



the Skyscraper

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July 2023

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

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A Star Party Like No Other Saturday, July 8 at Seagrave Memorial Observatory

In-person and on Zoom (Contact Linda Bergemann (lbergemann@aol.com) for the Zoom link.

NOTICE: Due to a lower than expected response and a forecast for unsettled weather, we have decided to postpone our Ham & Bean Supper until our next meeting on August 5th.

6 PM: Socializing

7 PM: Business Meeting & Presentations

Also on ZOOM (ID & Password Required)

TOPIC: "A Star Party Like No Other"

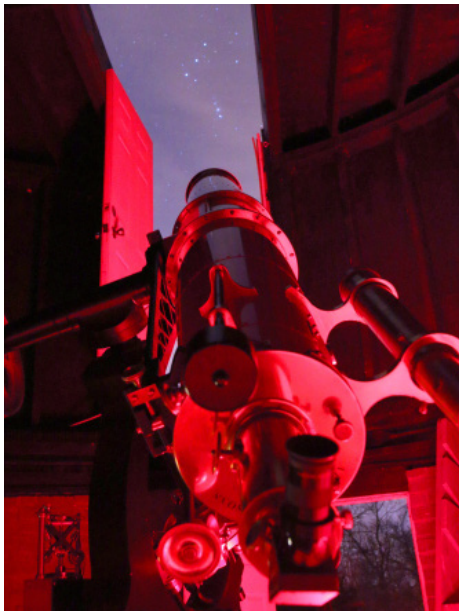
SPEAKER: Bruce Berger

You might know that I run 2 Summer workshops in Maine. This year from August 7-13 is the Maine Stargazing & Photography Retreat, featuring world-renowned nightscape photographer and founder of The World At Night, Babak Tafreshi. Following that, on August 14-20, is the Maine Astronomy Retreat that Kelly Beatty & I produce. There's lots of observing, astronomy talks,

gear talk and astro or nightscape photography during both weeks, with one difference. The first event has a purposely smaller group so that Babak, our special guests, and I can spend 1 on 1 time with each participant, helping them become better night-time photographers.

I'll present info on both of these annual events in order to let listeners decide which is a better fit for them.

Bruce Berger's passion for photographing the night sky was kindled by a chance meeting with Babak Tafreshi on a solar eclipse cruise across eastern Asia. Since then he shares his love for the night sky through photography. Bruce runs two exciting astronomy/photography workshops each summer in Maine. In this talk he'll share information about the retreats and tell you how these events are "A Star Party Like No Other".



**Seagrave Memorial
Observatory
Open Nights
Saturdays in July
@ 9pm**



President's Message

by Linda Bergemann

One question that puzzles many of us on the Board of Directors is "How do we engage our new members in our activities?". This requires that we know what you want, and we need you to tell us.

This month, we will make an effort to get to know our members better, by holding two events focused on our members.

Our July meeting (on July 8) will be preceded by an old-fashioned Ham and Bean Supper, with a potluck component. This is intended to be a casual time for us to dine together and get to know each other. We are hoping to have a large and convivial gathering, with more "new" people than "old-timers". The food should be good, and the fellowship even better.

Also on the 8th, we will be offering some of the surplus equipment that we have gathered through the years to our members for a very reasonable donation to Skyscrapers. The Trustees and their helpers have rescued a variety of nice telescopes and lots of accessories from the dark corners of the observatory, which must go. Providing the weather

cooperates, we will have these items out for display and adoption.

Then, on Saturday, July 15, we will have our first monthly Star Party. Our goal is to gather our members together for an evening of observing and sharing. The observatory telescopes (Clark, Meade 12' and Meade 16") will not be open for observing. At least one of our portable telescopes will be out for use. We expect you to bring and use your own telescope, and, perhaps, share images with others. To make this more fun, we are preparing some challenge objects for you to find and observe. If you are just getting started, someone will be available to assist you. And, if you don't have your own telescope, contact me (lbergemann@aol.com) and I will arrange for a telescope you can use.

We will have name badges available for everyone to wear at these events. Please put one on to help us remember who you are.

See you there!

New Member Welcome to Skyscrapers

Luke Labriola
of Warwick, RI
(Junior member)

Observing Events: Open Nights

July 1, 9-11 PM
July 8, 9-11 PM
July 15, 9-11 PM
July 22, 9-11 PM
July 29, 9-11 PM

Star Parties

July 15 at Seagrave,
9-11 PM
July 21 at River Bend
Farm, 8-9:30 PM



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 **July 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 jim@distantgalaxy.com. Note that you will no longer receive the newsletter by postal mail.

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Star Party Reports

River Bend, Uxbridge
Friday, June 30, 2023
by Jim Hendrickson

Our June River Bend night took place under partly cloudy skies that were also significantly affected by smoke from Canadian wildfires that has been an intermittent factor in our weather for the past several weeks. Fortunately, we had a bright gibbous Moon to view.

Telescopes were operated by Skyscrapers members John Kocur (70mm equatorial refractor), Bob Janus (8" Dobsonian), Francine Jackson & Jim Hendrickson (80mm refractor), and Ron Zincone (90mm Makutov-Cassegrain), as well as local Uxbridge resident Mike (4" Newtonian).

With this being the week of the latest sunsets of the year, darkness wouldn't come until nearly 10:00pm, but this particular night was selected because the presence of a bright gibbous Moon allowed observing to begin earlier in the evening, so setup time was around 8:00pm.

During setup, the sky was fairly gray with clouds, haze and smoke, with neither the Sun nor Moon visible. Within about 20 minutes, the ghostly glow of the gibbous Moon began to break the haze, appearing in a muted pinkish-orangish hue low in the southeast. It was almost a challenge to get a good focus on it at first, but it would soon gain contrast as the sky darkened and the Moon rose a bit higher. It was noted that crater Aristarchus appeared exceptionally bright, and a discussion was had about what figures could be seen on the Moon: Man on the Moon, Rabbit on the Moon, etc.

Besides the six telescope operators, about ten guests came to enjoy the sky. Two

of the visitors inquired about Seagrave Observatory open nights, and regular friends Ruth and Marc Gravel arrived with a recently acquired pair of 10x50 binoculars, which Jim gave tips on focusing and using.

Soon after sunset, Venus became visible through thick haze, and presented a beautiful crescent phase through Bob's and Ron's telescopes. As darkness settled in, Venus had set behind the trees in the west, and the Moon retained a deep orange color due to the haze and smoke. The water on the canal pond was very still and presented a near-perfect reflection of the Moon. Several fireflies could be seen dashing about in the distance.

The next River Bend nights are July 21, August 25, September 15, October 27, and November 24.

Seagrave Observatory Night
Saturday, July 1, 2023
by Jim Hendrickson

Sorry I missed yesterday's e-mail asking me whether or not to open for Public Night.

Anyway, we did open. Unfortunately, the moon was shrouded in hazy clouds and so low in the south that for

a while it was hidden behind the tree tops. With the exception of an eventual appearance by Arcturus and Vega nothing else was visible.

In spite of these terrible viewing conditions we had four guests. They were all first time visitors.

A boy scout working on his Astronomy merit badge came with his dad. Later two young ladies

arrived. They all were interested in coming back on a clearer night.

The scout lives in Scituate. He was told about the loaner telescope that is available at the North Scituate library.

Mark Munkacsy, Francine Jackson, Jim Hendrickson and Bob Janus provided tours of the Alvan Clark and the 12 inch Meade. Linda Bergemann ran the program in the meeting hall.

So, even though the sky conditions were at best lousy, the outreach portion of the evening was still successful.

We decided to call it a night at 10 pm.

If anyone else on the observatory crew would like to add their thoughts please do so.

Thanks again to everyone who ventured out to volunteer their time. Have a great July 4th!

Bob Janus



Jim Hendrickson adds:

Thanks Bob, that just about covers everything astronomical. The Moon was a distinct golden color, and was quite muted through the haze. In the telescope, the limb of the Moon was discernible, but barely brighter than the surrounding cloud and haze. It was more pleasing to view in the finder.

In addition, we could hear at least three different fireworks shows going on, and with the hazy skies, saw many of the flashes.

About a half-dozen fireflies were meandering about the yard, and a small number of frogs could be heard coming from the pond area. For a period of time near the end of the session, we had a gray treefrog visit us on the front step of the observatory, then it started climbing up the wall. Just as we were closing up, a screech owl could be heard in the woods to the northeast.



Skylights: July 2023

by Jim Hendrickson

Earth is at aphelion, the farthest point in its orbit around the Sun, on July 6. Just before midnight, Earth will be 1.01668 AU (152.093 million kilometers) from the Sun. This is 3.395% (0.03339 AU, 4,994 million kilometers—13 times the distance to the Moon) farther away than on January 4, when Earth was at perihelion.

After spending 29 days in Gemini, the Sun enters Cancer on July 21.

An evening apparition of Mercury occurs in July, after the innermost planet passes superior conjunction on the 1st. Although it remains low throughout its presence in the evening sky this month – it remains visible no longer than 67 minutes after sunset – there are several opportunities to observe it next to some other familiar objects.

Although a challenge to observe, Mercury is positioned within the northern portion of M44, the Beehive Cluster in Cancer, on the 14th.

On the 18th, the very young, 1.1-day crescent Moon lies just 5.2° to the right of Mercury, nearly parallel to the horizon. The two should be fairly easy to locate with binoculars, given favorable conditions.

Latest Mercuryset for this month's evening apparition occurs at 9:20pm EDT on the 20th.

On the 21st, you can find Mercury 10° to the right of Venus, on a line nearly parallel with the western horizon.

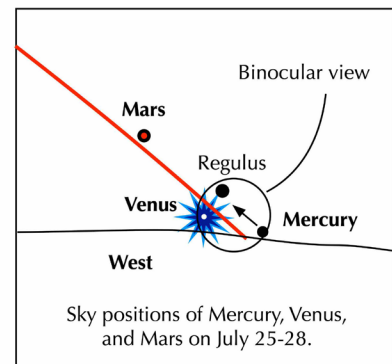
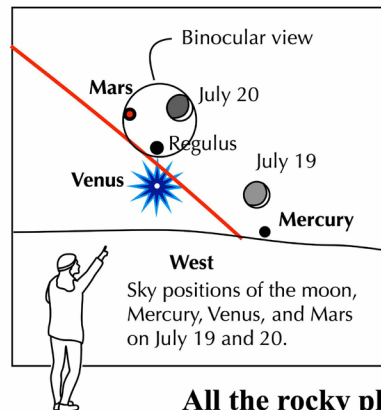
Perhaps the best night to view Mercury will be on the 28th, when the magnitude 0 planet stands in for Leo's heart, as it will lie just 7 arcseconds south of magnitude 1.36 Regulus.

You will have noticed that the position of Venus is changing dramatically with each passing night in July, getting lower in the western sky after sunset. As it approaches inferior conjunction in mid-August, its apparent separation from the Sun decreases. It is also moving southward, crossing the ecliptic on July 4, and continuing to move closer to the horizon throughout July. By the end of the month, it sets just 22 minutes after the Sun, making observing its large crescent fairly difficult.

Observing Venus with a telescope during the weeks leading up to its inferior conjunction also reveals its rapidly



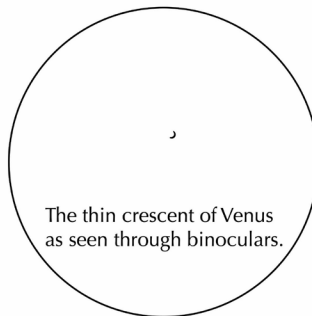
If you can see only one celestial show in the evening this July, see this one.



All the rocky planets, all at once!

On the evenings of July 19 and 20, look towards the west 30 minutes after sunset.

- Brilliant Venus will be seen as a tiny crescent in steadily held binoculars.
- On the first evening, the thin crescent moon, full with earthshine, hangs above Mercury. The little planet might be lost in the bright twilight.
- On July 20, the moon forms a triangle with Regulus and Mars. Venus sinks below them. Mars, having lost its splendor from last fall, might be difficult to spot in the bright twilight. Binoculars will help.



Mercury climbs somewhat higher over the remaining evenings in July. On July 28, it lies directly next to Regulus, which has dropped much closer to the horizon. Venus may lie too close to the horizon to be spotted. Because of their low altitude, very clear skies and a low horizon are needed to see this.

changing size and phase. At the beginning of July, when Venus is 0.49 AU away, the planet shows a 31.4% illuminated crescent 34 arcseconds across. By July 7, it will appear larger than Jupiter (37.4 arcseconds) and show a 26% illuminated crescent. By month's end, at just 0.31 AU distant, Venus shows a 5.6% illuminated crescent that is 54 arcseconds across.

Over the past several months, Venus has appeared to have been chasing Mars, and it finally catches up with the Red Planet on July 1, when the two are just 3.5° apart, before Venus begins dropping back towards the Sun. This is the closest Venus and Mars will appear together until February 2024.

July is the final month to see Mars under dark sky conditions, as it begins to set during astronomical twilight on the 12th.

At over 2.2 AU from Earth, Mars shows a tiny, 4 arcsecond disk, barely larger than Uranus. Given its size, and the considerable

airmass its light passes through, not much can be expected from observing Mars telescopically, but at magnitude 1.6, it is worth tracking with binoculars before it becomes difficult to view in twilight.

Mars spends the month of July in Leo, and during the first half of the month, it can be seen doing a celestial dance with Venus and Regulus, being within 1° of Leo's alpha star on the 10th and 11th.

The 2.9-day crescent Moon appears 2.8° to the right of Mars on the 20th, and if you are interested in a telescopic challenge, magnitude 9.2 asteroid 2 Pallas lies just 2.7° southwest (almost directly below) Mars that same evening, when Pallas is just 29% farther away from Earth, at 3.00 AU, compared to Mars's 2.47 AU.

Now that Saturn is an evening planet, rising just after 11:00pm EDT in early July, it is high enough to observe telescopically in the early morning hours, and even before

midnight at month's end. You may notice that Saturn's ring plane angle has narrowed considerably since last year, and now some of its inner moons can be seen transiting Saturn, as well as disappearing behind the planet or its shadow. While these events are not as easy to observe as the transits and eclipses of Jupiter's Galilean moons, it is worth noting, and that it is possible to observe or image them with a large telescope.

On July 6, the 19-day waning gibbous Moon passes 3.1° to the south of Saturn.

July is the best month to observe Pluto, which reaches opposition on July 21. At a distance of 33.80 AU, the dwarf planet shines at a faint 14.4 magnitude on the border of Capricornus and Sagittarius. Although Pluto crossed into Capricornus in March, its apparent retrograde motion has it meandering westward back into Sagittarius on July 8, where it will reside for the remainder of 2023. The globular cluster M75 is located about 1° to its north.

Jupiter, in Aries, rises at 1:45am EDT at the beginning of July, and becomes an evening planet, rising just a few minutes before midnight on the last evening of the month. The giant planet's four Galilean moons are aligned in order of their orbital distance to the east of the planet on the 2nd.

Neptune, in Pisces, is stationary on the 1st, and begins its retrograde motion. Our most distant planet is about 29.7 AU away, and shines at magnitude 7.8. It rises at about midnight in early July, and by 10:00pm EDT at the end of the month. This distant ice giant can be found 1.2° east-northeast of 5th magnitude 20 Piscium, which itself is located 4.8° south of lambda Pisces, the southeasternmost star of the Circlet asterism.

Uranus, in Aries, is just 9° east of Jupiter, and rises around 1:30am EDT at mid-month. To locate it, first find Botein (delta Arietis), a magnitude 4.4 star located about 9° southwest of the Pleiades, then move 2.4° southeast. The waning gibbous Moon lies 4° to its west on the 12th.

We haven't looked at Asteroid 4 Vesta in a few months, since it has been behind the Sun, but it is visible once again in the morning sky, and can be found traversing east-southeastward through the Hyades Cluster in Taurus during much of July. It passes just 1.0° north of Aldebaran (alpha Tauri) on the 17th.

While still over 3 AU away, the brightest of the asteroids shines at magnitude 8.5, and can be tracked in binoculars. It will eventually brighten to magnitude 6.4 late this year.

On the 1st, the waxing gibbous Moon is

1.4° west-northwest of Antares (alpha Scorpii). The waning crescent Moon passes near Jupiter on the 11th and 12th.

The Full Buck Moon occurs at 7:38am on the 3rd. This will be the lowest Full Moon of the year, culminating just over 19° above the southern horizon at 12:33am on the 3rd.

After passing Last quarter Moon on the 9th, the 25.4-day waning crescent Moon passes 2.0° south of the Pleiades cluster on the 13th.

New Moon occurs on the 17th. On the 23rd, the 5.7-day waxing crescent Moon is 2° south-southwest of the magnitude 2.7 binary star Porrima (gamma Virginis).

Ceres, at magnitude 8.5, is moving southeastward through Virgo. On the 8th, it passes 1.6° south of the elliptical galaxy M49.

The stars above have returned to their summer positions. In the west, we have finally bid farewell to the last remaining stars of winter, as Pollux and Castor, the twins of Gemini, have dipped below the western horizon. Ursa Major is now fully west of the meridian, and positioned nose-down, with the Big Dipper asterism pouring out its cosmic contents high above the northwestern horizon.

Leo and Virgo, the prominent constellations of spring, are low in the sky, and will have slipped out of view by midnight.

The Summer Triangle, consisting of the stars Deneb in Cygnus, Vega in Lyra, and Altair in Aquila, is high in the east. Hercules and Ophiuchus are now best viewed during mid-evening hours high in the south.

Now most prominent in the south in the evening sky, are our familiar summer constellations Scorpius and Sagittarius. Scorpius seldom gets the same attention as Sagittarius because of the latter being home to some of the Milky Way's brightest and largest nebulae and star clusters, but there are a few celestial delights worth noting around the scorpion.

Because of Scorpius's low position in the sky, and that it is visible during the time of year that we typically have our most cloudy and hazy nights, we don't get much time to explore this beautiful constellation, so it is worth planning to find a clear, moonless night, and a location with an open, southern horizon to visit Scorpius with binoculars or a small telescope.

Scorpius is one of the few constellations that resembles its namesake, with a set of claws extending towards its northwest, and a long, curving body ending in a hooked tail in the southeast. Antares, the brightest star in the constellation, marks the scorpion's

Events in July

- 1 Moon 1.4° WNW of Antares
- 1 Mercury Superior Conjunction
- 1 Neptune Stationary
- 3 **Full Buck Moon**
- 6 **Earth Aphelion**
- 7 Venus Greatest Brilliancy -4.7
- 7 Moon 3.1° SE of Saturn
- 9 **Last Quarter Moon**
- 10 Mars 0.7° NE of Regulus
- 12 Moon 4.2° W of Uranus
- 13 Moon 2.0° S of M45
- 14 Mercury 0.2° N of M44
- 15 Venus 3.5° SW of Regulus
- 17 **New Moon**
- 20 Moon 3.2° NNW of Mars
- 20 Moon 4.2° E of Regulus
- 20 Venus Stationary
- 21 Pluto Opposition (14.9)
- 24 Moon 2.7° NNW of Spica
- 25 **First Quarter Moon**
- 26 Venus 5.1° S of Mercury
- 28 Mercury 0.1° S of Regulus
- 28 Moon 4.0° E of Antares

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

heart, and is truly massive. At over 15 times the mass of the Sun, Antares is a red supergiant star, nearing the end of its life. Antares shines with a luminosity of about 10,000 times that of the Sun, and lies about 550 light years away. If Antares were to take the place of the Sun in our solar system, all of the four inner planets, as well as much of the asteroid belt, would lie within its 3 AU radius.

Admiring Antares in a low power telescope, you may notice a patch of light 1.3° to its west. A bit of magnification will reveal a sparkling ball of stars that is the globular cluster M4. One of the closest globular clusters to us, at 6,000 light years distant, it is around eleven times the distance to Antares. Both objects are stunning to view simultaneously in a telescope.

At the far southeastern limit of the constellation, just near its "stinger," is a pair of notable star clusters. If they were located farther north, they would likely get as much attention from observers as the Pleiades in Taurus or M44 in Cancer.

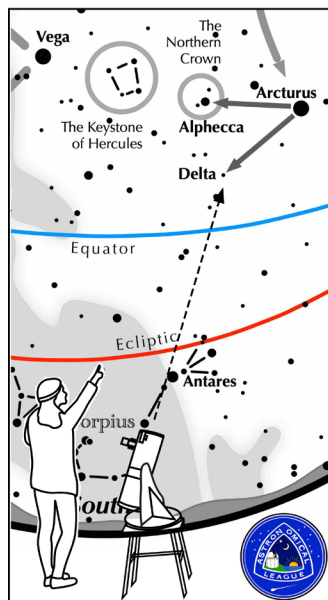
The northern of the two clusters, M6, was a clue on a recent episode of the TV game show Jeopardy! The clue read something to the effect, "Known as Messier 6, this star cluster in the constellation Scorpius represents this insect." As often the case on Jeopardy!, the clue doesn't presume that the contestants will be able to identify a Messier

object by its number, but to name the associated insect, as in this case they did, correctly naming it the Butterfly Cluster.

The Butterfly Cluster contains over 100 stars, with many members being between 6th and 8th magnitude, extending over an area slightly smaller than the Full Moon. Its somewhat symmetric shape, with an axis of closely-spaced stars running roughly north-northwest to south-southeast lends it its name.

About 3.5° to the southwest is the second of the two clusters, M7, also known as Ptolemy's Cluster, named after the 2nd century astronomer. This cluster contains far fewer stars than M6, about 25 or so, is slightly larger than M6, and having more brighter member stars than M6, makes it an ideal binocular object, a great starting point for your annual summertime journey into the Milky Way's best sights.

ASTRONOMICAL LEAGUE Double Star Challenge



Other Suns: Delta Serpentis

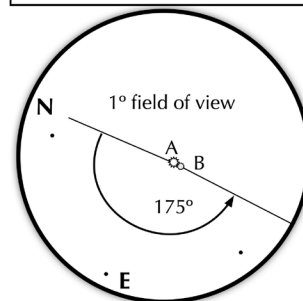
How to find Delta Serpentis on a July evening

Find bright Arcturus, nearly overhead. To its northeast is a similarly bright star, Vega. One-third the distance between the two is Alpha. Delta Serpentis lies the same distance from Arcturus as Alpha, but to the southeast.

Delta Serpentis

A-B separation: 4 sec
A magnitude: 4.2
B magnitude: 5.2
Position Angle: 175°
A & B colors: white

Suggested magnification: >60x
Suggested aperture: >3 inches



Book Review

Being in the Shadow: Stories of the First-Time Total Eclipse Experience

by Dr. Kate Russo, Belfast: Being in the Shadow, 2017, ISBN [978-1-9997078-0-4](https://www.isbn-international.org/product/978-1-9997078-0-4), softbound, \$16.99, US

Reviewed by Francine Jackson

It seems surprising that there hasn't been too much publicity concerning the October annular solar eclipse; however, next April's total eclipse, the last in the continental U.S. for over two decades, should be shouted everywhere.

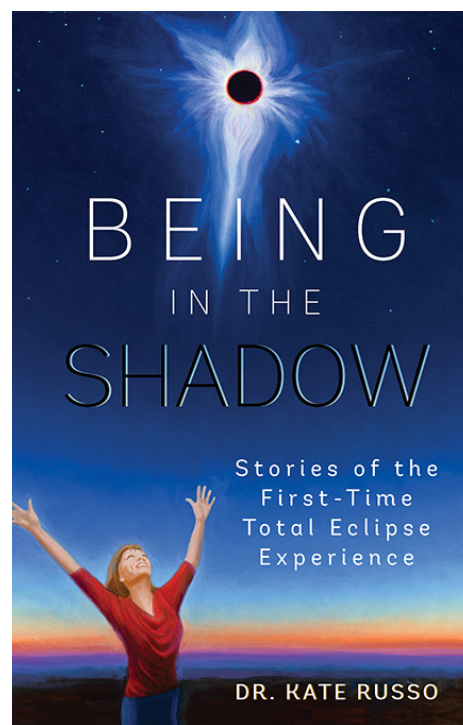
True, there are people for whom the event doesn't mean much, but, sometimes that feeling can change. Scott's book shows this.

A trained psychologist and avid eclipse chaser, Scott interviewed persons living near the 2012 total eclipse path in North Queensland, Australia. For some, the first thought was, "Whatever," something was going on, but it wasn't important. However, as the date came closer, there seemed to be more information, and consequently more curiosity, that perhaps it was something to watch for. One man, a self-described storm-chaser, had put an eclipse on his bucket list; another only became interested when he learned there would be an "Eclipse Festival" taking place on the path of totality.

But, then came totality. All doubt as to the beauty of this event was over. Nature seemed to change around them: insects began their night sounds; the daylight was

awash in dimness; gasps of wonder came from everyone observing. The eclipse became a time of magic, where life seemed to change, not only for the creatures, but for humans, also. Every one became determined to watch another one, although expenses would prevent some from doing so.

Dr. Scott's moral to her book is that everyone, regardless how much doubt there is in the beginning concerning a total solar eclipse, viewing one can change even the most persistent doubter. And, as astronomy educators, it is up to us to do our best to follow the examples Scott has in her book. For many of us, next year's magnificent event may be our last chance to view one easily; and, we should have a whole group of new observers with us, to remind them of the beauty of the sky. If you don't believe those who aren't nature oriented wouldn't be interested in watching this, read Scott's book, and see how this idea can change, in this case, with just two minutes of totality.

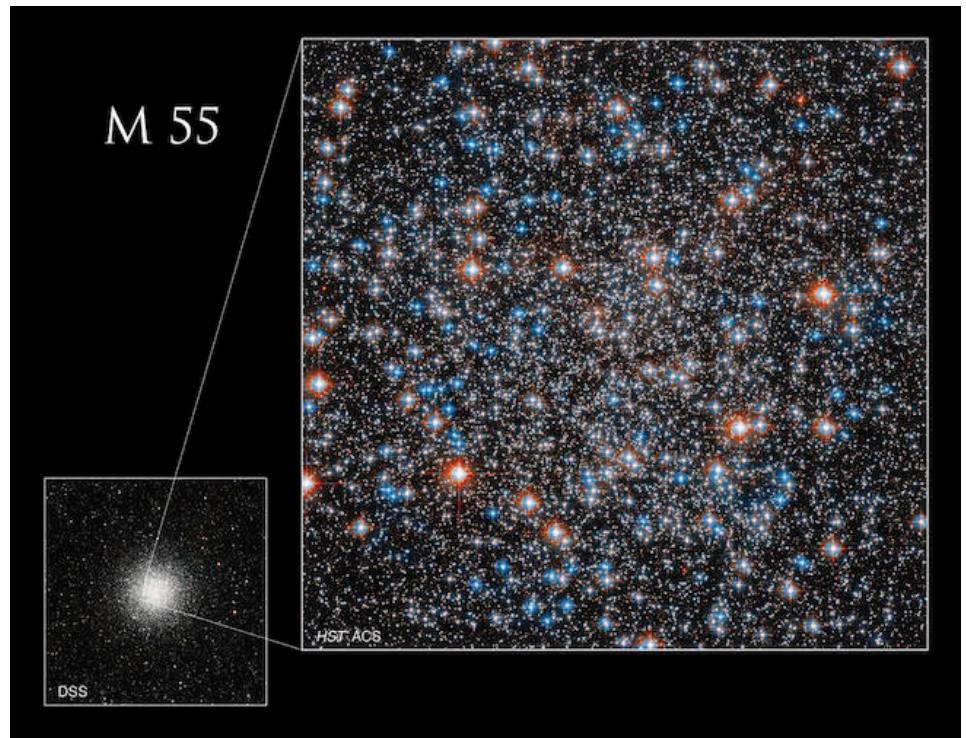


NASA Night Sky Notes: Find A Ball of Stars

by Linda Shore

French astronomer Charles Messier cataloged over 100 fuzzy spots in the night sky in the 18th century while searching for comets – smudges that didn't move past the background stars so couldn't be comets. Too faint to be clearly seen using telescopes of the era, these objects were later identified as nebulae, distant galaxies, and star clusters as optics improved. Messier traveled the world to make his observations, assembling the descriptions and locations of all the objects he found in his Catalog of Nebulae and Star Clusters. Messier's work was critical to astronomers who came after him who relied on his catalog to study these little mysteries in the night sky, and not mistake them for comets.

Most easily spotted from the Southern Hemisphere, this “faint fuzzy” was first cataloged by another French astronomer, Nicholas Louis de Lacaille in 1752 from Southern Africa. After searching many years in vain through the atmospheric haze and light pollution of Paris, Charles Messier finally added it to his catalog in July of



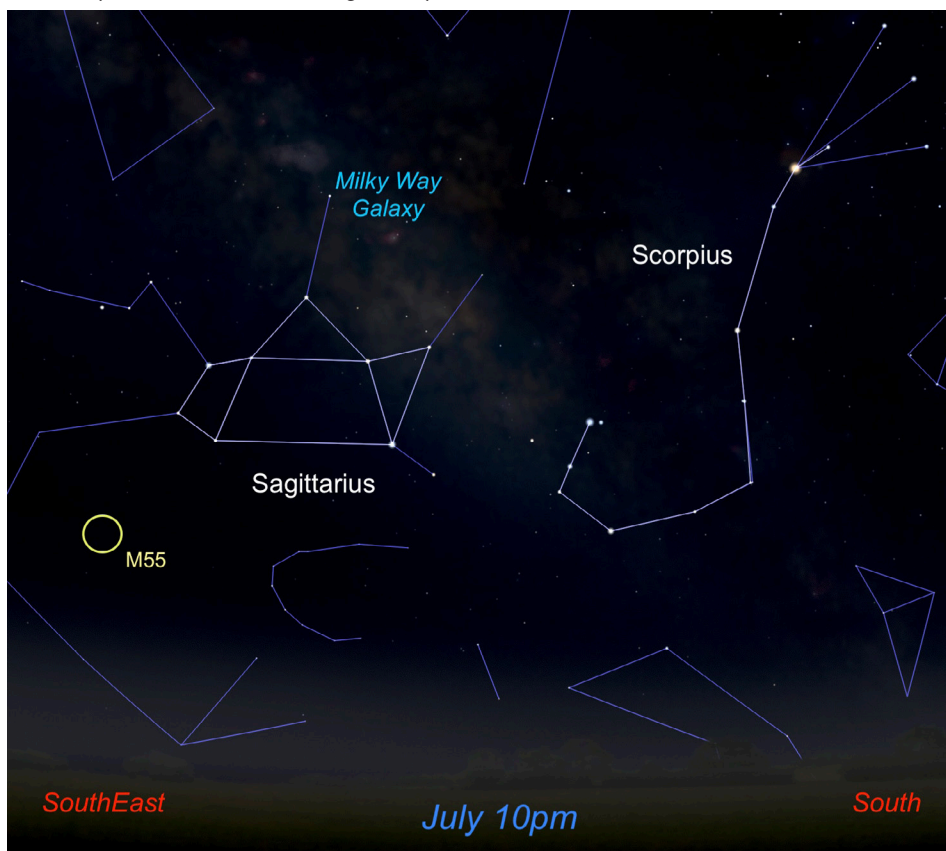
[Original Image](#) and Credits: NASA, ESA, A. Sarajedini (Florida Atlantic University), and M. Libralato (STScI, ESA, JWST); Smaller image: Digital Sky Survey; Image Processing: Gladys Kober

1778. Identified as **Messier 55 (M55)**, this large, diffuse object can be hard to distinguish unless it's well above the horizon and viewed far from city lights.

But July is great month for getting your own glimpse of M55 – especially if you live in the southern half of the US (or south of

39°N latitude). Also known as the “Summer Rose Star,” M55 will reach its highest point in northern hemisphere skies in mid-July. Looking towards the south with a pair of binoculars well after sunset, search for a dim (mag 6.3) cluster of stars below the handle of the “teapot” of the constellation Sagittarius. This loose collection of stars appears about 2/3 as large as the full Moon. A small telescope may resolve the individual stars, but M55 lacks the dense core of stars found in most globular clusters. With binoculars, let your eyes wander the “steam” coming from the teapot-shaped Sagittarius (actually the plane of the Milky Way Galaxy) to find many more nebulae and clusters.

As optics improved, this fuzzy patch was discovered to be a globular cluster of over 100,000 stars that formed more than 12 billion years ago, early in the history of the Universe. Located 20,000 light years from Earth, this ball of ancient stars has a diameter of 100 light years. Recently, NASA released a magnificent image of M55 from



Look to the south in July and August to see the teapot asterism of Sagittarius. Below the handle you'll see a faint smudge of M55 through binoculars. More “faint fuzzies” can be found in the steam of the Milky Way, appearing to rise up from the kettle. Image created with assistance from Stellarium: stellarium.org

the Hubble Space Telescope, revealing just a small portion of the larger cluster. This is an image that Charles Messier could only dream of and would have marveled at! By observing high above the Earth's atmosphere, Hubble reveals stars inside the cluster impossible to resolve from ground-based telescopes. The spectacular colors in this image correspond to the surface temperatures of the stars; red stars being cooler

than the white ones; white stars being cooler than the blue ones. These stars help us learn more about the early Universe. Discover even more: <https://www.nasa.gov/feature/goddard/2023/hubble-messier-55>

The Hubble Space Telescope has captured magnificent images of most of Messier's objects. Explore them all: <https://www.nasa.gov/content/goddard/hubble-s-messier-catalog/>



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

Observer's Challenge:

NGC 5774/5: Galaxies in Virgo

by Glenn Chaple

NGC 5774 Magnitude 12.1, Size 3.0' X 2.4';
NGC 5775 Magnitude 11.4, Size 4.2' X 1.0'

About 2 degrees northeast of the 4th magnitude star 109 Virginis is the interacting galactic pair NGC 5774 and NGC 5775. Both are spirals, the former being somewhat face-on, while the latter is basically edge-on. Their difficulty for visual observation is evidenced by the fact that the brighter of the two, NGC 5775, was designated as a Class III object (Very Faint Nebulae) by William Herschel, who discovered it in 1786. The even fainter NGC 5774 remained undetected until the mid-1800s when the Irish engineer/astronomer Bindon Stoney spotted it with William Parson's great 72-inch reflecting telescope (the "Leviathan of Parsonstown").

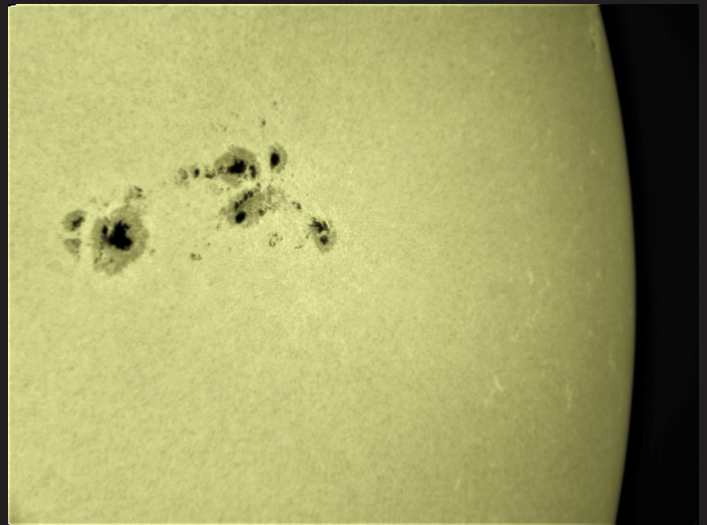
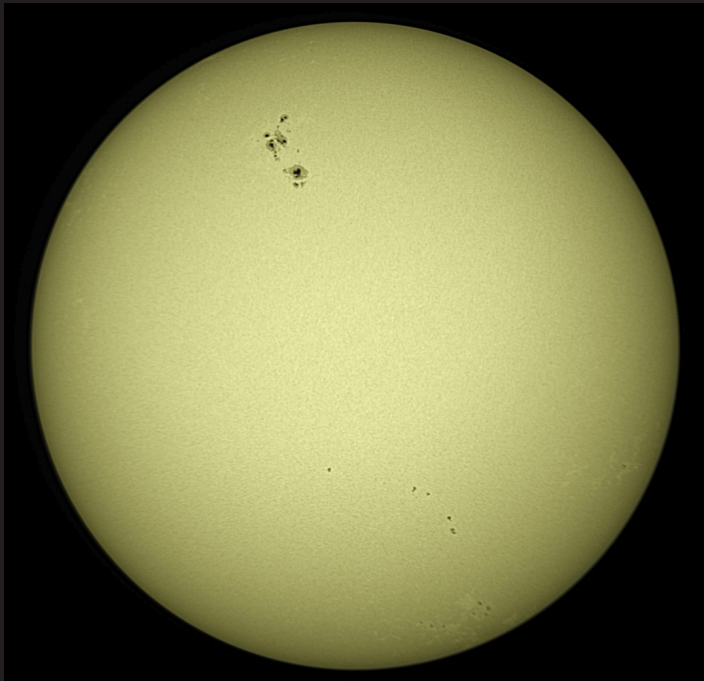
While NGC 5774/5 can be captured visually with today's smaller but optically superior instruments, you'll need reasonably dark skies if you expect to view them with an 8 to 10-inch scope. Start with the brighter NGC 5775, which is located at 2000.0 coordinates RA 14h53m57.7s, Dec +30°32'40.1". If you find it, NGC 5774 should appear as a fainter roundish glow 4.5 arc-minutes to its northwest. Even knowing exactly where to look directly or with averted vision, I saw neither with my 10-inch f/5 reflector under magnitude 5 suburban skies. Most guides assign NGC 5775 a magnitude of around 11.4. However, Burnham's Celestial Handbook gives it a magnitude of 12.3, which would be more in keeping with a Class III Herschel object

(and a handy excuse for my being unable to see it with my 10-inch!). Greg Crinklaw's Skyhound website (observing.skyhound.com) agrees with Burnham's magnitude for NGC 5775 and lists NGC 5774's as 12.8. Suffice it to say, these galaxies will challenge the experienced visual observer.

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



NGC5774-5 by Mario Motta. An Interesting interacting pair, for the imagers it was difficult to process, due to the relative brightness of 5775 vs 5774. Either 5774 was dim or 5775 was blown out too bright when processing. I finally solved it by creating individual digital masks for each galaxy, then optimally processing each of them. It will be interesting if visual observers note the brightness difference (I did not to this point get a chance to observe visually). These galaxies are 70 MLY away in virgo, and are an interacting pair. Looking closely you can see a spiral arm on N5774 being pulled out and flowing into 5775, took some teasing digitally to preserve this detail in my image. This is similar to the interaction in M51. Also, N5775 is well known to have an intense "vertical" magnetic field around the galaxy as seen with the radio VLA, This image was taken with Lum, R/G/B, and a touch of Ha. about 5 hours imaging in all, then processed in pixinsight with special processing to bring out the faint detail, especially in N5774. Taken with my 32 inch F6.5 telescope, and ZWO ASI6200 camera Mario Motta



White light solar images by Steve Hubbard

6 inch refractor, Altair solar wedge, Apollo mini M camera with 5nm green filter.



Sunspot AR3354 on June 29 by Ron Zincone

From Spaceweather.com

One of the biggest sunspots in years is directly facing Earth. AR3354 is 10 times wider than Earth and about 1/3rd the size of the historical Carrington sunspot. It's so big, observers in Europe and North America are seeing it naked-eye through the smoke of Canadian wildfires. Earth-directed flares are likely in the days ahead.



Cosmic Coffeehouse

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

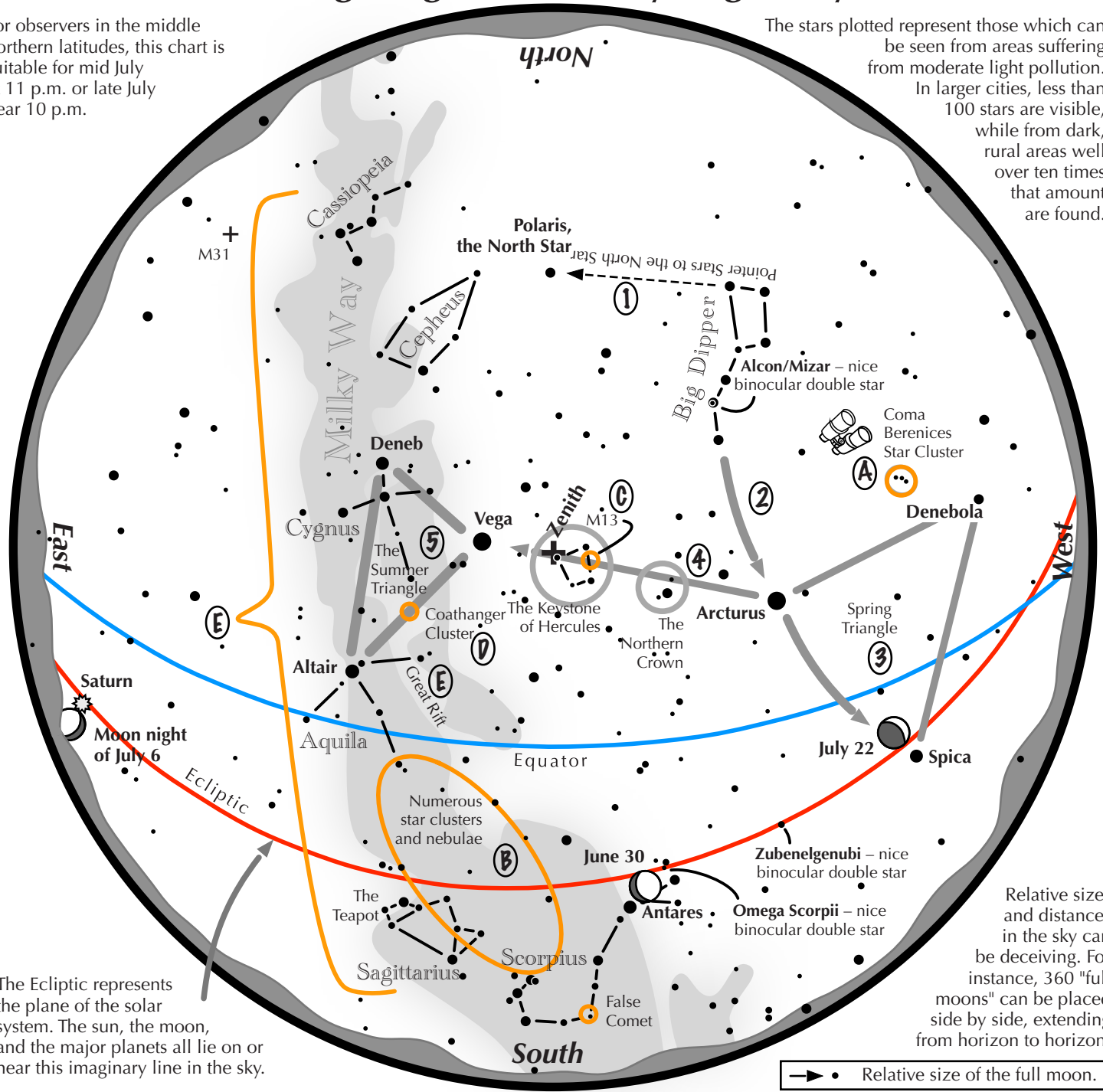
- interactive ZOOM format
- current news
- featured speakers
- equipment reviews
- observing notes
- fun 'n games

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

Navigating the mid July Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid July at 11 p.m. or late July 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 mid July 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 first intersects Arcturus, the brightest star in the July evening sky, then continues to Spica. Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.
- 3 To the northeast of Arcturus shines another star of similar brightness, 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 High in the East lies the Summer Triangle stars of Vega, Altair, and Deneb.

Binocular Highlights

- A: Between Denebola and the tip of the Big Dipper's handle, lie the stars of the Coma Berenices Star Cluster.
- B: Between the bright stars Antares and Altair, hides an area containing many star clusters and nebulae.
- C: On the western side of the Keystone glows the Great Hercules Cluster, containing nearly 1 million stars.
- D: 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger.
- E: Sweep along the Milky Way for an astounding number of faint glows and dark bays, including the Great Rift.



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

The Sun, Moon & Planets in July

This table contains the ephemeris of the objects in the Solar System for each Saturday night in July 2023. 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	1	6 38.9	23 08.1	Gem	-26.8	1887.9	-	-	-	1.017	05:14	12:50	20:25
	8	7 07.8	22 31.4	Gem	-26.8	1887.8	-	-	-	1.017	05:18	12:51	20:23
	15	7 36.3	21 35.6	Gem	-26.8	1888.1	-	-	-	1.017	05:24	12:52	20:20
	22	8 04.4	20 21.8	Cnc	-26.8	1888.9	-	-	-	1.016	05:30	12:52	20:15
	29	8 32.1	18 51.2	Cnc	-26.8	1890.1	-	-	-	1.015	05:36	12:52	20:08
Moon	1	16 12.9	-24 45.4	Sco	-12.6	1937.2	146° E	92	-	-	19:05	23:28	03:48
	8	23 25.2	-8 14.2	Aqr	-12.4	1934.5	117° W	73	-	-	23:38	05:25	11:24
	15	5 18.4	26 13.6	Tau	-9.7	1801.2	31° W	7	-	-	03:01	11:08	19:18
	22	11 08.5	8 30.8	Leo	-10.5	1785.4	46° E	16	-	-	10:00	16:32	22:52
	29	16 47.5	-26 49.3	Sco	-12.5	1938.7	128° E	81	-	-	17:53	22:12	02:29
Mercury	1	6 38.2	24 23.6	Gem	-2.3	5.1	1° W	100	0.311	1.326	05:12	12:53	20:34
	8	7 43.2	23 08.6	Gem	-1.5	5.1	8° E	95	0.337	1.310	05:55	13:30	21:03
	15	8 40.7	20 08.8	Cnc	-0.7	5.4	15° E	85	0.376	1.248	06:39	13:59	21:18
	22	9 29.2	16 09.1	Leo	-0.3	5.8	21° E	75	0.415	1.162	07:16	14:19	21:20
	29	10 09.4	11 45.5	Leo	0.0	6.3	24° E	66	0.444	1.066	07:45	14:31	21:15
Venus	1	9 33.3	14 59.5	Leo	-4.4	33.9	42° E	32	0.726	0.499	08:45	15:43	22:39
	8	9 47.2	12 44.9	Leo	-4.5	37.8	39° E	26	0.727	0.447	08:40	15:28	22:16
	15	9 55.9	10 40.2	Leo	-4.5	42.3	35° E	20	0.727	0.400	08:28	15:09	21:49
	22	9 58.3	8 54.6	Leo	-4.5	47.3	30° E	14	0.728	0.358	08:09	14:43	21:16
	29	9 53.6	7 39.3	Leo	-4.4	52.3	23° E	8	0.728	0.323	07:41	14:10	20:39
Mars	1	9 47.9	14 33.9	Leo	1.7	4.2	45° E	95	1.661	2.210	09:01	15:57	22:53
	8	10 04.2	13 03.8	Leo	1.7	4.2	43° E	95	1.659	2.252	08:56	15:46	22:36
	15	10 20.4	11 29.7	Leo	1.7	4.1	40° E	96	1.656	2.292	08:50	15:35	22:18
	22	10 36.6	9 51.8	Leo	1.8	4.0	38° E	96	1.653	2.329	08:45	15:23	22:01
	29	10 52.7	8 10.6	Leo	1.8	4.0	36° E	97	1.649	2.363	08:40	15:12	21:43
1 Ceres	1	12 23.7	7 17.3	Vir	8.6	0.5	84° E	96	2.628	2.538	12:03	18:32	00:59
	8	12 30.3	6 03.4	Vir	8.7	0.5	79° E	96	2.633	2.629	11:47	18:11	00:34
	15	12 37.4	4 47.9	Vir	8.7	0.5	75° E	96	2.637	2.719	11:31	17:50	00:09
	22	12 45.1	3 31.3	Vir	8.8	0.4	70° E	97	2.642	2.807	11:16	17:30	23:45
	29	12 53.2	2 13.9	Vir	8.8	0.4	66° E	97	2.646	2.893	11:01	17:11	23:21
Jupiter	1	2 29.0	13 30.5	Ari	-2.1	36.5	60° W	99	4.959	5.394	01:46	08:38	15:30
	8	2 33.6	13 51.7	Ari	-2.1	37.1	65° W	99	4.959	5.300	01:22	08:15	15:09
	15	2 37.9	14 10.6	Ari	-2.1	37.8	71° W	99	4.960	5.201	00:57	07:52	14:46
	22	2 41.7	14 27.3	Ari	-2.2	38.6	76° W	99	4.961	5.099	00:32	07:28	14:24
	29	2 45.1	14 41.6	Ari	-2.2	39.4	82° W	99	4.961	4.994	00:07	07:04	14:00
Saturn	1	22 37.6	-10 25.9	Aqr	0.8	18.0	122° W	100	9.789	9.214	23:23	04:47	10:11
	8	22 36.9	-10 31.4	Aqr	0.8	18.2	129° W	100	9.787	9.118	22:55	04:19	09:42
	15	22 36.0	-10 38.6	Aqr	0.7	18.3	136° W	100	9.785	9.032	22:27	03:50	09:14
	22	22 34.8	-10 47.2	Aqr	0.7	18.5	143° W	100	9.783	8.956	21:59	03:21	08:44
	29	22 33.3	-10 57.0	Aqr	0.6	18.6	150° W	100	9.781	8.891	21:30	02:52	08:15
Uranus	1	3 17.5	17 53.4	Ari	5.8	3.5	47° W	100	19.642	20.318	02:17	09:26	16:35
	8	3 18.6	17 57.8	Ari	5.8	3.5	54° W	100	19.641	20.227	01:50	09:00	16:09
	15	3 19.7	18 01.8	Ari	5.8	3.5	60° W	100	19.640	20.128	01:23	08:33	15:43
	22	3 20.6	18 05.3	Ari	5.8	3.5	66° W	100	19.639	20.022	00:56	08:07	15:17
	29	3 21.4	18 08.2	Ari	5.8	3.5	73° W	100	19.638	19.911	00:29	07:40	14:50
Neptune	1	23 53.5	-2 03.0	Psc	7.9	2.3	101° W	100	29.908	29.693	00:08	06:03	11:57
	8	23 53.4	-2 03.6	Psc	7.9	2.3	108° W	100	29.908	29.579	23:40	05:35	11:30
	15	23 53.3	-2 04.9	Psc	7.9	2.3	115° W	100	29.908	29.470	23:13	05:07	11:02
	22	23 53.1	-2 06.7	Psc	7.8	2.3	121° W	100	29.908	29.366	22:45	04:40	10:34
	29	23 52.7	-2 09.1	Psc	7.8	2.3	128° W	100	29.908	29.269	22:17	04:12	10:06
Pluto	1	20 09.5	-22 49.1	Cap	14.4	0.2	159° W	100	34.800	33.847	21:45	02:19	06:53
	8	20 08.9	-22 51.9	Cap	14.3	0.2	166° W	100	34.804	33.817	21:17	01:51	06:25
	15	20 08.2	-22 54.7	Sgr	14.3	0.2	173° W	100	34.809	33.801	20:49	01:23	05:57
	22	20 07.5	-22 57.4	Sgr	14.3	0.2	177° W	100	34.814	33.799	20:21	00:55	05:28
	29	20 06.8	-23 00.1	Sgr	14.3	0.2	173° E	100	34.818	33.811	19:49	00:22	04:56

STARRY SCOOP

Editor: Kaitlynn Goulette



WHAT'S UP

This month, the Summer Triangle asterism can be found overhead dominating the eastern sky. It's comprised of the stars Deneb, Vega, and Altair, each the brightest in their respective constellations. Stretching through this region is the edge-on view of the Milky Way, where countless deep sky objects can be found. One of my favorite targets in this region is Brocchi's Cluster, more commonly known as the "Coathanger." With a pair of binoculars, it can be found one-third of the way from Altair to Vega.

After sunset, Venus and Mars can be found in the western sky. On July 1st, they pass within 3.3 degrees of each other and as the month continues, Venus fades into the dusk. Later in the night, Saturn rises a little before midnight, but by month's end, it appears around 9:30. On July 7th, the moon passes by the ringed planet at a distance of about three degrees. Jupiter rises in the east about two and a half hours after Saturn.

The Delta Aquarid meteor shower runs annually from July 12th to August 23rd and peaks this month on the night of the 29th into the following morning. Producing about 20 meteors per hour, this shower is the product of Earth traveling through the debris field left from Comets Marsden and Kracht. The nearly full moon blocks the fainter shooting stars, but the brighter ones are still visible. For best viewing, find yourself in a dark location after midnight.

On the 3rd, we are treated to a supermoon. This occurs when a full moon is at its closest

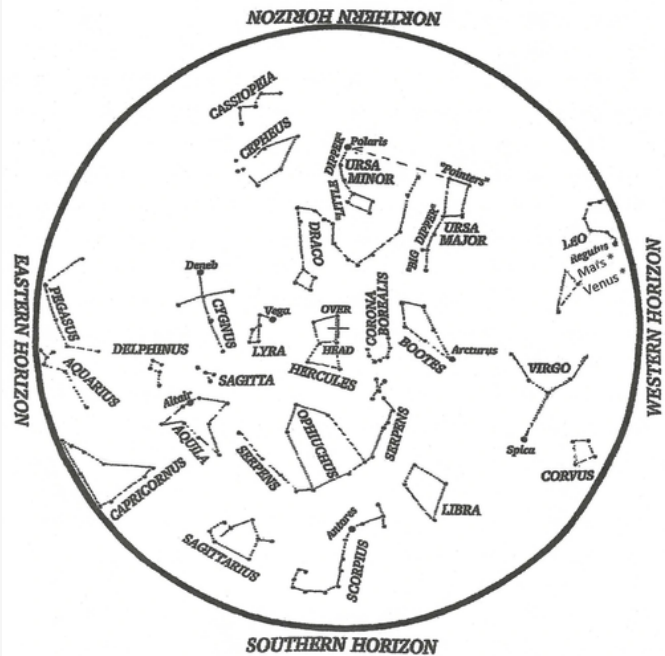
approach to earth in its orbit. Over the next few months, we are treated to four supermoons in a row. When observed, a slight change in brightness and size can be noticed. A supermoon appears to be 7% larger than an average moon with the brightness being 16% more.

JULY'S SKY

3: Full Moon, Supermoon

17: New Moon

29-30: Delta Aquarid Meteor Shower Peak



Credit: Roger B. Culver

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

OBSERVATIONS

Recently, with the smoke-polluted skies and my busy schedule, I haven't had many chances to stargaze. But on the evening of the summer solstice, June 21st, I was able to convince my father to drive me to the UMass Sunwheel to celebrate the start of summer with other astronomers.

The UMass Sunwheel in Amherst consists of a circle of large stones, which can be used as a calendar. On equinoxes and solstices, these stones mark where the sun rises and sets. Another great example of a solar calendar is Stonehenge, in England.

As attendees were arriving, Dr. Stephen Schneider provided a Coronado solar telescope to view the sun. Through the eyepiece we observed active regions on the surface and distinctive prominences along the sun's limb. Afterwards, Dr. Schneider utilized hula hoops and Styrofoam balls to explain orbital mechanics and basic astronomy to the public.

Professor Judith Young began the Sunwheel project 23 years ago. Her goal was to bring awareness and appreciation of astronomy to UMass students, the public, and children. I've been attending Sunwheel events for about eight years and I have enjoyed the presentation during each visit. The next Sunwheel event takes place on March 20th for the Vernal Equinox. I hope to see you there!



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

OBJECT OF THE MONTH

The highlighted object for June is Messier 22 (M22), located in Sagittarius. This globular cluster is one of the brightest in the sky and was discovered in 1665. It contains roughly 500,000 stars and lies about 10,600 light-years away. M22 contains a few additional attributes, including two stellar-mass black holes and a planetary nebula.

On an ideal night, M22 can be seen with the unaided eye and with a backyard telescope, hundreds of stars will be revealed. Find this object about 2.5 degrees northeast of the top star in the Teapot asterism.



Messier 22
Photo Credit: NASA



UMass Sunwheel
Photo by: 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