07
	24	20 27.8	-22 49.5	Cap	14.5	0.2	119° W	100	35.270	34.763	00:31	05:05	09:39
	31	20 27.6	-22 51.7	Cap	14.5	0.2	126° W	100	35.274	34.668	00:03	04:37	09:11

A Farewell to Winter Constellations by Steve Hubbard

Winter constellations setting over Mooselookmeguntic Lake, Rangeley, Maine, on April 22nd.

Leo Triplet by Conrad Cardano

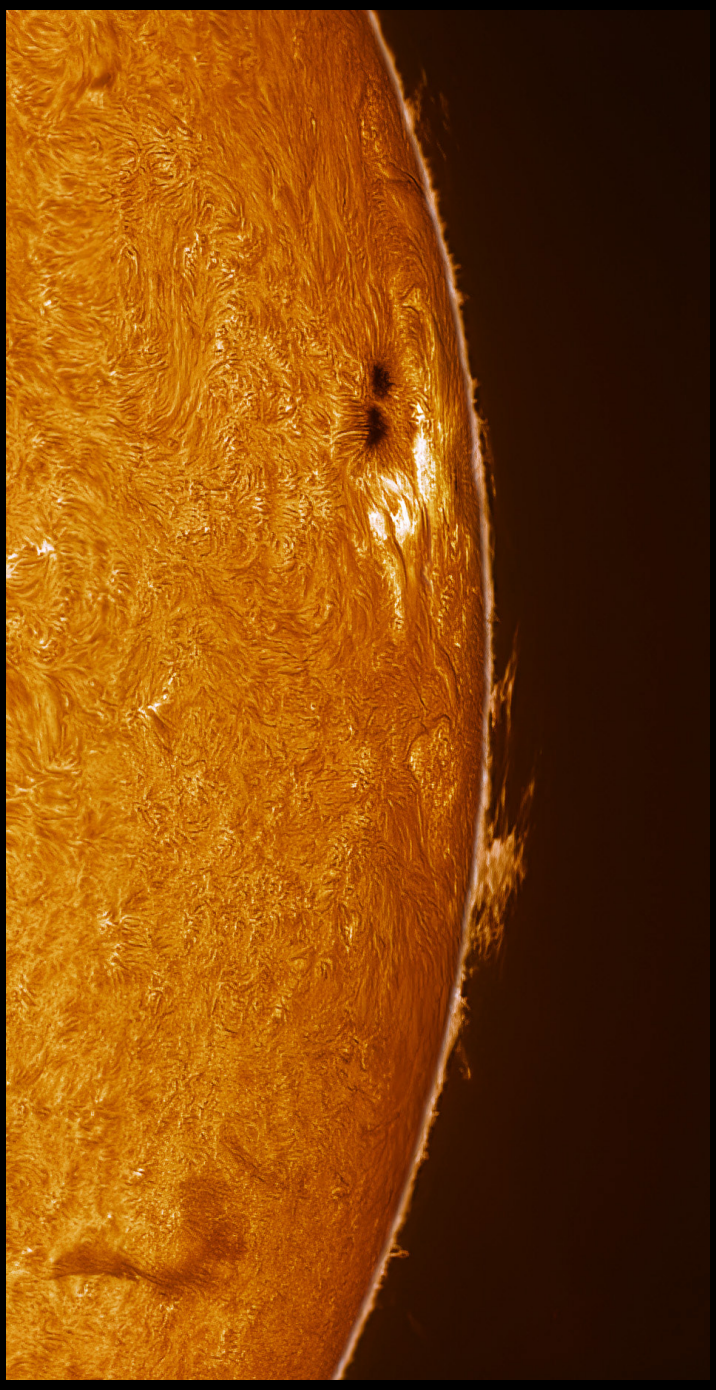
This is a 50 minute exposure of the Leo Triplet taken with the Seestar 50 on April 17. The stacked image was processed with Astro Art.

Caldwell 20 (North America Nebula) by Jeff Padell

Seestar S30 in EQ Mode - I ran the 74 minutes of fits images from the S30 in EQ mode through Pixinsight. I am happy with the results. I captured it from 3 am to 4:40 am this morning using 10 second subs. The stars look pretty good.

Sun in H-α by Jeff Padell

The sun today, very windy but managed to get a couple shots. Shot at 65 FPS it was the gain that was too low.



Directions to Seagrave Memorial Observatory

www.theSkyscrapers.org

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

From Coventry/West Warwick area:
Take Rt. 116 North. Peeptoad Road is the first left after crossing Rt. 101.

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

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

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

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

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