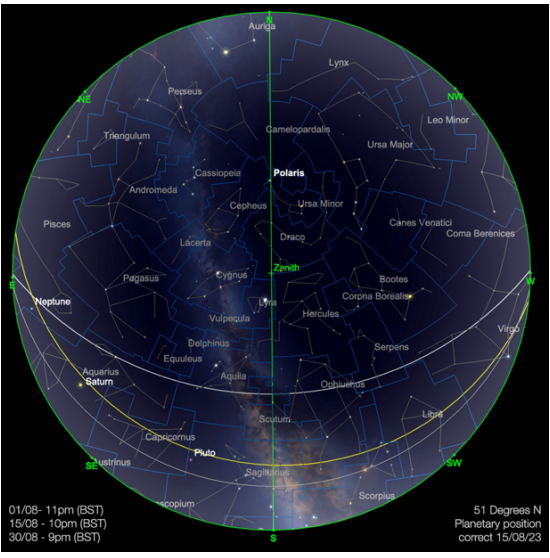
Telescope House Hosted by Bresser UK August 2023 Sky Guide



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For many of those in higher northern latitudes, August represents the return of true darkness. However, the higher the latitude you are, the more gradual this will be. August is often one of the more comfortable months to observe at night in the northern hemisphere, as nighttime temperatures are rarely cold and can often be extremely clement. With the expanse of the Summer Milky Way transiting in the earlier part of evenings, this time of year represents a good opportunity for deep sky observation, as there are

plethora of interesting objects to observe, some of which will be covering in our deep sky delight section. We also have the ever-reliable Perseid meteor shower which will be visible from the early part of the month and peaking this year on the 12th-13th of August.

So, without further ado, let's see what's in store for us in the skies above us this coming month...

The Solar System

The Sun

Our parent star remains very active, with mini sunspots, other surface features and prominences visible on a daily basis. The most energetic of recent sunspots, AR3372 and AR3373, have been making their presence felt and have the potential to unleash M class solar flares, which are amongst the most energetic the Sun can muster (barring the even more powerful X class flares). It's worth keeping a watchful eye on this group, as they have the potential to trigger lower latitude auroral activity.

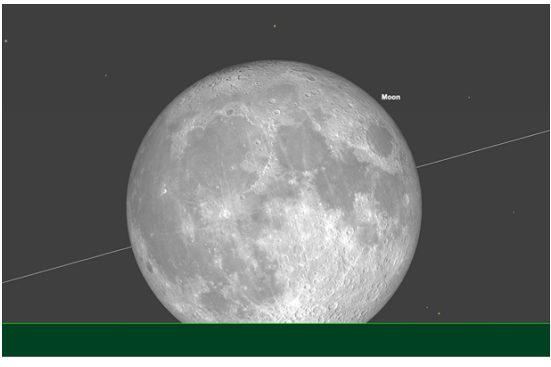
As ever, safety is paramount, with attempt to any observation of the Sun. Inexpensive Solar Film can be

used to cover the aperture of telescopes and binoculars and observe the Sun's surface in complete safety. Those readers with good quality refractors can also use the extremely high resolution white light Herschel wedges in their instruments. Of course, the ultimate in solar observation is currently to be found in the realm of H-Alpha instruments, which will not only reveal a wealth of detail on the Sun's surface, but can also be used to observe prominences and other solar atmospheric phenomena as well.

The Moon

We begin August to the Moon at Full phase in Sagittarius. On the 1st, the Moon rises at around 9:30 pm, transiting a little after 12:30 am the following morning and setting a little before 4:30 am. This Full Moon will be the first of August, but not the only one. This will also be the first of August's Supermoons - more correctly referred to as a perigee syzygy Moon - which occurs when the Moon is at its closest approach to earth on its slightly eccentric orbit. As we've covered in previous sky guides, a Supermoon is not of any *great* scientific significance, but the effect of the Moon's proximity to Earth, especially at this time of year,

when the Moon is sitting very low in the southern ecliptic for observers in the northern hemisphere, will Increase of perceived notion of its size. A Supermoon only appears around 14% larger than the Moon at its smallest, but atmospheric lensing (caused by refraction when the Moon is low to the horizon) can also serve to make objects appear very slightly larger than they would do, were they higher in elevation in the sky. Both of these phenomena acting concurrently may make the Moon appear a little larger than usual. However, at this point, we point out again, that Full Moon is one of the worst times to observe it, as many of its most interesting features are completely bleached out. This, coupled with the Moon's position in the sky (for those of us in the northern hemisphere) does not make this the best time for telescopic observation of our natural satellite. But regular naked eye observation of the Moon, especially when it's rising, will undoubtedly be a very picturesque sight indeed.



The Moon rising, early evening 1st August. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

Beyond the beginning of the month, the Moon moves through the constellations of Capricornus, Aquarius - where it will meet Saturn on the evenings of the 3rd and 4th of August - on into Pisces and northern Cetus and then into Aries, where on the 8th it will meet the prominent Jupiter and also come to Last Quarter phase. Jupiter and the Moon will form an attractive pairing on the morning of the 8th, with the two worlds sitting about 2 1/2° from each other, nearly at transit point, as the Sun rises in Europe.

The next week sees the Moon dipping towards the Sun, passing through the constellations of Taurus, Gemini, and on into cancer where it will become New on the 16th August. After this point, the Moon will become an evening object again. This part of the month will be naturally the best for deep sky observation and Astrophotography. Although the window of true astronomical darkness may still be somewhat short for higher northern latitudes observers, you are encouraged to make the most of the return of true

darkness.

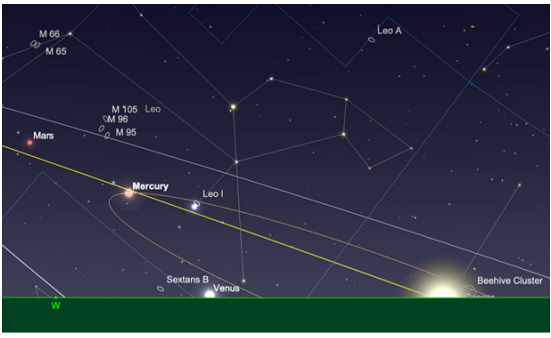
The second half of August, sees the Moon rising into the evening sky through Leo, Virgo, then on into Libra and Scorpius, where it reaches first quarter phase on August 24th. During the summer months, the Moon at crescent evening phase does not rise particularly high above the horizon (for those of us in the northern hemisphere) and there are certainly more favourable times of the year from an evening lunar observation point of view.

The last week of August sees the Gibbous Moon passing through Ophiuchus, Sagittarius, Capricornus and on into Aquarius, where it becomes Full again on August 31st. This second Full Moon of the month is also a “Supermoon” as well.

As this is the second Full Moon of the month, it is a so-called “Blue Moon”. The term Blue Moon has nothing to do with the Moon's colour. It is thought to be a corruption of the archaic English word "belewe" which means to betray. The reasoning behind this is that two Full Moons in one calendar month "betrays" the regular monthly lunar cycle - hence the term "Belewe Moon”.

Mercury

Mercury is observable in the evening sky at the beginning of August. The evening of the 1st, finds the planet sitting in Leo at a little above, 7 1/2° elevation as the Sun sets (as observed and 51° north). The planet is +0.1 magnitude, displaying a 6.7 arc second diameter disk, with a phase of just under 61% illumination and is separated from the Sun by 26°.



Mercury, sunset, 1st August. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

Mercury reaches maximum eastern elongation from the Sun on the evening of August 10th, by which time it will have increased its apparent size to 7.6 arc seconds diameter, but will have fractionally decreased its brightness to +0.4 magnitude. The reason for this is the planet's inevitable decrease in phase from the month's beginning -

now sitting at just under 48% illuminated. As Mercury is now in the descending node, as observed from the northern hemisphere, it has decreased its height above the horizon at sunset from August's beginning to just under 6° (again, as observed from 51° north).

And the rest of the month sees Mercury dipping towards the Sun, getting larger from an apparent diameter point of view, but decreasing its phase as it draws closer to us here on Earth. This dip towards the Sun will make the planet increasingly more of a challenge to observe for those of us in the higher northern hemisphere. The evening of the 15th sees Mercury standing just over 4 1/2°, above the horizon at sunset, shining at a steady +0.6 magnitude and showing at 39% illuminated, 8.3 arc second diameter disk. Beyond this point, Mercury's decreasing brightness and altitude will make it extremely challenging for those in northern Europe and similar latitudes to observe, but those further south may fair better for a little while longer.

Mercury will reach Inferior Conjunction in early September and will be unobservable for those of us on planet Earth from later in August, no matter where you are located.

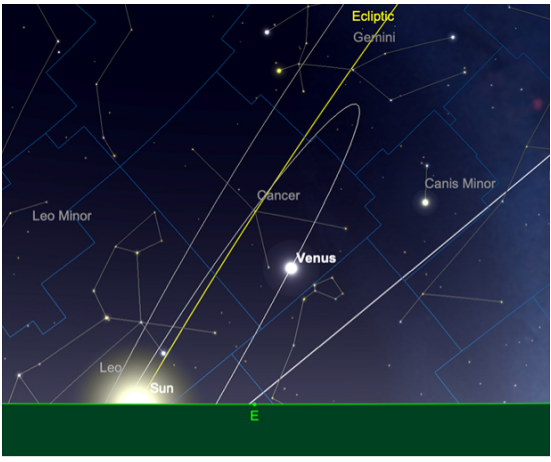
Venus

At the beginning of August, Venus is separated from the Sun by around 18°. However, for those of us in higher-to-mid-northern latitudes, the planet and our parent star set almost exactly at the same time, making Venus a very difficult observing target.

Venus reaches Inferior Conjunction, as seen from Earth, on August 13th and will be no longer observable to us until it reemerges as a morning object. At Inferior Conjunction, Venus will be 43,200,000 km from Earth - around 26,800,000 miles. At this point. Venus will definitely live up to its reputation as our nearest planetary neighbour, though as is often pointed out, Mercury is regularly closer to us than Venus is, at particular points of its orbit.

By the end of the month, Venus will have reemerged from Inferior Conjunction and will stand at 16° high in the sky at sunrise on the 31st (as observed from 51° north). The planet will be an impressive -4.4 magnitude, showing a 50.5 arc second diameter, 10% illuminated crescent phase. For those early risers, Venus will be a rewarding spectacle in both binoculars and

telescopes. Though modest powers of magnification are encouraged for those observing telescopically at higher northern latitudes, as Venus is still rather low in the sky at dawn.

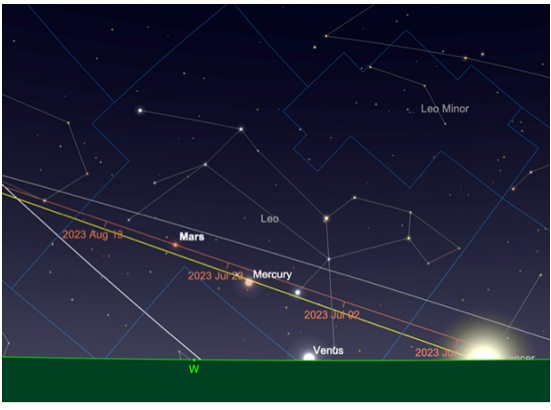


Venus at sunrise, 31st August. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

Mars

The Red Planet's continuing demise is evident throughout August. However, at least we have got to a point where the planet bottoms out in terms of brightness - so technically, while Mars will remain very disappointing for a significant period of the near future (up to and beyond Superior Conjunction), it will actually start to improve from hereon in terms of brightness alone. The reason for this is a combination of distance and angle of illumination, as seen from Earth.

On the evening of the 1st, Mars can be found in Leo at +1.8 magnitude, showing a 3.9 arc second diameter disk. Amazingly, the planet is still situated over 37° from the Sun in early August, so will set at a little after 10 pm. Being such a small size, Mars will be a really rather disappointing view in almost any telescope.



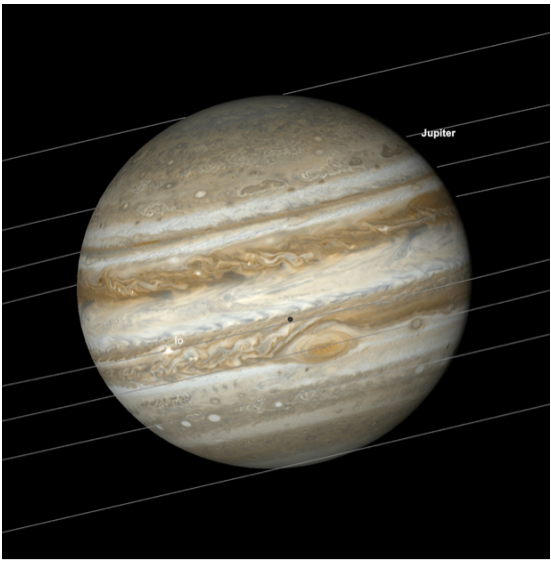
Mars, sunset, 1st August. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

By the time we get to the end of the month, Mars is still in Leo at the same magnitude and a very similar diameter. It will now set at around 8:45 pm (BST). While we would never want to put any planetary observers off tackling any target, there are many other superior targets to look at in the sky at present.

Jupiter

Jupiter begins August at a healthy -2.4 magnitude, in Aries. Displaying a 39.9 arc second diameter disk, the planet will rise at a little after midnight transiting at a little after 7 am. It will make a fine target in any telescope at just before sunrise, standing at an impressive 52° elevation (as observed from 51° north).

By mid month, the planet will have improved marginally in brightness and now displays a -2.5 magnitude, 41.7 arc second diameter disk. Jupiter rises a little after 11 pm and will transit due south at around 6:30 am the following morning (all times BST).



Jupiter with mutual Great Red Spot, Io and Io Shadow Transit, 21st August, 3.49am. Image created with SkySafari 5 for Mac OS X,

By the time we get to the end of August, Jupiter has improved in brightness fractionally again to -2.6 magnitude and will now display at 43.8 arc second diameter disk. The planet will stand at around 53° elevation in the South-South-West at sunrise (as seen for 51° N). The end of the month sees Jupiter, approaching a stationary point in the sky. After which point, it will start its retrograde motion, which is always the precursor to an outer planet's opposition - which it will reach in early November. For those of us in the northern hemisphere, Jupiter's return to elevations of this type is a welcome relief, after spending the past few years as a southern celestial hemisphere object. The improvements in seeing conditions that this sort of separation from the horizon gives us are not to be understated. If you are up early enough, Jupiter should be one of your prime targets for telescopic observation.

Saturn

Being situated further to the west in the ecliptic than Jupiter, Saturn reaches Opposition earlier in the year. This year Saturnian Opposition

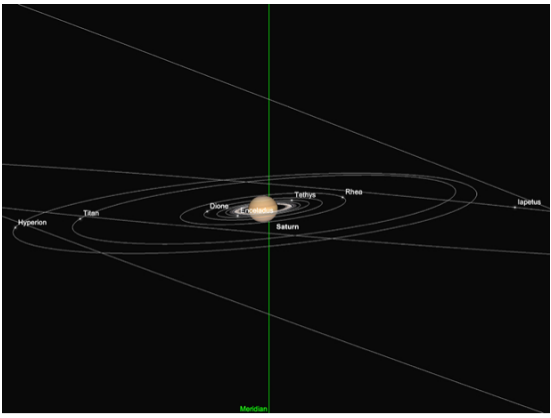
falls on the 27th of August, making this month a prime point in the year to see the Ringed Planet at its best.

Is Saturn begins August as a +0.6 magnitude target, displaying an 18.8 arc seconds diameter disk. A resident of Capricornus, the planet will rise at just before 10 pm, transiting at just after 3 am and sitting at a little after 8 am the following morning.

By mid month, Saturn will have brightened fractionally to +0.5 magnitude, now displaying an 18.9 arc second diameter disk. The planet will rise at a little before 9 pm, transiting at just after 2 am the following morning and setting at a little after 7 am.

By the time we get to Opposition night, Sutton will have brightened a little further to +0.4 magnitude and will now display a 19 arc second diameter disk. Rising at just after 8 pm, Saturn will transit at a little before 1:30 am the following morning and will set a little before 6:30 am. On the morning of opposition, when Saturn is sitting at transit point (the highest point in the sky), as viewed from 51° north, the altitude of the planet will be just over 27 1/2°. this falls a little short of the “magic“ 30° elevation, above which seeing conditions tend to improve dramatically. However, this

is a *distinct* improvement on the dire conditions for observation of Saturn, that northern hemisphere observers have had to endure for the best part of the past decade and a sure sign the situation is improving - albeit slowly.



Saturn and its major Moons, Opposition evening, 27th August. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

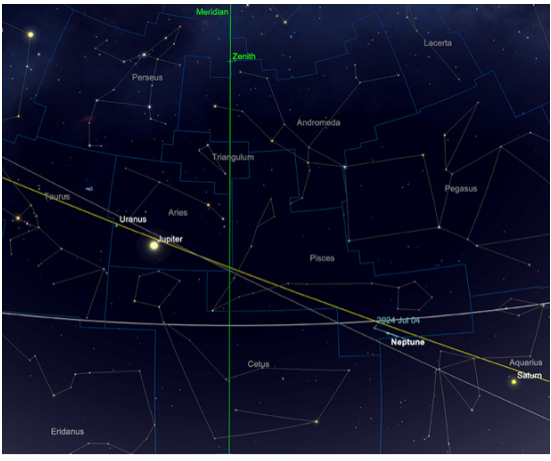
Uranus and Neptune

Neptune, being a little further east in the ecliptic than Saturn, currently located in Pisces, is the next planet to reach opposition - put this won't occur until mid September. When viewed during mid August, Neptune presents a +7.8 magnitude, 2.3 arc second diameter disk. It will rise at around 9:30 pm, transiting at 3:30 am the following morning, setting as a little before 9:30 am. Neptune

can only be seen using binoculars and telescopes - but once found, its distinctive blue colour is striking.

Uranus is situated much further east in the ecliptic, in Aries. Mid month will see the planet at +5.7 magnitude, displaying 3.6 arc second diameter disk. On the 15th, Uranus will rise a little before 11:30 pm, transiting at around 7 am the following morning. The presence of Jupiter will provide a handy guide to the area of sky in which Uranus can be found, with the two planets being separated by around 8°.

Although Uranus can be seen with the naked eye by the keen-eyed from dark observing sites, it is really the preserve of binoculars or telescopes for most people. Given the return of true darkness later in August for many of our readership, if you are in a dark enough location, it can be a real test of naked eye observing skill (not to mention individual eyesight) to try and locate Uranus with the naked eye.

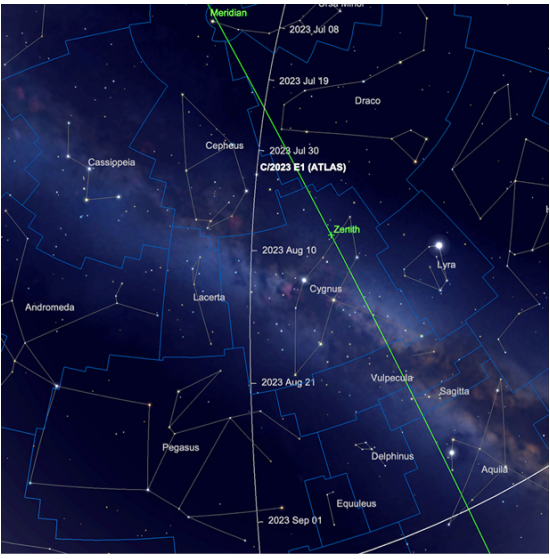


Uranus and Neptune relative positions, 15th August. Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

Comets

There are no comets brighter than the 9th-10th magnitude visible at present - so those mentioned are definitely the preserve of those with telescopes or larger binoculars. C/2021 T4 (Lemmon) is a lower latitude northern hemisphere and southern hemisphere target and is estimated to be +9.5 magnitude at time of writing. C/2023 E1 (ATLAS) is of similar magnitude and has probably reached peak brightness. It will be found travelling through Cepheus, Cygnus and Pegasus during August, though will be fading towards the end of the month. This comet is the best that August has to offer northern hemisphere

observers.



C/2023 E1 (ATLAS) path during August (comet position shown 1st August). Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com.

C/2021 S3 (PANSTARRS) *may* reach 5th/6th magnitude in early 2024 and might become a reasonable binocular target and there is also C/2023 A3 after that, but as previously reported, this latter comet is still a large distance from the inner solar system and has a high margin of error in terms of brightness estimates. It will require further observations to determine if it will develop into a notable comet.

Meteors

The Perseid meteor shower is an annual event running from mid-July to late August and has become astronomically synonymous with the month of August. Typically, its peak activity occurs around August 12th-13th. Last year's shower reached a zenith hourly rate of approximately 60 meteors, but this year's display is expected to be more impressive, possibly peaking at 100 meteors per hour. It's essential to note that these figures are based on optimal observing conditions with clear skies and minimal light pollution. In more realistic settings, without darker skies, the observed rate may be significantly lower.

A notable aspect of this year's Perseid meteor shower is the favourable absence of the Moon's brightness during the peak night. On August 12th/13th, the Moon will appear as a slim 10% Waning Crescent, minimising interference and providing an excellent opportunity for observation.

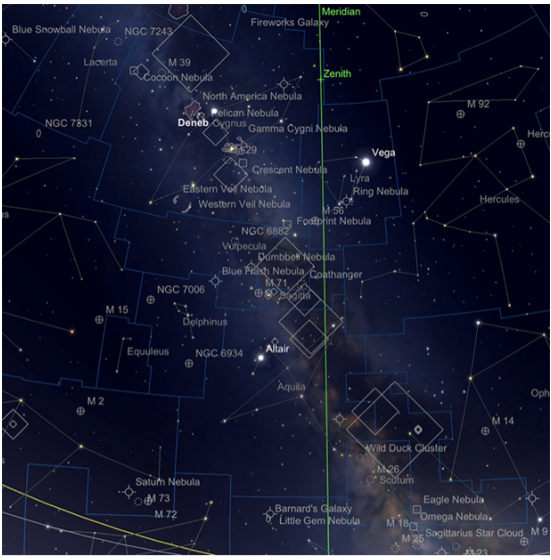
Photographing the Perseids requires a standard DSLR camera equipped with a wide-angle lens and set to a reasonably high ISO (800+). Capturing a few bright examples of the meteors during an evening's worth of timed exposures should be achievable, with multiple

30-second exposures providing satisfactory results over the course of an hour. Adequate camera memory and fully charged batteries are crucial preparations for a successful attempt.

Whether you plan to observe or photograph the Perseid meteor shower, finding the darkest accessible area will significantly enhance your experience and allow you to appreciate this captivating event in all its glory. Even within urban centres affected by light pollution, some of the brightest Perseid meteors will break through and become visible, shining as brightly as the major planets for brief moments.

The Perseids are typically swift, bright meteors, some which leave persistent trails and are formed by debris released from the comet 109P/Swift-Tuttle, during its recurrent passages through the inner solar system. The shower earned the name "Perseids" due to the location radiant, the apparent point in the sky from which they appear to originate, being situated within the prominent northern hemisphere constellation of Perseus. However, as those who observe the Perseids can attest to - the meteors of this shower can be seen in any point of the sky.

DEEP SKY DELIGHTS IN THE SUMMER TRIANGLE

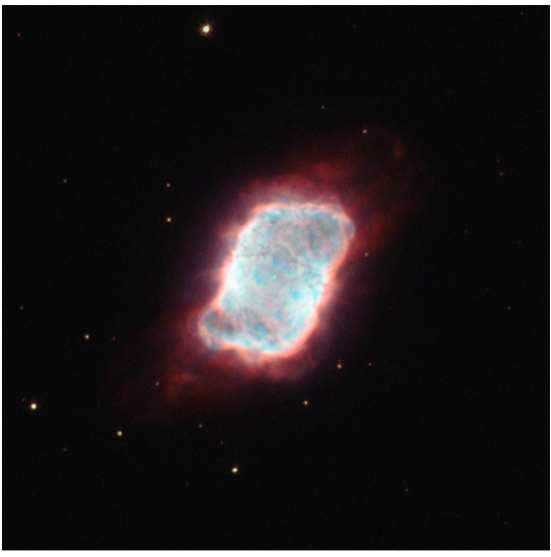


The Summer Triangle. *Image created with SkySafari 5 for Mac OS X, ©2010-2016 Simulation Curriculum Corp., skysafariastronomy.com*.

The Summer Triangle is an asterism that consists of the stars Vega, Deneb and Altair and was a term first associated with these stars by the Austrian astronomer Oswald Thomas in the early-to-mid 20th century, when he referred to it as *Grosses Dreieck* (Great Triangle) in the late 1920s and *Sommerliches Dreieck* (Summerly Triangle) in 1934. This area of sky takes in the constellations of Cygnus, Lyra, Aquila, Vulpecula and Sagitta and

contains some of the best deep sky objects in the whole sky.

Starting from the most southerly tip of the Summer Triangle, we come to the major constellation of Aquila, The Eagle. Despite its size and prominent position along the plane of there Milky Way, this constellation is curiously lacking in major Deep Sky objects. The only one of great note is the interesting NGC 6741, otherwise known as The Phantom Streak. This object is a planetary nebula of +11.69 mag and diminutive in size (as many planetaries are), at just 0.1 arc minutes across. Looking like a ghostly parallelogram, the Phantom Streak is not an easy object, but its cocoon-like structure can be discerned by those with access to larger telescopes. It is a rewarding find for those with the ability to find it. The distance of NGC 6741 is not certain. Some sources list it as lying 7000 light years distant, though others think it a closer object at around 5000 light years from us. The Phantom Streak is notable for the possibility that its central star, a white dwarf remnant of a star much like the Sun, may be running out of hydrogen fuel and its dropping in luminosity. This means the Phantom Streak may not be visible in its present form for much longer - a sign we live in a dynamic Universe. Catch it while you can!

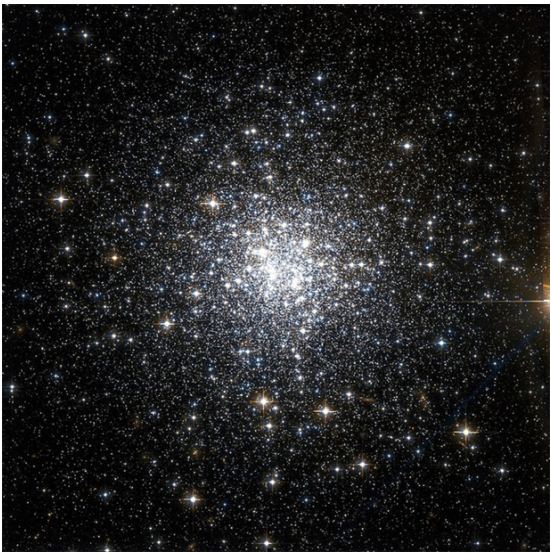


NGC 6741, The Phantom Streak. Image Credit - NASA/ESA Hubble Space Telescope, Creative Commons

Moving up past Altair, we take a brief dog leg East into the tiny constellation of Delphinus, The Dolphin. This lovely little collection of stars, though not especially bright, can easily be made out under dark conditions. Delphinus' kite-shaped arrangement of four stars and the Dolphin's tail marked by the prominently blue Epsilon Delphini is unmistakable.

Delphinus contains two globular clusters - nether particularly bright, but worth seeking out nonetheless. NGC 6934 is the more Southerly and is found just under 11 degrees almost due east of Altair. At +8.8 mag and 1.4 arc minutes in diameter it is hardly prominent, but is

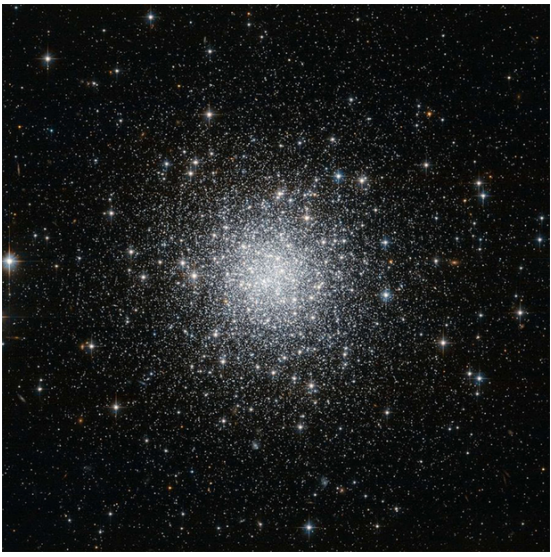
location in the rich star fields of the Milky Way go someway to explaining this. Small telescopes show the cluster as a soft, rather indistinct ball of light, but larger instruments will be needed to show the scant detail it offers up to observers. Lying over 50000 light years away, NGC 6934 was one of William Herschel's many discoveries - he first catalogued it in 1785.



NGC 6934. Image Credit: Hubble Image NASA/ESA, Public Domain.

Herschel also Discovered NGC 7006 which is located some 11 degrees to the NE of NGC 6934. At +10.56, it is one of the fainter of our galaxy's globular clusters. This faintness is understandable when one considers NGC 7006's distance - an amazing 135,000 light years hence. This cluster is described by various observers as quite comet

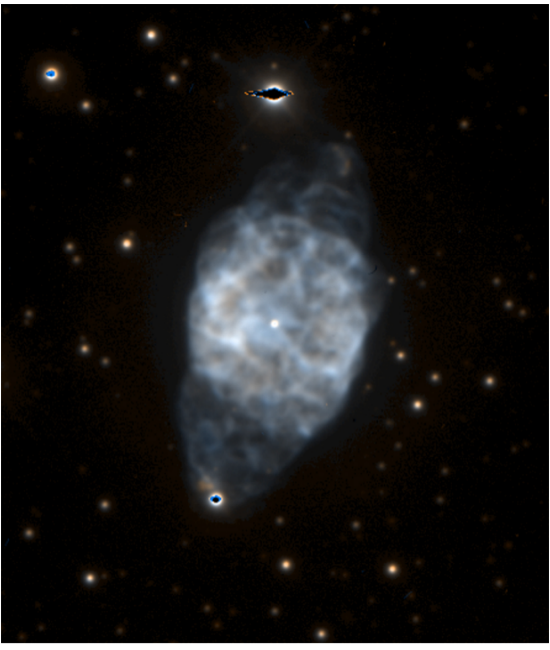
like in appearance - a condensed central region and a halo of stars are not as distinct as they are in its neighbour. A very large telescope of 16+ inches aperture will be needed to resolve individual stars in this challenging target.



NGC 7006. Image Credit: Hubble Image NASA/ESA, Public Domain.

Delphinus also contains a good planetary nebula: the Blue Flash, or NGC 6905. This is more easily seen in small telescopes than either of the globular clusters previously mentioned. Indeed, it is often overlooked, due to its proximity to the nearby M27 (more of which later), but the Blue Flash deserves more observation. A blue-white ball of light, with extending lobes either side, NGC 6905 is +10.89 mag and 0.8 x 0.6 arcminutes in dimension and lies 2200 light years away.

Larger telescopes will start to pick up more of the object's uneven shape and central star. It seems decidedly egg-shaped to some.

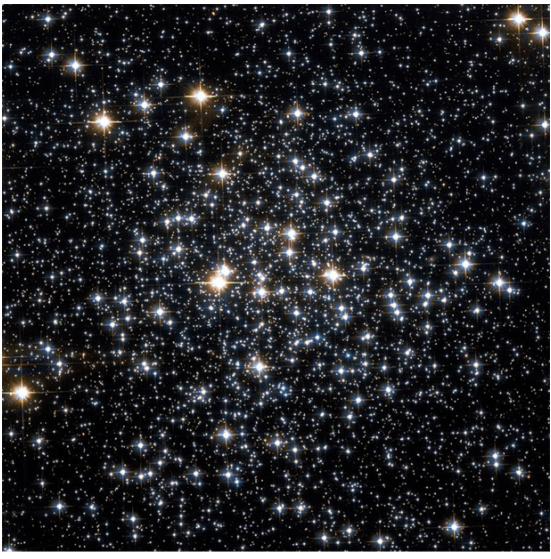


NGC 6905, The Blue Flash Nebula. Image Credit - European Southern Observatory - Creative Commons

Just under 7 degrees to the west of The Blue Flash, over the border into Sagitta, The Arrow, sits another globular cluster - M71.

Discovered in 1746 by Philippe Loys de Cheseaux, M71 is a very loose globular, which was perhaps understandably classed as an open cluster for a considerable amount of time. Binoculars show it well, but smaller telescopes will start to resolve it into stars. At 3.3 arcminutes diameter and +8.18 mag, M71 is a curious beast: its

spectral makeup and spread of differing star types is much more suggestive of an open cluster, though observations of the radial velocities of its constituent stars have pointed to its globular nature. It is thought to be particularly young for a globular cluster, being "only" 9 billion years of age.



M71. Image Credit: Hubble Image NASA/ESA, Public Domain.

Moving further Westward, over the border into Vulpecula, The Fox, we come to one of the most celebrated clusters in the whole sky - Collinder 399, otherwise known as The Coathanger, for obvious reasons! The asterism of The Coathanger contains ten bright stars, one of which is an orange-yellow colour, which contrasts nicely with the blue-white of the other nine. A perennial binocular favourite, The Coathanger is a large object at 89

arc minutes diameter is best seen in widefield instruments at low powers. Its unlikely appearance always raises a wry smile, as it is one of the sky's greatest practical jokes.

Chart showing the location of The Coathanger Asterism. *Image created with SkySafari for Mac OS X, ©2010-2012 by Southern Stars, www.southernstars.com.*

From the ridiculous to the sublime, the next object is one of the best examples of its type in the entire firmament - M27, The Dumbell Nebula. This planetary nebula is to be found 8 1/3 degrees to the east of The Coathanger and is a richly rewarding object to observe in any telescope. Small telescopes show it as an elongated glowing box. Larger apertures show more and more of the distinctive "apple core" shape. Long duration exposure

images show the whole object, including its ghostly outer layers, beautiful colours and complex internal structure. The Dumbell is a true Messier object, as it was discovered by Charles Messier in 1764 and at about half the diameter of the Moon and +7.09 is easily one of the most prominent examples of its kind in the sky.

M27, The Dumbell Nubula. Image Credit - Mark Blundell

We see M27 from the side on - hence its less-than-planetary shape. Were we observing it from a polar viewpoint, it would appear ring-like. But we are fortunate that the inner structure of the nebula is so well-defined from our perspective. M27's distance is heavily debated, but now appears to be around 1200-1700 light years away. Its age is thought to be relatively young - 3-4000 years-or-so. It is an easy object to locate and should not be missed by any observer.

NGC 6885 is another inhabitant of Vulpecula and lies 4 2/3 degrees NE of the Dumbell. It is a +8.10 open cluster, around 20 arc minutes in size. Although not exceptionally bright, NGC 6885 is easily located in binoculars and is probably best-seen in a large pair. This cluster contains over fifty member stars and has distance of around 1900 light years.

Eight and a half degrees NE of NGC 6885, across the border into Cygnus is the enchanting target of the Veil Nebula. The Veil Complex – NGCs 6960, 6974, 6979, 6992 and 6995 in Cygnus is a famous Supernova remnant, spread out over six times the diameter of the Full Moon. At combined brightness of +5 mag, The Veil can supposedly be glimpsed with the naked eye under truly exceptional conditions, but is much more likely to be seen (and better observed) in large binoculars and telescopes. The veil lies underneath the wing of Cygnus, close to Gienah (Epsilon Cygni). The brightest section this nebula is NGC6960, otherwise known as The Witches' Broom, due to its obvious broom-like shape, which reveals itself best in long duration exposures. NGC6960 has the star 52 Cygni apparently buried within it (it is in fact at least 10 times nearer to us), making this part of the

nebula an easier target to find with non-Goto scopes. The Veil responds terrifically well to the OIII filter – indeed, it is almost the best-responding nebula to this particular narrowband wavelength. This beautiful structure can be seen in all manner of telescopes, but large instruments with low power, widefield eyepieces present it spectacularly well.

NGC 6960 - Western Veil Nebula, or Witches Broom. Image Credit - Mark Blundell.

Drifting Westwards, past one of the finest double stars in the entire sky, the Creamy Yellow and Electric Blue of Albireo (Beta Cygnii), just across the border into Lyra, The Lyre, sit two notable objects, the first of whichis M56, which lies roughly equidistant between Albireo and Sulafat (Gamma Lyrae). At +8.27, it is of similar brightness to the aforementioned M71, though at 2.2 Arcminutes diameter – when compared to the larger M71 at 3.3

Arcminutes in size – is slightly more condensed and appears brighter. Indeed, both objects would possibly appear more prominent were they not lying so close to the axis of our Galaxy and therefore obscured by parts of the Milky Way.

Roughly halfway between Sulafat and the neighbouring naked eye variable star, Sheliak (Beta Lyrae) sits one of the showpieces of the sky, the wonderful M57, the Ring Nebula. M57's enduring popularity as a Deep Sky target may be partially down to the ease with which its location is to be found. Looking like an elongated smoke ring drifting through space, the Ring Nebula is perhaps the archetype of all planetary nebulae. Discovered in 1779 by the astronomer Antoine Darquier de Pellepoix, Messier was hot on his heels and independently discovered it a matter of days afterwards. Rather disappointing in binoculars, yet easily spotted in most telescopes due to its comparatively high surface brightness, M57 takes magnification and filtration (especially the OIII filter) extremely well. Naturally, the larger the telescope you point at it, the more the keen observer is likely to see, but those with smaller telescopes will not be disappointed as long as you keep magnification up.

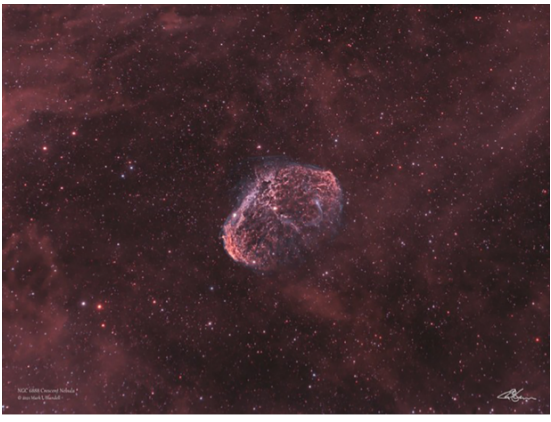
M57, The Ring Nebula, in detail. Image Credit: Hubble Image NASA/ ESA, Public Domain.

The Ring Nebula in an amateur telescope. Image Credit, Mark Blundell.

M57's distance is still up for debate, modern estimates of the central star put it at about 1400-4000+ light years away - quite a variation! It is thought is the former figure is the more correct, M57 is about a light year across from widest point to widest point and is a cylinder shape which we see from the end - quite the opposite, in fact, to M27's aspect. It is thought that The Ring Nebula is around 5-8000 years old.

Back into Cygnus, climbing higher North up the spine of the Milky Way, we come to a reasonably diminutive, but nonetheless fascinating object: NGC 6888, The Crescent Nebula. a bright, compact nebula, which is the expanding shell of a Wolf-Rayet Star (HD 192163), which is steadily shedding its outer

layers. The nebula glows due to the fact that it is gas is superheated by the collision of the boundary layer of a faster-moving inner solar wind, meeting a less energetic layer of solar wind formed when the gaseous layer of HD192163's former outer atmosphere was ejected in its previous red giant phase. This bow shock is about 25 light years across and appears to us as a crescent shape, glowing at +7.40 mag. The "surface" of this crescent is incredibly detailed and its complicated texture can be noted in larger telescopes using OIII and UHC filtration. Much beloved of Astrophotographers, the Crescent Nebula is a rewarding target for imagers.



NGC 6888, The Crescent Nebula. Image Credit - Mark Blundell.

Right next door to the Crescent, clustered around the star Sadr (Gamma Cygni) is the vast expanse of the Gamma Cygni Nebula. Glimpsed in large binoculars and

telescopes from an appropriately dark locale, IC 1318, or the Butterfly Nebula, as it is otherwise known, is a huge patch of red nebulosity, slightly larger in dimensions than the Veil. However, this nebula is very spread out, so its surface brightness is inherently low. It is best visually isolated with H-Alpha Filters, but is more easily captured in long duration astrophotography. The Gamma Cygni Nebula reaches out behind the Crescent and the star that is takes its name from. Sadr is around 750 light years away, whereas estimates for the distance of the nebula vary wildly from 2000-5000 light years distance.

The Butterfly or Sadr Nebula in detail. Image Credit: Mark Blundell.

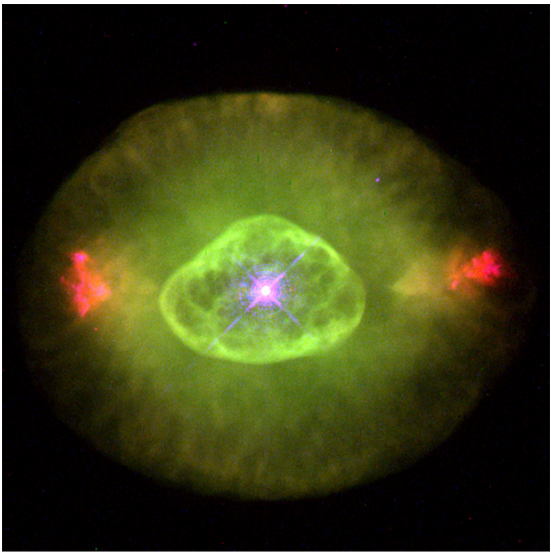
Further up the spine of Cygnus, just beyond its principal star, Deneb, is another vast nebula system: the North America Nebula (NGC7000) and tucked underneath it, the Pelican Nebula (IC5070). Of the two, the North America is undoubtedly brighter (at +4 mag,

compared to the Pelican's +8 mag) and can be seen very well in large binoculars from a dark site. An OIII or H-Beta filter can be used successfully to enhance NGC7000 in widefield telescopes, but the complex does not respond well to magnification. Both nebulae are part of the same gas cloud, which may be ionised by emissions from nearby Deneb. If this is the case, their distance would be in the region of 1800+ light years away from our Solar System.

NGC 7000, The North America Nebula. Image Credit - Mark Blundell.

Last, but not least, is a much smaller object, the Blinking Planetary or NGC 6826. This

nebula is 2.1 arc minutes in diameter and located towards Iota Cygni. Dimensionally, NGC6826 is fractionally larger than the Ring Nebula and about the same brightness. The "blinking" nature of this planetary is caused when an observer stares at the nebula's central star, at medium to high power, this overwhelms the eye and the nebula fades from view. When you look away to the nearby +8.5 magnitude star in the same field, the nebula reappears. This is not a unique phenomenon and is noted in other compact planetary nebulae with prominent central stars, but is best seen in the Blinking Planetary. Visually, the NGC6826 present two brighter regions on either side of its disc. These regions are Fast Low-Ionization Emission Regions or FLIERs for short. These FLIERs are parts of the planetary formation which are expanding at extreme speeds in comparison to the surrounding nebula. It is postulated that these areas are so dense that the ionising effect of the ultraviolet radiation emitted from the parent star cannot penetrate them. The Blinking Planetary and the Saturn Nebula are two of the best known examples of planetaries that exhibit these FLIERs.



NGC 6826, The Blinking Planetary. Image Credit: Hubble Image NASA/ ESA, Public Domain.