

The October night sky now sees the autumn constellations prominent early evening and heralds some familiar winter constellations rising by late evening and contains many fine objects to view with both binocular and small telescopes. This month Venus appears low in evening twilight whilst the bright planet Jupiter and the ringed planet Saturn are both located in the southern aspect by mid evening. Venus reaches greatest elongation on October 29th and so has a phase of 50% or Dichotomy, small telescopes show the phase well. Jupiter is better placed than in the previous year as it moves from Capricorn towards Aquarius and so is slightly higher in our UK skies. Telescopes show the characteristic cloud features of the equatorial belts and zones as well as the four bright Galilean moons. A notable double shadow transit of Callisto and Ganymede occurs on the evening of Oct 4th, visible in moderate telescopes as two dark spots crossing the disk over several hours.

Saturn the gem of the solar system is visible to the west of Jupiter, visible to the unaided eye as a yellowish coloured star; small telescopes show the famous ring system and the bright Saturnian moon Titan. Larger telescopes show the detail within the rings such as Cassini division and with Saturn now past opposition observers may note the thin dark shadow cast by the planets globe across the ring system.

At the end of October It is worth noting just what difference the change (clocks go back 1 hour to GMT (UT) on Sunday 31st October makes on the night skies at the end of the month.

The constellations of Cygnus, Lyra and Aquila can be seen slipping westward early evening; these are noted for the bright stars of Deneb, Vega and Altair respectively forming the `Summer Triangle` asterism. Vega high overhead is one of the first stars to spot as twilight ends.

In the west early evening locate the bright orange coloured star Arcturus in the constellation of Bootes (The herdsman), the constellation resembles a classic `Kite shape` with two stars straddling Arcturus and diamond shaped pattern of stars forming the main part of the `kite`.

The Milky Way stretches from Perseus rising in the east, through the `W` shaped constellation of Cassiopeia high in the north east and along the cross shaped constellation of Cygnus. This faint band of stars best seen on dark moonless evenings continues down through the obscure constellation of Scutum and on in the direction of the centre of the Milky Way (not visible from the UK) low on the horizon. Over head the particularly rich star fields running through Cygnus show the spiral arm of our galaxy and some of the obscuring dust in the form of the dark banding of the Cygnus Rift – Binoculars show these star fields well. Cygnus also contains a beautiful yellow / blue double star, Albireo (β Cygnii) visible in binoculars / small telescopes [60mm OG, X 25 magnification]

Auriga has the bright star Capella and can be seen low in the north east early evening, Capella is circumpolar from UK latitudes and so is always visible. In the east the constellation of Pegasus, noted for its `Square` shape and the adjacent constellation of Andromeda noted for The Andromeda Galaxy (M31), visible to the unaided eye as a faint fuzzy patch on moonless evening can now be seen mid evening. Also in Andromeda the blue /orange coloured double star Almach (γ Andromedae) visible telescopically [60mm OG, X 35 magnification]

The Square of Pegasus is a useful sign post constellation and also is a good test for sky conditions, (how many faint stars you see within the square indicates just how good your seeing conditions are). Follow the two end stars (Scheat and Markab) down to find the star Fomalhaut in the constellation of Pisces Australis (The Southern Fishes), visible very low on the southern horizon late evening at the end of the month. Another fine globular cluster is M15 in the constellation, best seen telescopically.

In the North West, Ursa Major, The Plough (asterism) or The Great Bear is seen low with its handle or tail parallel to the horizon mid evening. In a dark sky Ursa Major is strikingly prominent, the constellation extends over a large area with the fore and hind legs of the Great Bear low in the north. Early evening in October the Bear almost appears to be walking across the northern horizon.

Use the right hand pair of stars Dubhe and Merak (The pointers) to find the faint pole star Polaris and hence the position of North. Follow the curve of Ursa Major's tail to the orange star Arcturus in the constellation Bootes (The Herdsman) low in the west. To the east of Bootes find the `horse shoe` shaped constellation of

Corona Borealis (Northern Crown) and the `Keystone asterism ` in the constellation of Hercules also noted for the globular cluster M13 containing around 750,000 stars, a good view with modest telescopes. Also in the constellation of Hercules is M92 another striking telescopic globular cluster.

Uranus in the constellation of Aries and reaches opposition in early November and Neptune in the constellation of Aquarius are now both evening objects that can be located using binoculars and a suitable finder chart. A good starting point is to locate the Square of Pegasus then star hop using the finder chart. Uranus and Neptune are notable due to the blue and green colour, Telescopes show a tiny disc rather than the sharp pinpoints of stars in the field of view.

In the east mid evening the seven sisters' (Pleiades, M45) star cluster and constellation Taurus heralds the autumn skies. The Hyades star cluster is the closet open star cluster to Earth at a distance of 151 light years makes the characteristic `V` shaped asterism in the constellation of Taurus and noted for the bright, red foreground star Aldebaren at a distance of 70 light years , Taurus now rises by early evening.

The recent close approach of parent comet Giacobini-Zinner 21P may give rise to increased activity of the Draconid Meteor shower, peak around October 8th in favourable moonless conditions [20 to 50 per hour?]

The Hunter's Full Moon occurs on October 20th, watch the moon illusion at moonrise, you need a clear eastern horizon (moon rise occurs just after sun set) .Position yourself with a foreground object, a distant tree etc in view of the rising moon to see how large the moon appears. This is an illusion; the Moon remains the same apparent size.

Planets in October 2021

Mercury is poorly placed in October greatest elongation October 25th low in dawn twilight

Venus shines brightly in early evening twilight; telescopes show a decreasing phase during the month reaching 50% at greatest elongation on Oct 29th.

Mars reaches conjunction on October 8th and so is not observable this month.

Jupiter is visible low in south mid evening, in the constellation of Capricornus

Saturn is an early evening twilight object in the constellation of Capricornus - Enjoy telescopic views

Uranus is visible mid evening in the constellation of Aries. (Binocular / Telescope required). See notes.

Neptune is visible early evening (Binocular / Telescope required). Located in the constellation of Aquarius is positioned low in the south east by mid evening. (See notes)

Moons phases in October 2021

New Moon	Oct 6 th	Moonless, best time for deep sky observing and Comets
First Quarter	Oct 13 th	Best days to see shadow details in lunar craters (early evening)
Full Moon	Oct 20 th	Best days to see bright ray craters like Copernicus / Tycho.
Last Quarter	Oct 28 th	Moon visible in daytime skies. Do not look directly at the Sun.

Note - Clocks change to GMT (i.e. go back 1 hour), Sunday October 31st 2021

GMT is the same as UT (Universal Time, Greenwich Mean Time beginning at midnight)

Meteor showers

Orionids range October 16th to 30th, maxima 21st to 23rd – Fast meteors with persistent trails, unfavourable

Taurids range October 20th to November 30th – Maxima Nov 5th /12th slow meteors, some bright events.
Unfavourable –moonlight interferes.

Draconids maxima October 9th, range Oct 6th to Oct 10th, favourable (increased activity?)

Camelopardalids range Oct 5th /6th. Just 5 /hour. (Favourable)

The highlights of the month .

Saturn and Jupiter – Best views telescopically

October skies, Milky Way visible high over head on moonless evenings in darker skies.

Uranus and Neptune, binocular objects to find using suitable finder charts (see notes)

M31 the Andromeda Galaxy is visible on moonless evenings, best seen in binoculars, low magnification.

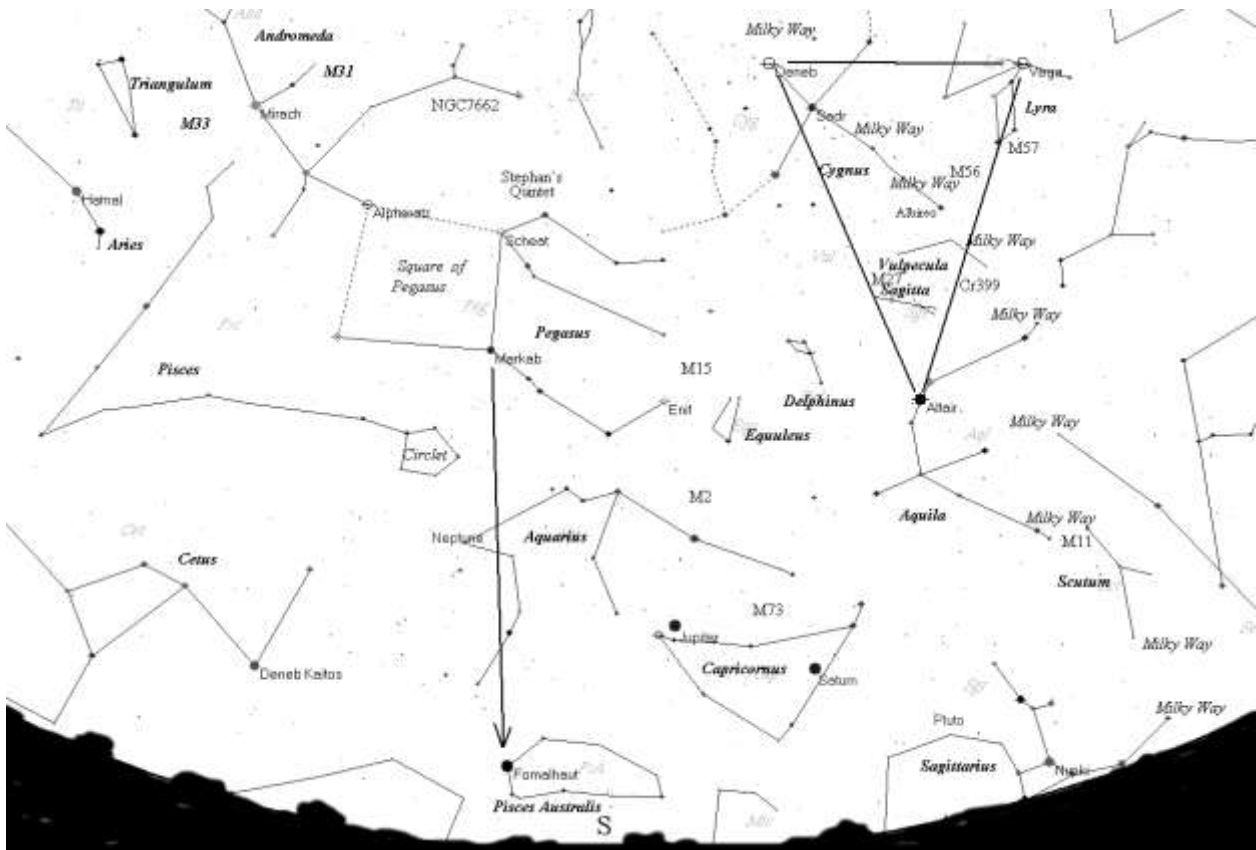
Double cluster, on the Perseus /Cassiopeia border, nice pair of star clusters, binocular, medium magnification.

Albireo, the star Beta Cygnii is a nice blue/ yellow double star seen telescopically, moderate magnification.

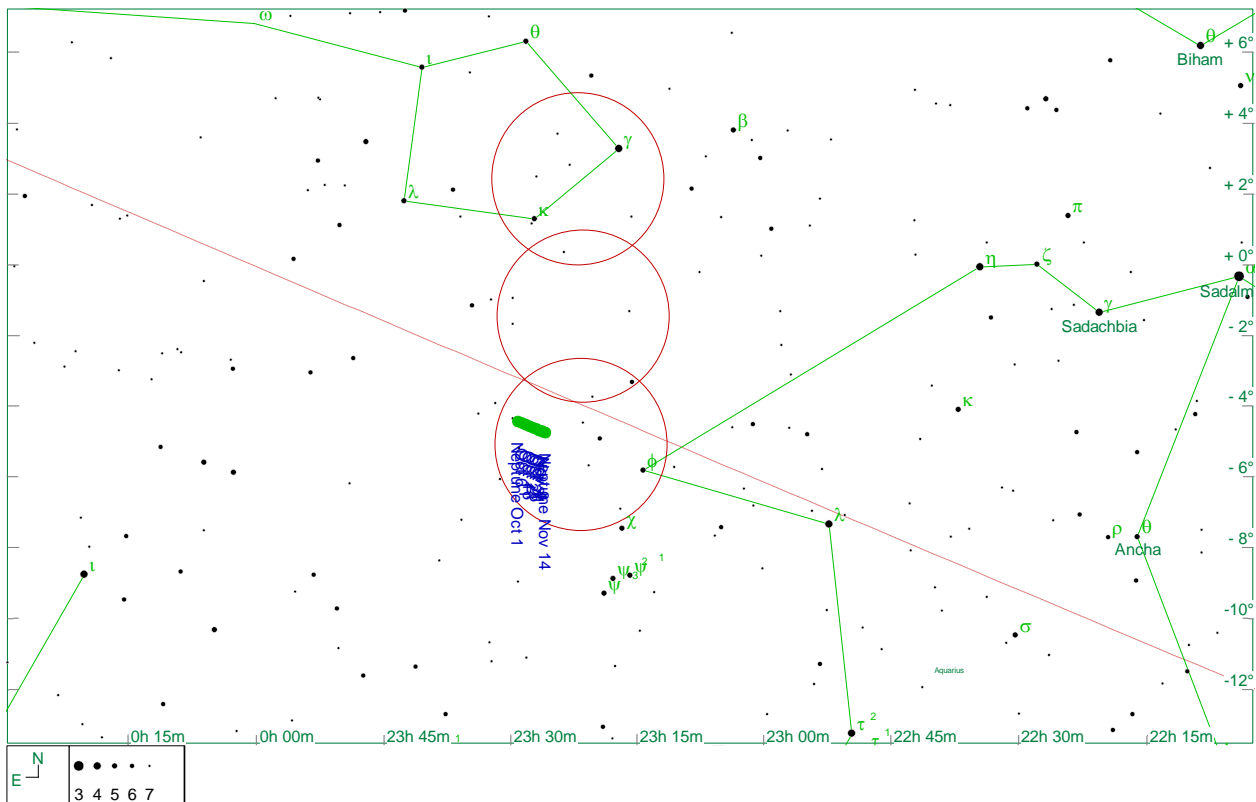
Waxing crescent Moon visibility . **Caution. Do NOT look at the Sun directly with or without optical aid.**

A thin 2.1% waxing crescent moon is visible **from 15 minutes after sunset** on Oct 7th to moonset at 7:07 pm BST.
Note the dimly lit part visible by Earthshine is readily seen with binoculars or small telescope October 18th
onwards in evening twilight **only look for the crescent Moon after the sun has completely set.**

Sky looking south 10pm mid October 2021

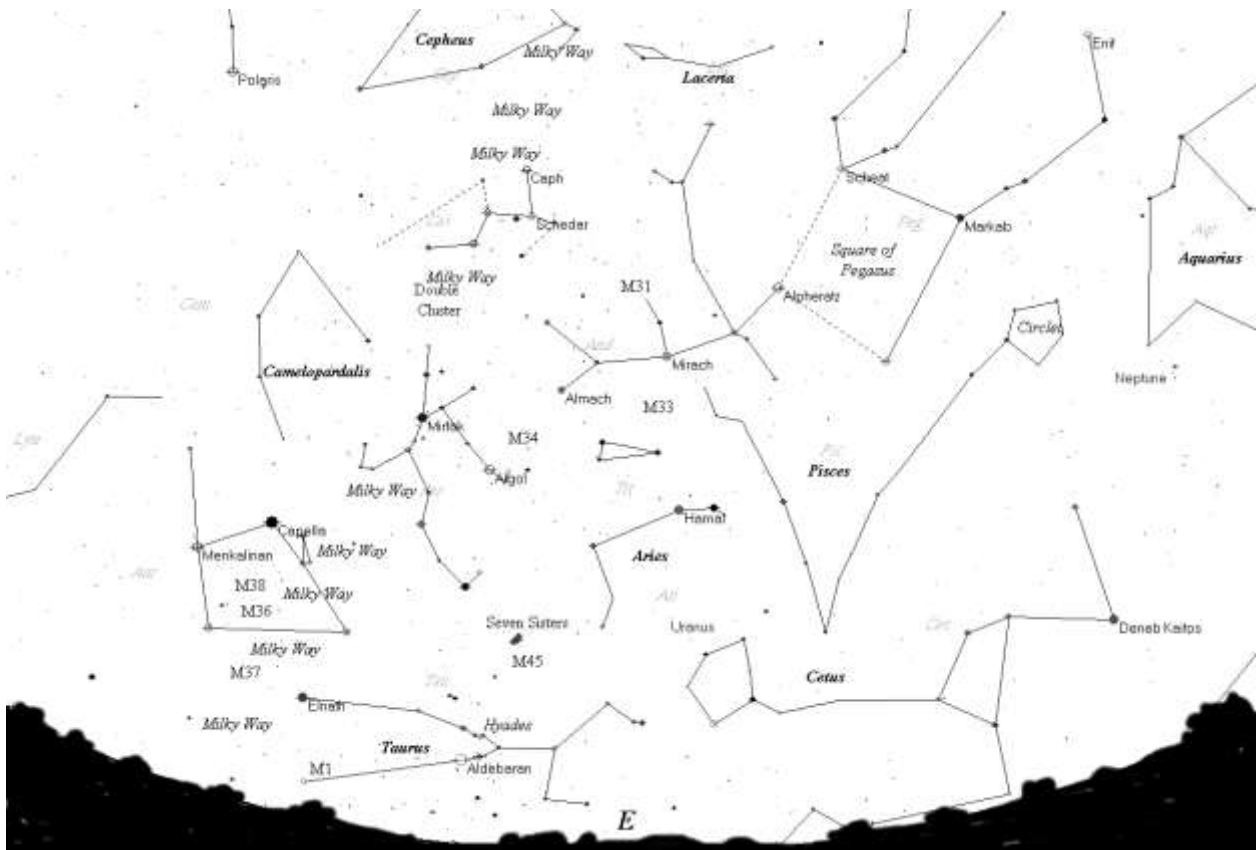


Follow the stars Scheat and Merkab in the square of Pegasus down to find the star Fomalhaut in the constellation of the `Southern Fishes ` Pisces Australis. Planet Neptune is located close to phi Aquarii in the constellation of Aquarius - see LAS finder chart below. Circle represents a field of view of a pair of 10 x50 binoculars / finder scope.



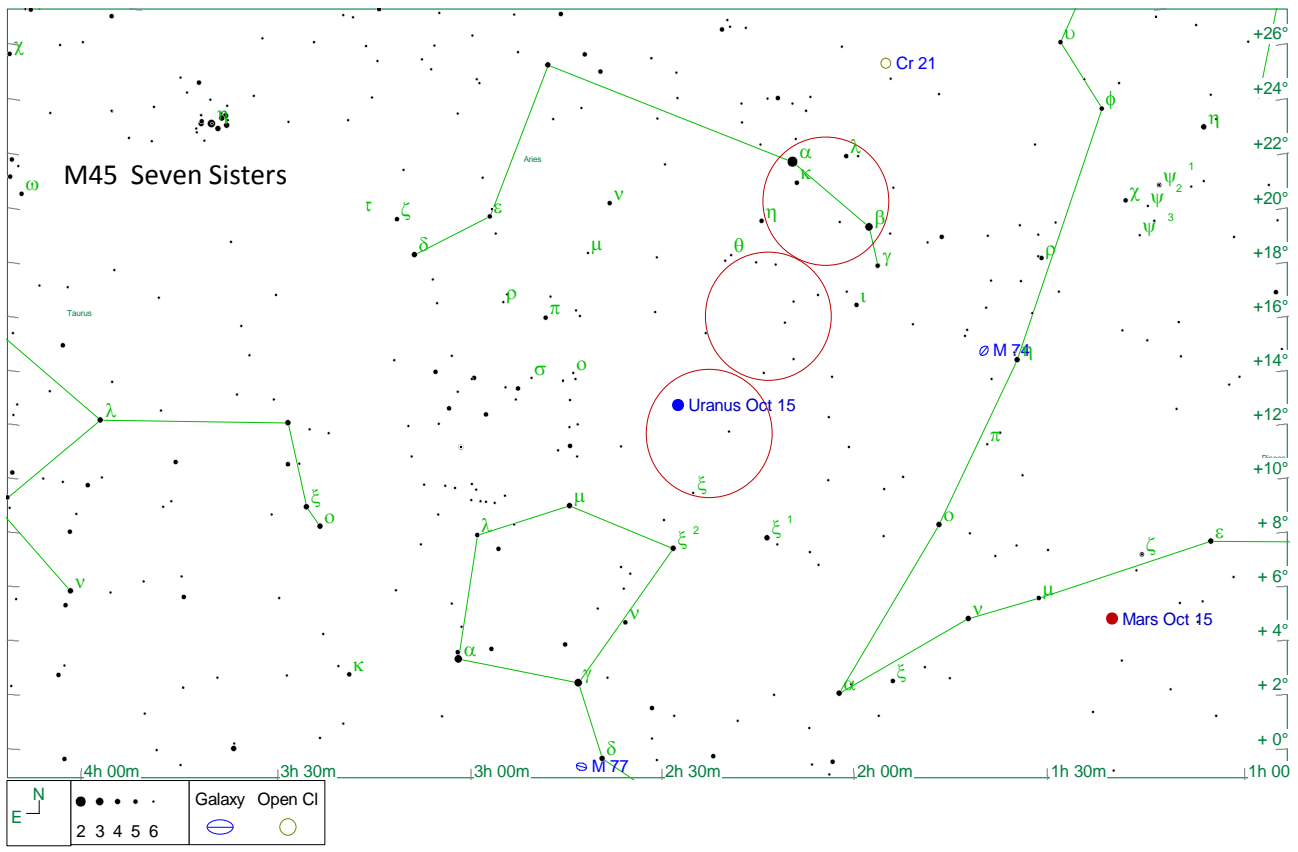
More detailed sky notes and LAS Newsletters, Finder charts are available to LAS members via the Members' page on the LAS Website www.lutonastrolink.org.uk

Sky looking east at 10 pm mid October 2021

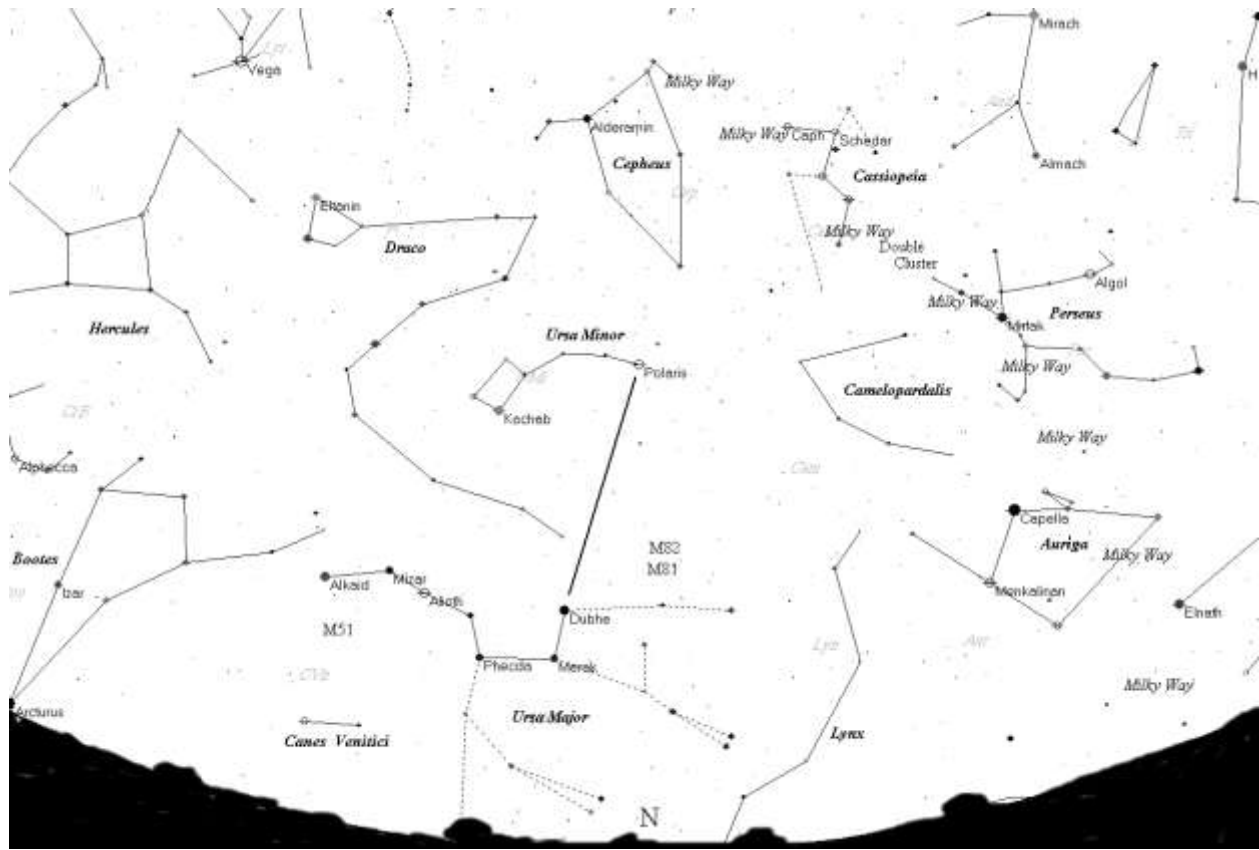


M45 (Seven Sister's) star cluster a familiar sight in autumn skies

Use the two brightest stars in the constellation of Aries and drop 2 binocular fields to locate the 'blue' coloured star that in fact is the planet Uranus. Circles show field of view of 10x50 binoculars

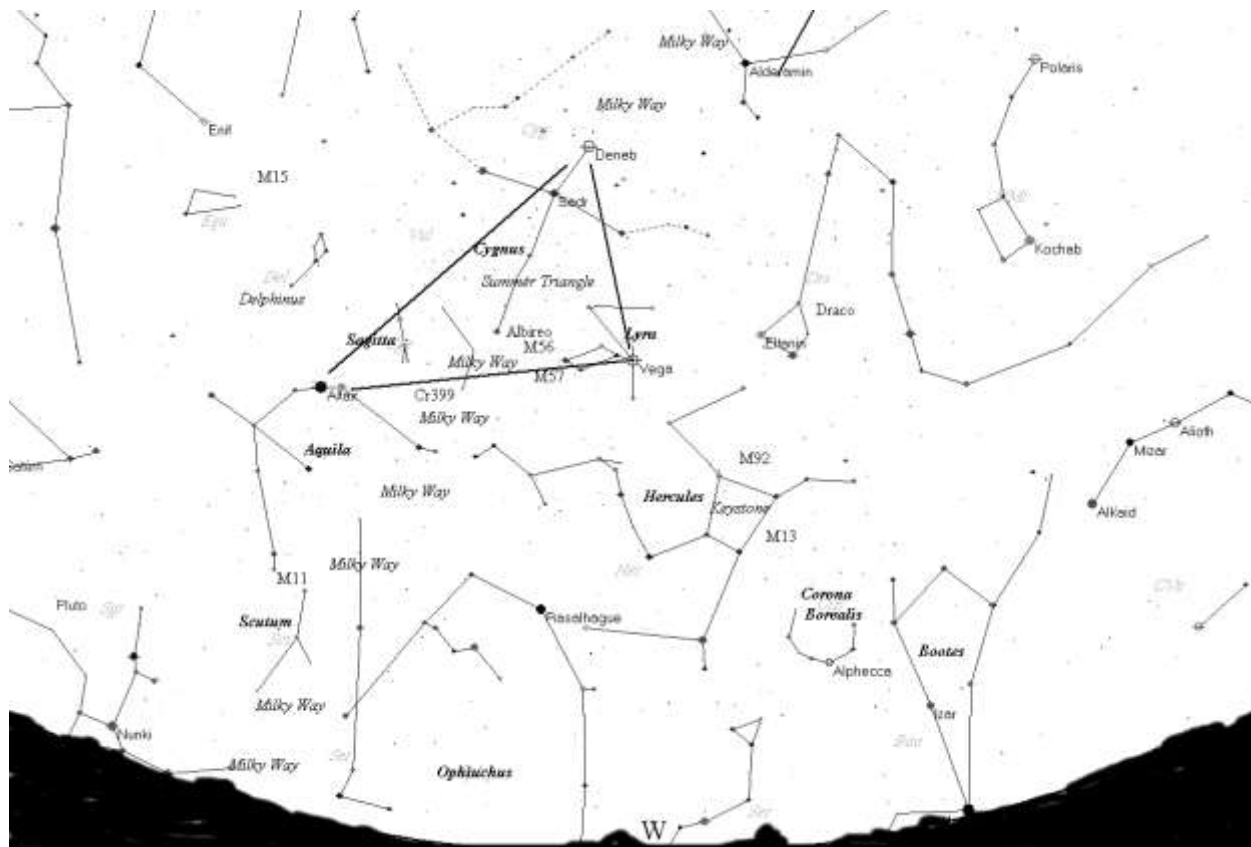


Sky looking north at 10pm mid October 2021



Follow the pointer's Dubhe and Merak to find the polestar Polaris

Sky looking west 10 pm mid October 2021



The familiar summer constellations head towards the evening twilight. Arcturus is easily spotted due to its orange colour, follow the curve of the Plough (handle) down to locate Arcturus, catch it before it sets at 10pm.

More detailed finder charts and newsletters are available to LAS members on the member's page