



The Night Sky (August 2017)

BST (Universal Time plus one hour) is used this month.

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The General Weather Pattern

August has a similar range of weather as July, and it often follows on from that of the previous month. Temperatures usually lose the elevations of July and northern winds may bring cool, dry and clear nights! Westerly winds combined with a depression usually bring in dull, wet weather, whilst warm anticyclones usually result in heavy thunderstorms.

From Earth

Astronomical twilight still lasts for some time, but astronomical darkness will begin in the late evening rather than the early morning. Consequently, the noctilucent cloud season, high in the Earth's atmosphere, finishes at the end of July or the beginning of the August.

The Milky Way

Throughout August, in the hours of darkness, the Milky Way lies overhead, within 30° of the zenith.

Sun

The Sun begins the month in the constellation of Cancer and enters Leo on the 10th of the month. You may like to notify other society members if you observe sunspot activity and don't forget to use approved methods to observe the Sun.

That advice should be strictly adhered to if, on August 21th, you try to observe the partial solar eclipse. At about 19:40 here in Usk, the Moon will begin to encroach on the Sun and can be seen until it sets about thirty minutes later. You will need a very low horizon to have any success.

For a better observing position you will need to journey to the USA where cities, towns and small communities have been gearing themselves up for this event for some time. Skies are likely to be clearer towards the west and Depoe Bay where it first hits land. The eclipse lasts longer the further east it travels until it reaches near Nashville and totality is about 2m 40secs, it reduces on the way to Charleston before leaving land.

Moon

The Full Moon is on 7th at about 18:10 in the constellation of Capricornus.

The Last Quarter is on 15th at about 01:15 in the constellation of Taurus.

The New Moon is on 21st at about 18:30 in the constellation of Leo.

The First Quarter is on 29th at about 08:15 in the constellation of Scorpius.

There are two apogees this month; the first apogee is on the 2nd and the second on the 30th. The Moon is at perigee (nearest Earth) on the 18th.

The Planets (From the Greek ἀστὴρ πλανήτης (astēr planētēs), meaning wandering stars)



Mercury has past greatest eastern elongation on the 30th July and sets just forty minutes after the Sun in bright twilight. Due to the shallow angle of the evening ecliptic, it is not well placed for observation throughout August, and indeed is at inferior conjunction on the 26th.



Venus rises just over 3hrs before the Sun at about 2:40 and it is well placed for observation by dedicated observers in the mornings throughout this month. A waning crescent Moon rises with Venus on the morning of the 19th. It is best observed at the end of the month.



Mars is moving away from the late July conjunction and by the end of the month will rise about one hour before the Sun in the morning twilight and is not yet well placed for observing this month.



Jupiter rushes towards the west and evening twilight this month. Jupiter's reign for this season is nearly at an end. If it is safe, it is best observed at the start of the month.



At the beginning of August, **Saturn** culminates around about 22:00 in twilight. Saturn will be best placed at the beginning of the month. For some, it is still worth a session.

♅ Uranus is best observed at the end of the month; in the east from around midnight on. At this time it can be found in the constellation of Pisces at RA 1h 05m 43s, Declination 10° 17' 04"; in the south-east, at a magnitude of 5.74. It rises around 21:30 at the end of the month and is becoming more convenient to observe.

♆ Neptune rises over an hour before Uranus and is slightly better placed for dedicated observers. At the end of the month it nears opposition, and at around 01:30, it can be found in the constellation of Aquarius at RA 22h 58m 45s, Declination -7° 32' 52"; in the south. It only has a magnitude of 7.82 and needs a 150mm or greater telescope with decent magnification to even get a glimpse. Neptune and Uranus will be better placed later in the year.

Meteors

The **Delta Aquarids** can be seen from about 15th July to 15th August, but are not noted for their brightness. There are two radiants to this shower. The southern stream, radiating from near the star Skat in Aquarius, has a maximum around about 29th July, and is the stronger of the two. The ZHR is about 20 with a medium atmospheric entry velocity. The second maximum is around the 6th of August with a ZHR of about 10, but a waxing gibbous Moon renders observations unfavourable.

The **Perseids** can best be seen between 9th and 14th August. Normally peaking with a ZHR of about 80, this year the maximum will be around 19:00 on the 12th. The waxing gibbous Moon rises at about 23:00 some 50° from the radiant this year; hampering the proceedings. Observe on the 11th and the 13th too. The Perseid meteor shower is one of the most consistent performers, the meteors it produces are among the brightest of all meteor showers, some with persistent trails. The radiant is in the north of Perseus at this time. The Perseids are associated with Comet P/Swift-Tuttle.

Constellation Culminations from Usk

A celestial body or region of the sky is said to culminate when it crosses an observer's meridian (an imaginary line drawn overhead and through both celestial poles). This is the highest it can be found in the sky. All other things being equal it is also, usually, best observed in this position as the light from it travels through the least amount of atmosphere.

Constellation	Convenient Culminations	Midnight Culminations	Observability
Lyra	24:00 Late July in twilight	Late July	Nearly at zenith
Sagittarius	23:00 Early August	Late July	Unfavourable - partially hidden
Aquila	21:00 Late September	Early August	Whole constellation
Sagitta	21:00 Late September	Early August	Whole constellation
Cygnus	20:00 Mid-October	Mid-August	Whole at zenith
Delphinus	20:00 Mid-October	Mid-August	Whole constellation
Vulpecula	20:00 Mid-October	Mid-August	Whole constellation
Equuleus	20:00 Late October	Late August	Whole constellation
Capricornus	20:00 Late October	Late August	Whole but poor; low in the murk
Microscopium	20:00 Late October	Late August	Unfavourable and partially hidden

Lyra (pronounced LYE-ruh)

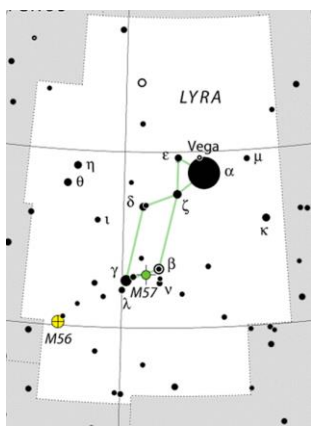
In Welsh

- 1) Telyn nf. literally 'Lyre' or 'Harp'.
- 2) Telyn Arthur. literally 'Arthur's Lyre'.

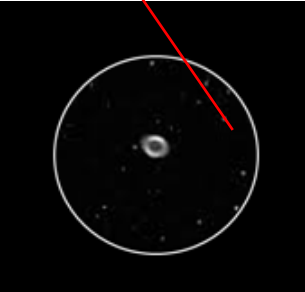
Astronomy

This constellation is not one of the brightest, but can be easily found by searching out α Lyrae, that is Vega, the brightest of the three stars that comprise the 'summer triangle'.

Fourteen thousand years ago Vega was the pole star but lost its pre-eminent position due to precession; the 26000 year wobble of the Earth. It will of course become the pole star again, around about 13700 CE. The brilliance of Vega is partly due to its close proximity to us; only 27 light years, it was this brilliance that made it an obvious choice as the first star to be photographed (in 1850 at the Harvard Observatory, using the early daguerreo type process). Also, it was only the third star to have its parallax measured, in 1840 at the Russian National Observatory.



Sheliak, as β Lyrae is also known, is a variable star of the R Lyrae type with a period of about 46 days. In fact Sheliak was the first of its type to be discovered. There are a number of stars around it that can be used to compare its luminosity and help you follow its cycle.



M57 the Ring Nebula lies about 45 minutes of arc to the east of Sheliak. It lies at a distance of over 45,000 light-years.

M57 in a low power amateur telescope

Greco-Roman Myths

To the north east of Hercules is a small but beautifully formed constellation, Lyra, the Harp. Its origins can be found in the story of Orpheus and his half-brother Linus; both of whom were accomplished musicians. Their parents were Apollo the sun god, who was also the patron of music and poetry and his mother the muse Calliope. Both Linus and Orpheus came to noteworthy ends. Linus was killed by the young Hercules who struck him fatally with a lute, in frustration at his inability to master the instrument during a music lesson. Orpheus's death was more tragic.

Orpheus was taught to play the lyre, or harp, so beautifully by his father that his songs charmed the wild beasts and even affected the plants and trees. It also charmed, and won the hand in marriage of the beautiful nymph Eurydice. Their marriage feast was attended by Hymen, a divine personification of the celebrations, but ominously the torch he bore was smoking, a very bad omen.

Shortly after the wedding Eurydice was walking in her garden when Aristaeus, a shepherd who had become smitten with her, surprised her and she stepped backward onto a snake, which fatally bit her. She was transported to the underworld, and grieving for the loss of his young bride, Orpheus sang his heart out to express his distress. All who heard him were touched but none had the power to reverse Deaths decree. Such was his anguish that Orpheus resolved to journey to the underworld and win back the life of his love.

He presented himself before Hades the ruler of the underworld and his wife Persephone, and sang of his grief at his loss. Even the ghosts of earthly wrongdoers paused in their torment to listen to his wondrous voice. So impressed were they that they agreed that Eurydice should return with Orpheus. Their only condition was that Orpheus should lead his bride, but not look back upon her until they both reached the mortal world.

Orpheus joyfully agreed to this and set off with his bride. However, her footsteps were so quiet that Orpheus began to doubt her presence. They had almost reached the borders of the land of the living, when Orpheus could contain his anguish no more and he turned to see if she was still there. Immediately she vanished into thin air, returning once more to the stygian depths.

Orpheus could not return to the underworld again and spent seven months grieving in a desert cave. His despairing songs attracted the attentions of a group of Thracian maidens revelling in wine and dance. He was abhorred by their gaiety and when he spurned their advances they stoned him to death and tore him limb from limb. His lyre they threw into the river Hebrus where it continued to play ghostly tunes as the waters flowed through its strings.

The muses were so moved by the haunting melodies that even death could not still, they placed the Lyre between Hercules and Cygnus the Swan as a small but distinctive sign, highlighted by the brilliant star Vega.