

Solar & Space Monthly



<http://solarandspace.tripod.com> Summer Skies.

Volume 1

#1

Summer Special

Made in Bristol, England, UK



Contents

Editorial.....	2
Eye on the sky.....	3
The Summer Sky.....	5
Constellation look.....	6
Find the planets.....	8
Planet watch.....	11
For the north.....	14
For the South.....	15

Editorial.

Another issue requested. You don't know how happy I was to hear it. This issue is a summer special, that means you can get ready to see the summer sky. Of course the nights are shorter for us in the northern hemisphere. But if you go out around 12 am then there are plenty of Joys to be seen. However if you do feel tired then don't go out, especially if you have to drive. During the summer a trusty pair of Binos are just as good as a scope. May's astronomy now magazine has an image of M61 taken by me. Check it out sometime.

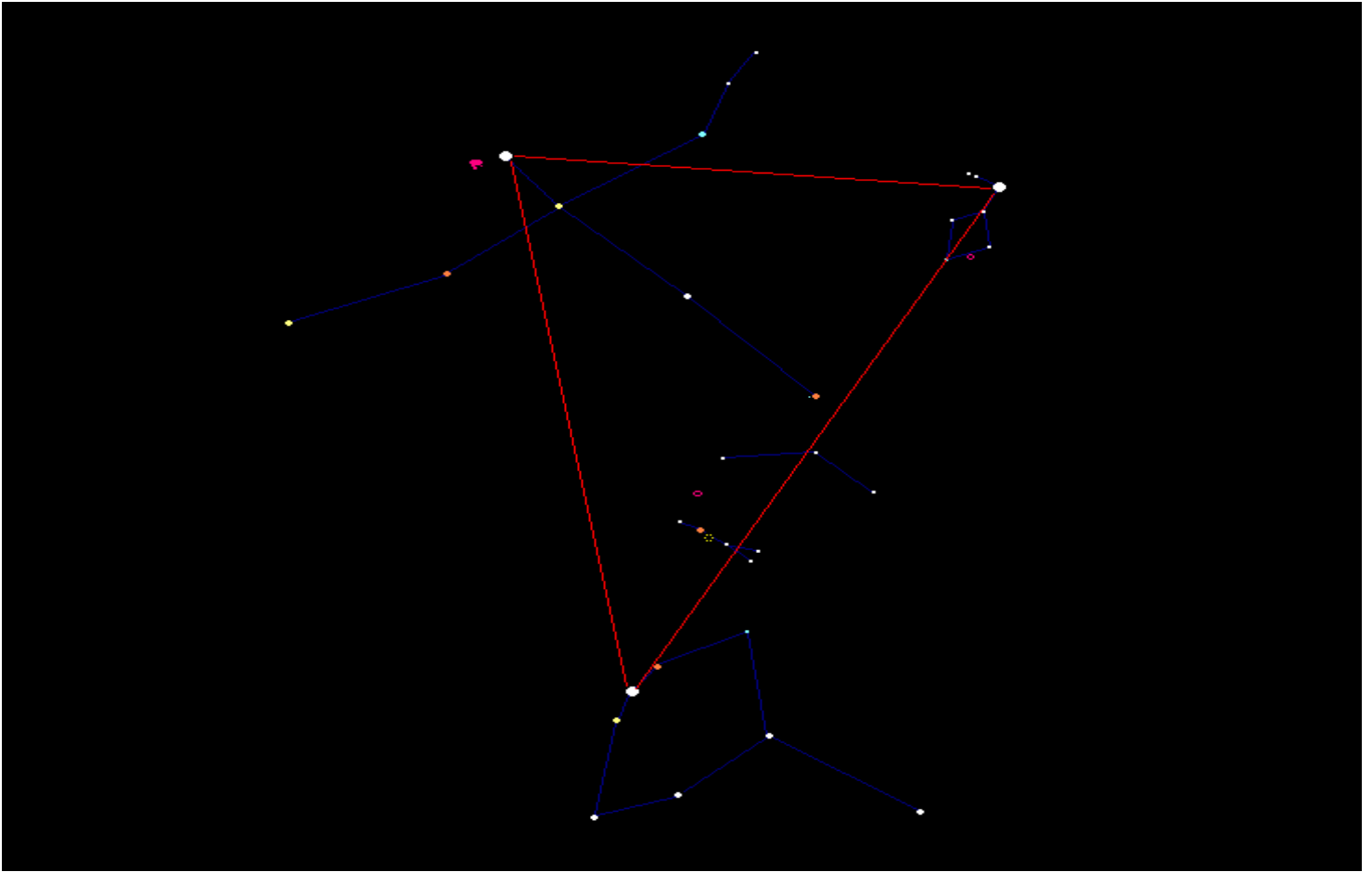
Good observing!

Oliver Tunnah.

On the cover: This is NGC 3132. Taken with the Faulkes Telescope. It is in the southern constellation of Vela.

Eye on the Sky

The Summer Triangle.



Key:

The spots indicate stars.
Colours are included; I also tried to get Magnitude in.
The blue lines join up the stars of a certain constellation.
The Red line is the Summer Triangle.

Key Features:

Deneb: The brilliant Blue/White star. α Cygni. This marks the tail of the swan. Magnitude 1.25 its name is Arabic for Tail.

Vega: Another brilliant white star. α Lyrae. Only 25 light years distant. Magnitude 0.03

Altair: The third star in the triangle. α Aquilae. The head of the eagle. Magnitude 0.77

The above 3 stars mark the triangle.

From a dark site NGC 7000 may be visible. It is a nebula visible east (West) of Deneb. Deneb actually lights the nebula. It is also called the north American nebula.

2 planetary nebula habit this area. M57 & M27.

M57 is the famous Ring nebula. Visible with a 3" scope. However I have seen it with my 2" scope from my back garden. But only with good seeing and when Lyra was well clear of the horizon.

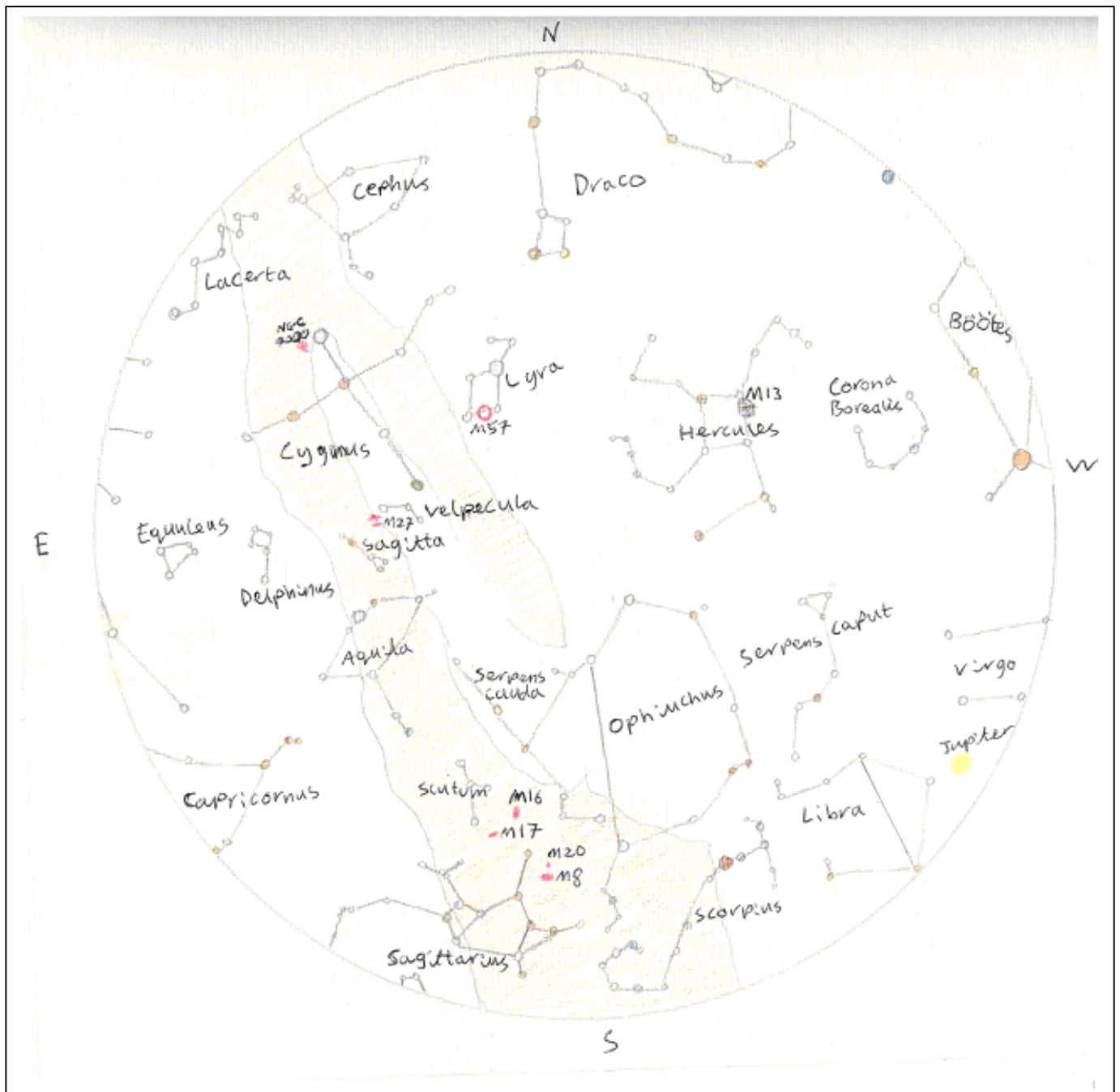
M27 is the dumbbell nebula. Easily seen with binos under a dark sky. At Magnitude 7.2 it is the brightest.

Albriego: This is the head of the swan. This is a good double star. It has a wide separation and is easily split. One is golden yellow. The other appears green but isn't.



"THE SUMMER TRIANGLE" (Vega, Deneb, and Altair) -- 24mm Nikon lens for 7.5 minutes at f/2.8 -- hypered Fuji 800 Super G Plus -- by ANDY STEERE

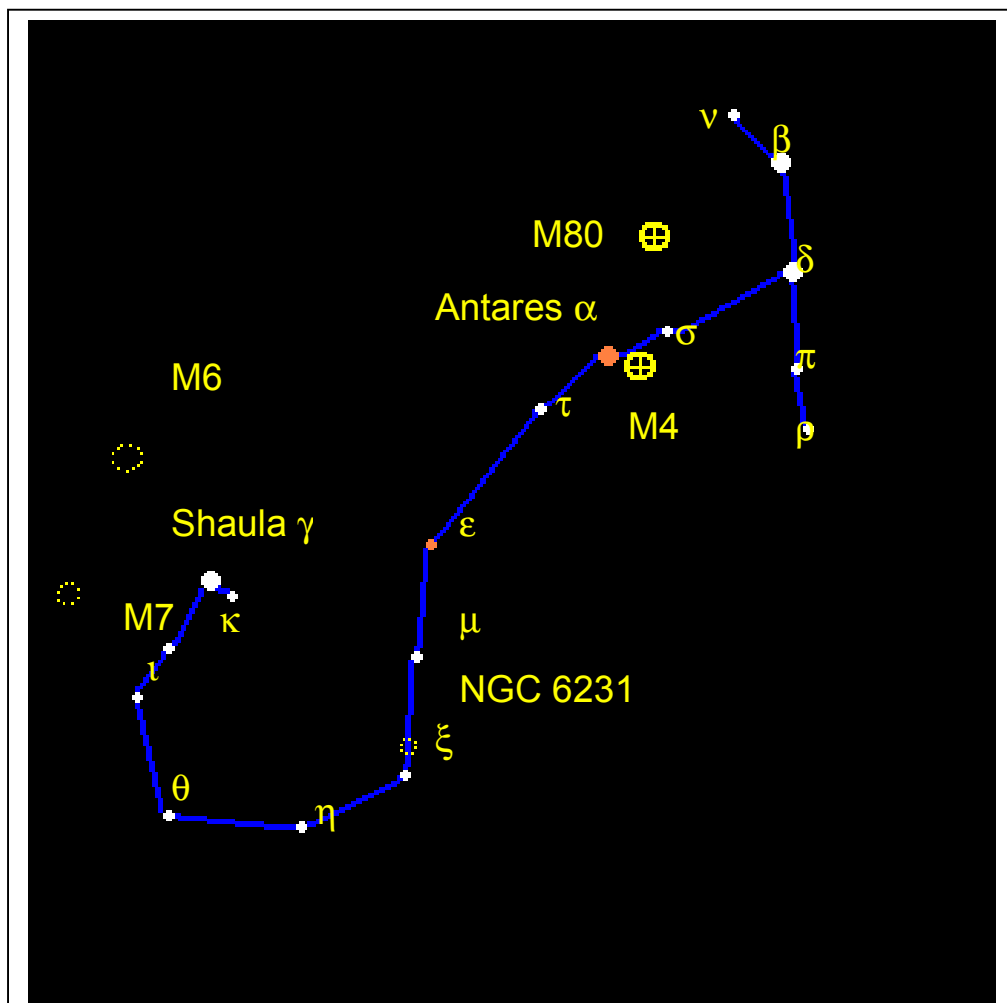
The Summer Sky.



The Galaxy rich spring sky lies in the west (east). In the south the Milky Way slots back into view. This time we are looking towards the galaxy's centre. This section is alive with death and birth. The nebulae of Sagittarius and Serpens delight. The ones in Sagittarius are easy to see and scanning with binos rewards well. M16 should only be targeted by a bigger scope, but is well worth it. The summer triangle lies overhead and the 3 bright stars make it easy to find. Jupiter is easy to find in the southwestern (Southeastern) sky. This map shows the sky facing south from latitudes north of the tropic of cancer.

Constellation look.

Here I will take a constellation and tell you about the DSO's. Today is Scorpius.



Scorpius was apparently the scorpion that killed Orion. They are placed at opposite ends of the sky to avoid other conflict. The Milky Way runs through Scorpius and the constellation is blessed with star clusters. Scorpius and bordering Sagittarius are in the direction of the galaxy's centre.

Objects:

Antares: α Scorpii. This red giant star 520 light years away and is some 9,000 times more luminous than the sun. It is 1,000 Km wide, and shines at Magnitude 0.92.

M4: An impressive globular cluster. Can be seen in binos as a smudge near Antares. A 6" scope begins to resolve stars. M4 is now considered rather loose and has fallen out of favour.

M6: An open cluster in the Milky Way. Nicked named the butterfly cluster after the resemblance at high power. Visible with the naked eye.

M7: Another bright open cluster, visible with the naked eye. Binos reveal more. Under viewed in my opinion.

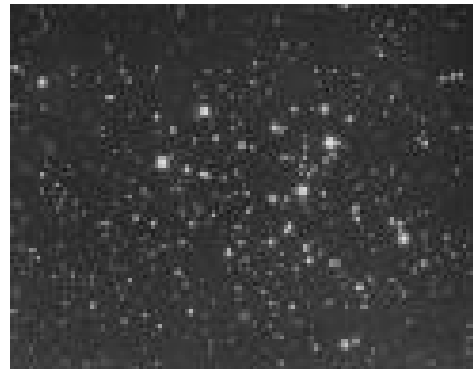
NGC 6231: This open cluster just north of Zeta ξ Scorpii. Best viewed in binos.

M80: A small globular. Bright but needs a 10" scope to resolve stars.

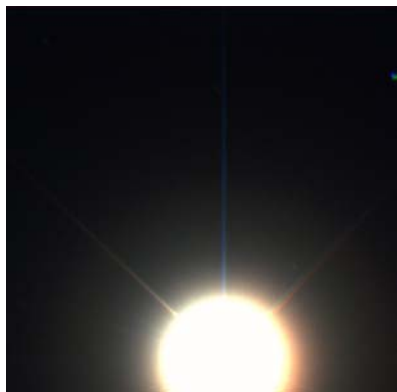
Scorpius contains areas of nebulae but they require a nebula filter to be seen.



M4: A loose globular.



M6: The Butterfly cluster.

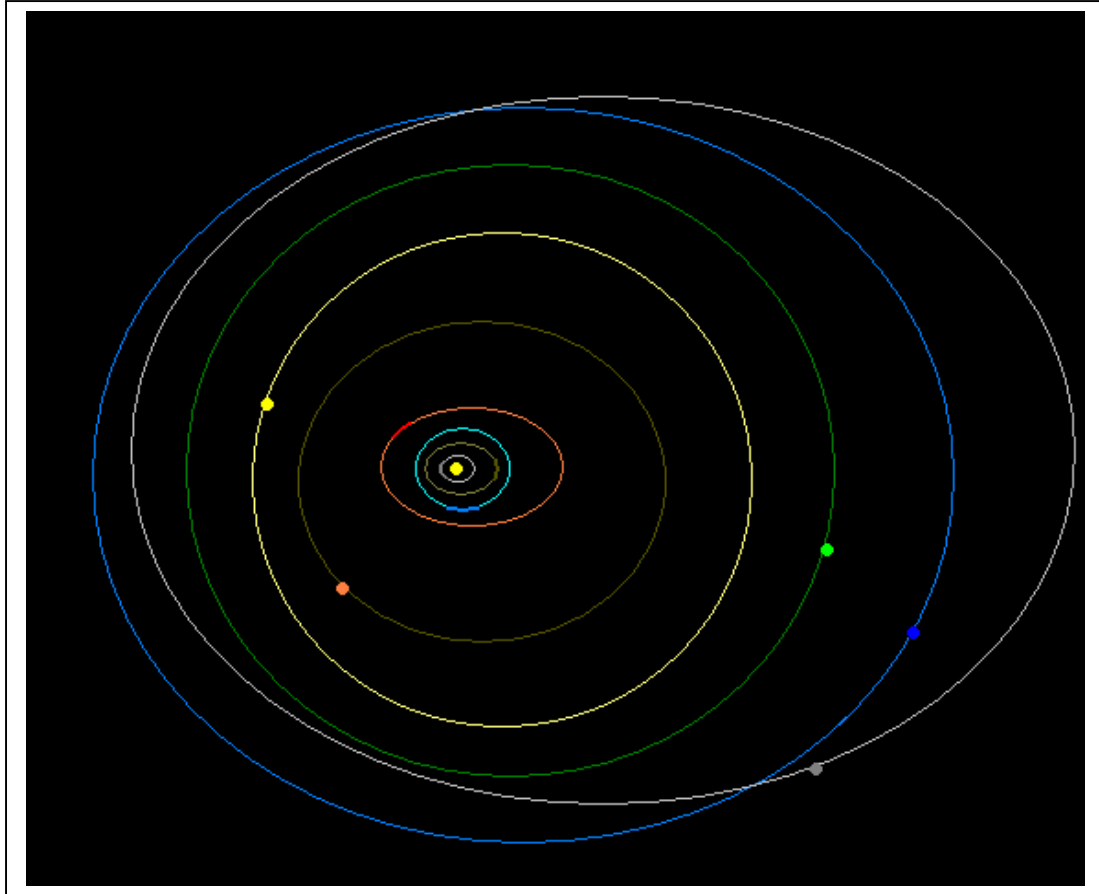


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Find the planets.

The planets are easy to observe but hard to find unless you know where to look.

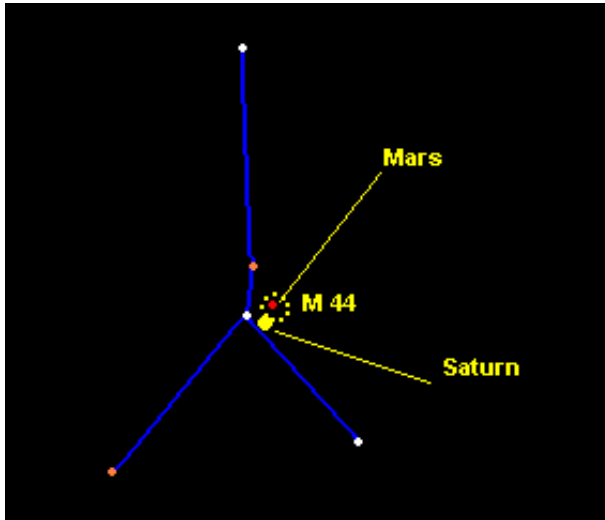
The Solar system this summer:



Mercury: The planet follows the sun and in June will appear in the west after sunset. Appearing in Gemini at the start of the month, it will look like a bright pink star.

Venus: The brilliant magnitude -3.8 planet appears in Taurus during dawn.

Mars: Crossing through Cancer and racing to overtake Saturn. The pair makes a pretty sight.

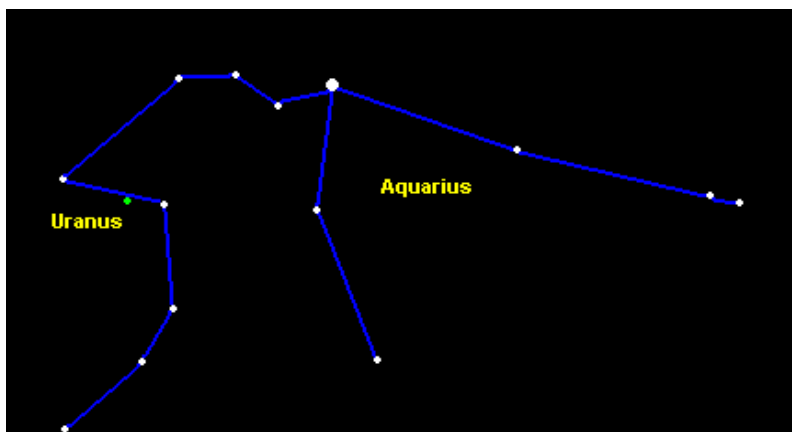


Mars and Saturn come close during the summer. They stand as beacons in the evening twilight

Jupiter: Opposition in May. The planet is at it's best for the year. Low in the south, Jupiter lurks in Libra, a rather faint constellation. Small scopes and steady binos will show the four Galilean Satellites. (Io, Europa, Ganymede & Callisto, positions shown later.) Increasing scope size will show more atmospheric features.

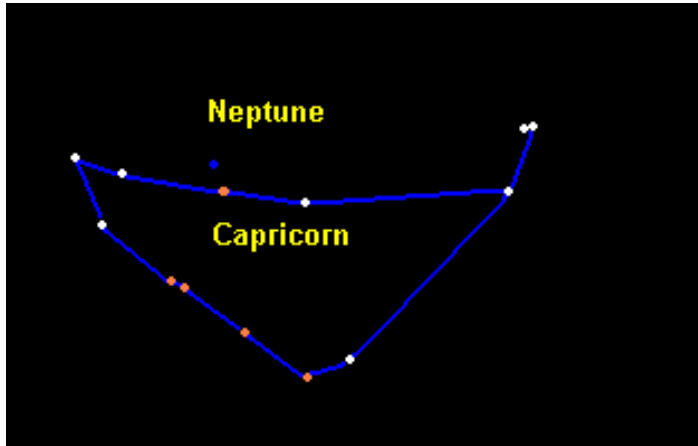
Saturn: The ringed planet though past it's best still gives good views for those who look. Big, steady binos & Telescopes show the rings. Mag. 8 Titan should be visible near the planet.

Uranus: Found in Aquarius the planet shows only a green disk. It is on the limit of the naked eye. Binos should reveal it.



Uranus floats east (West) of Lambda (λ) Aquarii.

Neptune: Like it's bigger sibling, Neptune lies within late summer/ early autumn constellations. Neptune lies within Capricorn. Binocs reveal a blue disk. Scopes reveal nothing more.



Neptune lies north of Iota (ι) Capricorni. A faint planet in a faint constellation.

Pluto: The ninth planet lies above the elliptic in the constellation of Serpens cauda. At magnitude 13.8 it is a target for big scopes only. Even then a few nights watch to see movement against the stars is needed.

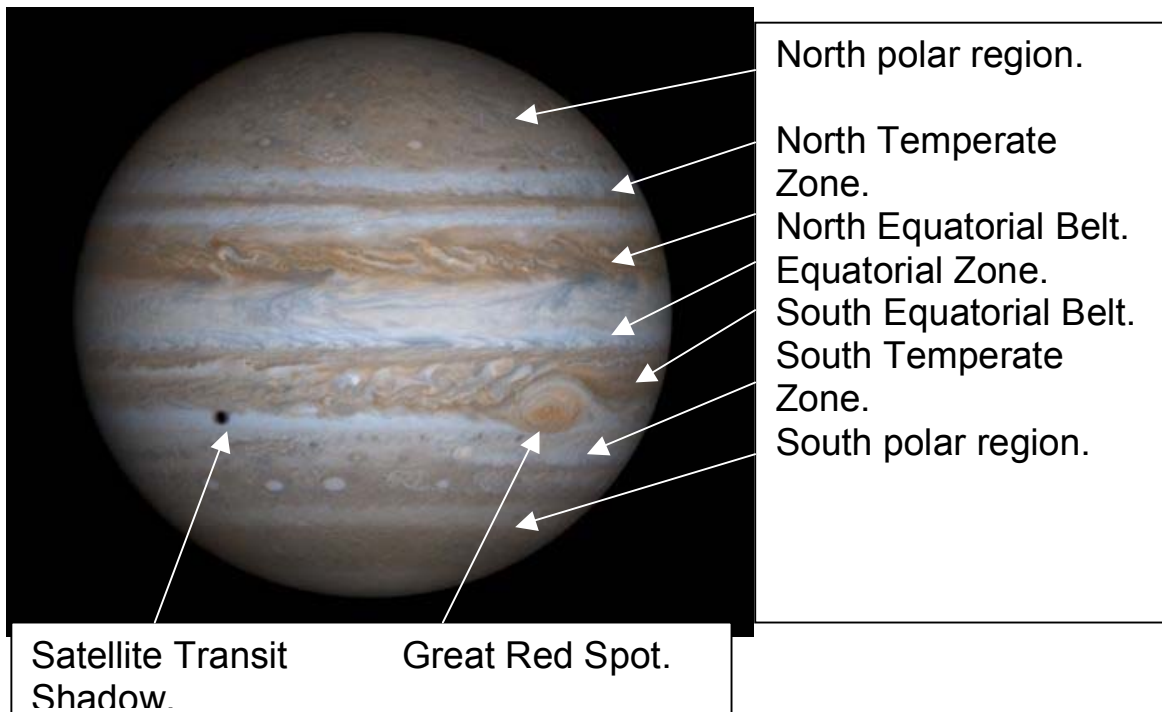
Planet Watch

Jupiter, King of the planets. This Gas giant is prominent in the summer sky & is easy to observe.

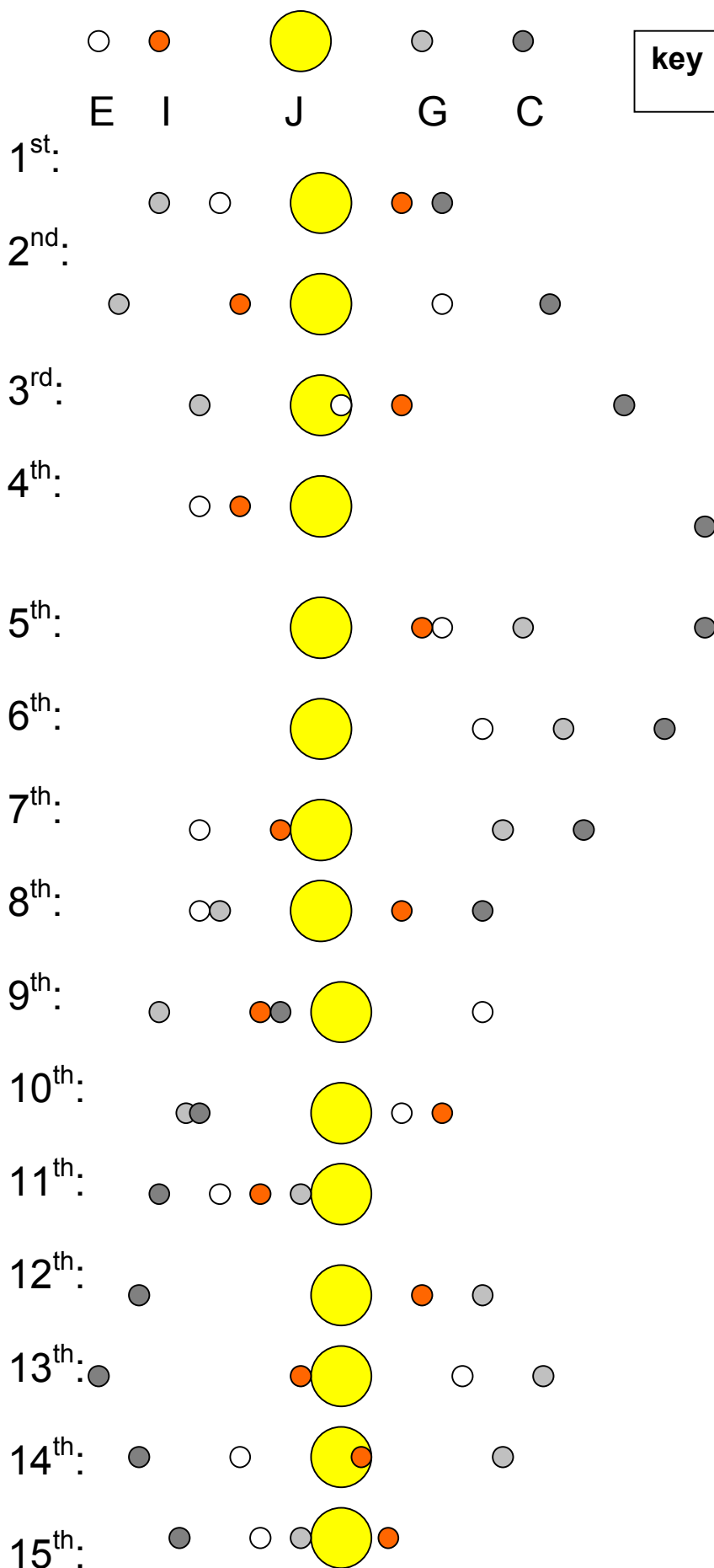
Eye observing: Jupiter appears as a bright yellow star. Magnitude -2.4 . It will outshine everything in the area.

Binos: A steady pair will show a yellow disk with the 2 main bands in moments of great seeing. The Galilean satellites are visible, flanking Jupiter like guards.

Scopes: A small scope will show the above result. With increasing size more features become apparent. Look for transits and occultations from the satellites.



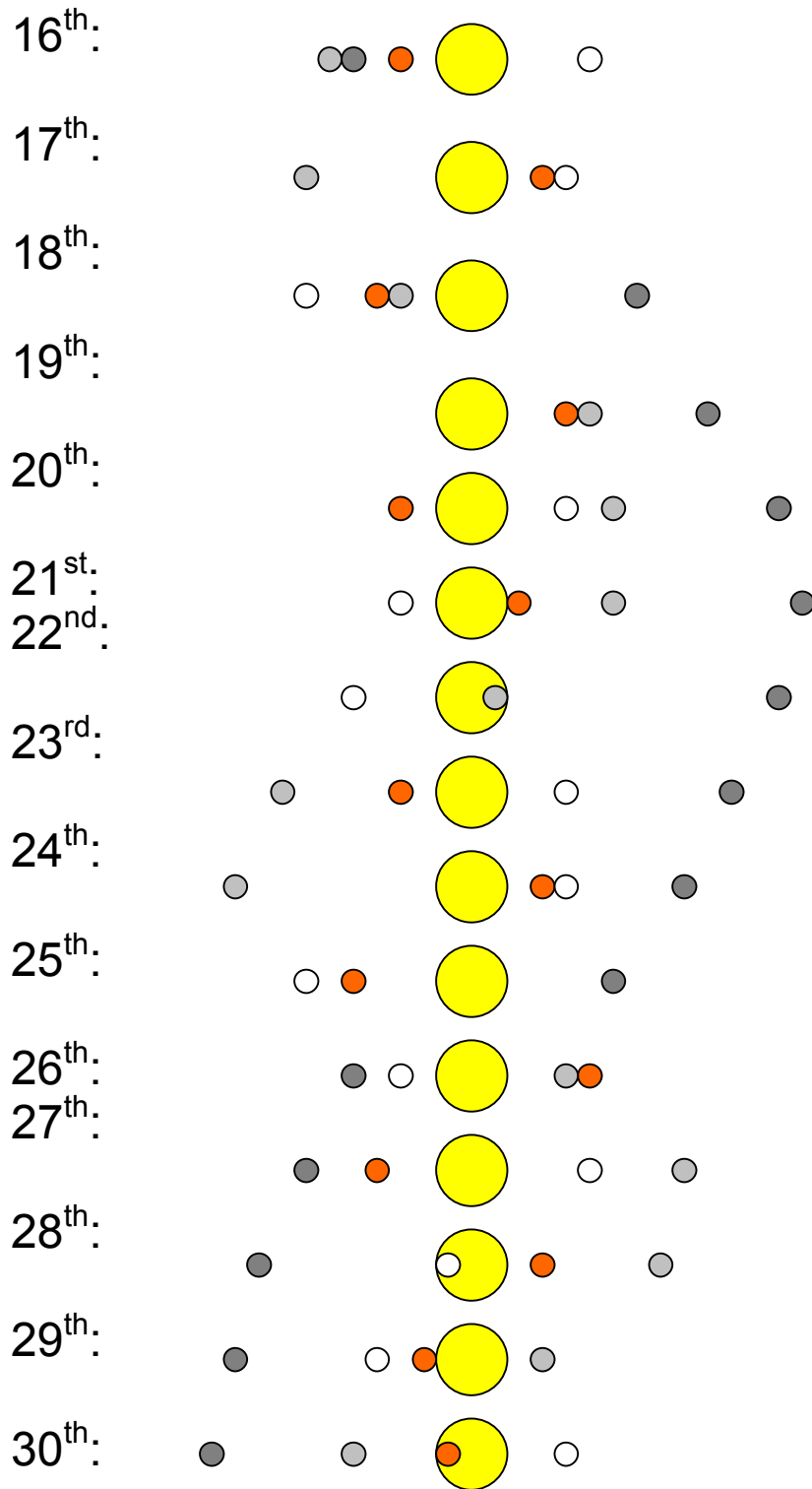
Galilean Satellite positions for June:



key

Io is the smallest of these satellites. Nicknamed the cosmic pizza due to its appearance. It only takes just over a day for Io to orbit Jupiter.

Europa is a world covered in ice. Scientists think it could harbour life. Though it would only be microscopic. An ocean is also thought to exist under the ice.

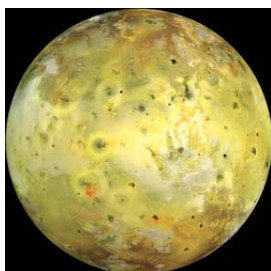


Ganymede is the largest satellite in the solar system.

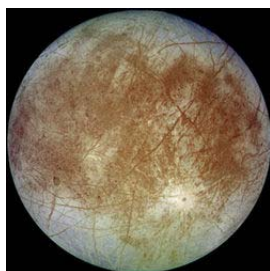
Composing of a thin layer of ice this is still a rocky body. It has an oxygen atmosphere and its own magnetosphere.

Callisto like Ganymede has a thin layer of ice. She also has an impact crater named Valhalla.

Callisto has a CO₂ atmosphere. It takes 16 days to complete an orbit.



Io



Europa



Ganymede



Callisto

For the north.

Cassiopeia is an easy constellation to find. It looks like a 'w'. Located near the north celestial pole, the open side faces north. It lies within the Milky Way seen from earth. This means Cassiopeia is abundant with open clusters. Messier only found 2 but several more lie scattered within her borders. M52 is one of the best in the northern sky. Very rich, it contains some 100 stars and is visible in a small scope. M103 is another open cluster located near delta (δ) cassiopeiae. Can be viewed in 7x35 binos. Gamma (γ) cassiopeiae is a shell star. It is losing mass into the shell. A neutron star is said to lie within the shell. It is the only X-ray binary to be seen with the naked eye. A supernova in 1572 has left Cassiopeia A. This remnant needs to be viewed all across the electromagnetic spectrum to be appreciated. Rho (ρ) cassiopeiae is one of the largest stars in the galaxy. The hypergiant is faint from earth lying some 8-10000 ly away. It erupts irregularly and is a candidate for a non-to distant supernova.

For the south.

As we talked about it last month I thought Crux should appear here. Crux is the smallest constellation, during the summer it appears almost overhead. It contains 2 of the brightest stars in the sky. Acrux and Mimosa. Magnitudes 0.87 & 1.28 respectively. Although a southern constellation Crux can be seen low in the southern sky from latitudes 20 degrees north and below. As shown last time crux appears on many nations flags. Gamma (γ) crucis (Gacrux) an orange giant is an optical double. This should be a test for the night's clarity as the fainter companion is on the edge of naked eye visibility. Just south east (west) of Mimosa is the jewel box cluster. Containing kappa (κ) crucis this is a delight. NGC 4755 really shines. Just south of that is the coal sack. This dark nebula is visible only because it lies within the rich star fields of the Milky Way. Starting at the south and working clockwise: Acrux, Mimosa, Gacrux, Delta (δ) crucis & Epsilon (ϵ) crucis. Remember the Southern Cross is surrounded by centurus. This is easily confused with the false cross of Delta (δ) & Kappa (κ) Velorum, & Epsilon (ϵ) & Iota (ι) Carinae. This gets a little further north so can be seen as false. But as it lies a few constellations west (east) is still confusing.