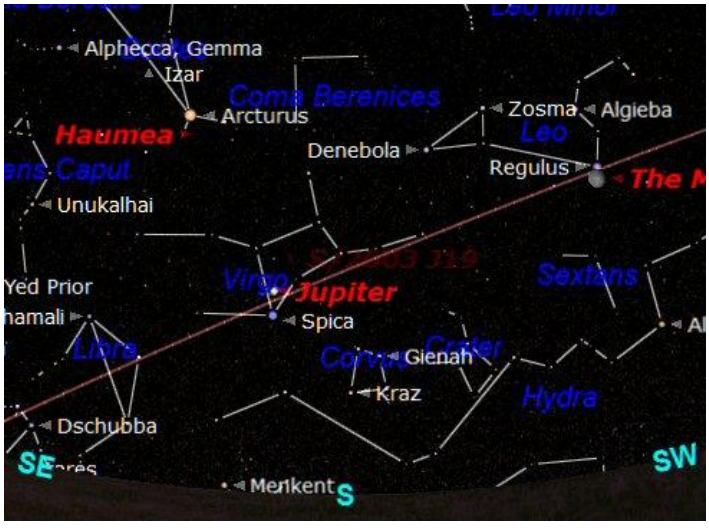
NEWBURY ASTRONOMICAL SOCIETY
MONTHLY MAGAZINE – JANUARY 2017

JUPITER RETURNS TO THE EARLY MORNING SKY

Jupiter and its moon Ganymede imaged by John Napper

The beautiful giant planet Jupiter is coming back into view after its conjunction with the Sun on 26th September last year. It is now a very well placed quite high in the south in the early morning before sunrise.



Jupiter at 05:00 in mid January

Jupiter will be rising over the eastern horizon at about midnight during January and will be well placed for observing from 02:00 until about 07:00 when the sky becomes too bright. It is very easy to find because it is so bright and can be seen even in the brightening dawn sky.

Jupiter is the most detailed planet to look at using a telescope and therefore the most interesting. There is always something different to see. Even a good pair of binoculars will show the four brightest moons changing position as they orbit the giant planet.

Jupiter with its four brightest moons

A small telescope will show the two equatorial cloud belts and a larger telescope will reveal the other fainter belts. On a clear night a larger telescope will allow the Great Red Spot to be seen. However the spot is often difficult to make out as it is usually pink in colour rather than red.

A planetarium application will help identify the moons.

NEWBURY ASTRONOMICAL SOCIETY MEETINGS

6th January Origins of Reiner Gamma Lunar Swirls
Website: www.newburyastro.org.uk

NEXT NEWBURY BEGINNERS MEETING

18th January Astronomy with a computer
Website: www.naasbeginners.co.uk

THE AUTHOR'S NEW TELESCOPE

The Skywatcher Evostar 90 EQ2 Telescope assembled

Until recently the author of this magazine, Steve Harris, had been the custodian of one of the Newbury Astronomical Society's telescopes. This is a fairly large 200mm (8 inch) aperture Schmidt-Cassegrain reflecting telescope that is now in the care of another member of the Society. As this was the telescope that was taken out to astronomy events for people to use, Steve was left without a suitable telescope to take out to future events. This article is Steve's report on his new replacement telescope.

When the Newbury Astronomical Society provides help for Astronomical events at schools, youth organisations and adult organisations the members try to take a selection of telescopes for people to use. If possible they like to have some examples of the sort of telescope that anyone considering buying a telescope might want to look at. To this end Steve decided to treat himself to a Christmas present that would be useful for him to use and be an example of a good telescope for a beginner to buy as a first telescope. The telescope decided on was a Sky-Watcher EVOSTAR-90 (EQ2).

There are some points to consider when thinking about buying a beginners telescope amongst, them are the following:

COST. Do not spend too much. The maximum should be £200. Just in case astronomy is not for you. Do not spend less than about £100. Any telescope for less will not perform good enough to excite the user.

DO NOT BUY A COMPLICATED TELESCOPE. If it is too complicated it may not get used. The worst type of telescope is the one that stays in the shed.

TRY IT FIRST. At your local Astronomical Society.

Manufacturer's specification as delivered:

The Sky-Watcher EVOSTAR-90 (EQ2) telescope is a classic two-element, air-spaced, achromatic refractor.

The Evostar 90 is a high-performance, high-resolution instrument manufactured to high standards of optical and mechanical precision.

It has long focal length to give and breathtaking, diffraction limited optical performance. It is ideal for the detailed high-power study of the Moon, double stars, planets and other objects in our solar system, providing crisp images with good contrast.

It is supplied with the EQ2 equatorial mount and Aluminium tripod which when polar aligned, will allow easy tracking of objects as they move across the night sky using its slow motion control cables.

Magnifications (eyepieces supplied): x36, x72, x90, x180

Highest Practical Power (Potential): x180

Objective Lens Diameter: 90mm

Telescope Focal Length: 900mm (f/10)

Eyepieces Supplied (1.25"): 10mm & 25mm

x2 Deluxe Barlow Lens (1.25") with Camera Adaptor

6x30 Finderscope

1.25"/31.7mm Star Diagonal

Multi-Coated Objective Lens

EQ2 Equatorial Mount

Aluminium Tripod with Accessory Tray

The cost from Rother Valley Optics was £151.49

Postage was £6.50 for next day delivery

STEVE'S REPORT ON THE EVOSTAR 90

The telescope was ordered, on line, from Rother Valley Optics Ltd on 1st December and it arrived the next day 2nd December. The packaging was very robust and in good condition. The whole assembly was in one double cardboard box package (a strong cardboard box inside another strong cardboard box). Inside the inner box each sub assembly was in its own smaller cardboard box with suitable padding.

The first task after unpacking was to check that all the component parts were present. This was an easy task as the instruction manual contained a pictorial view with the components identified and numbered. A close inspection revealed all parts were present and in perfect condition.

The instruction Manual was quite good as far as some of these manuals go. The only slight criticism about the manual is that it had been written to cover a range of different models of telescope. The instructions are written for EQ1 and EQ2 type mountings. This was a little confusing but the instructions were adequate.

Assembling the Tripod and the Equatorial Mounting was easy following the instructions and was completed in just a few minutes. To the complete beginner the preparation of the Equatorial Mount would be the most difficult but with the help of the diagrams in the manual it should be fine. The Tripod and Mounting were of good quality and felt suitably rigid.

Attaching the Counter Weight is slightly difficult as it was actually quite heavy so a second pair of hands would be useful if they are available. The Control Cables (Drive Knobs) are very easy to attach but do need to be nipped up tight using a pair of pliers. The spanner supplied to tighten the bolts securing the Telescope Tube Rings to the mounting was not very good so a real spanner would make the task a lot easier.

Fitting the telescope tube to the Mounting / Tube Rings was the most difficult job of the whole assembly but is least helpful in the manual. It does need another person to help and should not be attempted by the faint hearted single handed. The Mounting Clutch Screws should be tightened, to avoid unintentional movement, before attempting to fit the Telescope Tube. The diagrammatic views of the assembly are there but a few words of instruction would have been a great help for the inexperienced assembler.

One good feature of this model is that it is supplied with a Finder Telescope rather than a Red Dot Finder. This does make it easier when trying to locate the fainter objects when using the telescope. The supplied finder is good quality and has very good optics. It was also very easy to attach to the main telescope. The 30mm finder is good but can easily be upgraded to a 50mm at a later date. This would make it even easier to locate the fainter objects.

The smaller items that needed to be attached to the assembly were good quality for the price. There is a 90° Diagonal [a small assembly containing a mirror set at 45° to provide a more comfortable viewing position]. Two eyepieces [26mm for low power] and [10mm for higher magnification]. A 2x Barlow is also supplied [this effectively doubles the magnification of the standard eyepieces supplied]. Simple instructions and a diagram show how these are to be assembled to the telescope.

The author is fortunate to already own two other refracting telescopes. These are both Skywatchers and he has been very pleased with them and have proved to be easy and comfortable to use. The main advantage is that they can be used from a seated position. This is not only comfortable but it also provides a steadier view than the standing position that is mainly required when using a Newtonian type telescope.

One of these telescopes is a 102mm aperture Skywatcher Startravel which is a short (500mm focal length) wide angle telescope. It is great and very easy to take out and about. However its short focal length produces small images so is not very good for observing the planets.

The other refractor a is larger 120mm aperture Skywatcher Evostar that has a 1000mm focal length and is mounted on a heavier EQ5 Equatorial Mounting and heavier Tripod. This is a very beautiful telescope but is much larger and heavier so is more difficult to take out and about. It can be moved, fully assembled for very short distances but difficult to move very far. It requires disassembly into three or four parts for transport in a car with some risk of accidental damage to some vulnerable electrical drive parts.

In comparison the new 90mm aperture Skywatcher Evostar is much lighter and a little shorter than the 120mm at 900mm focal length. It also has a much lighter EQ2 Mounting and a lighter Tripod than the 120mm. It is light enough to be carried, fully assembled, for short distances using one hand and can be carried for longer distances (perhaps 50m) using both hands. For transport in a car the telescope tube and mounting can be removed from the tripod by simply releasing one hand nut. The tripod can also be collapsed by removing the accessory tray.

The Hand Nut used to remove the mounting

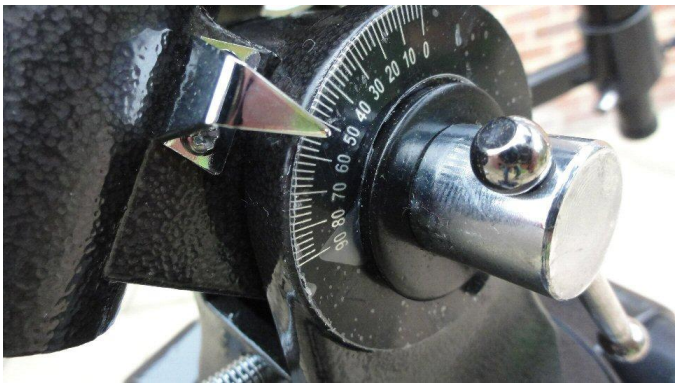
The telescope ready for transporting

The telescope was easy enough to assemble following the manual. Now a few words about setting up.

The telescope was taken outside during the day to carry out the initial setting up. It is best to do this during the day because it is much easier to see what is being done. The telescope was placed on the patio with the tube facing south (the direction in which it would normally be used).

The telescope set up facing south

The first thing to do was to set up the equatorial mounting for the latitude that it was to be used at. To make it simple the latitude setting dial is marked with the latitude to be set by the user. So for the Newbury UK the setting is 51.4°N (the latitude of Newbury).



The Latitude set to 51.4°N (approx 51° is good enough)

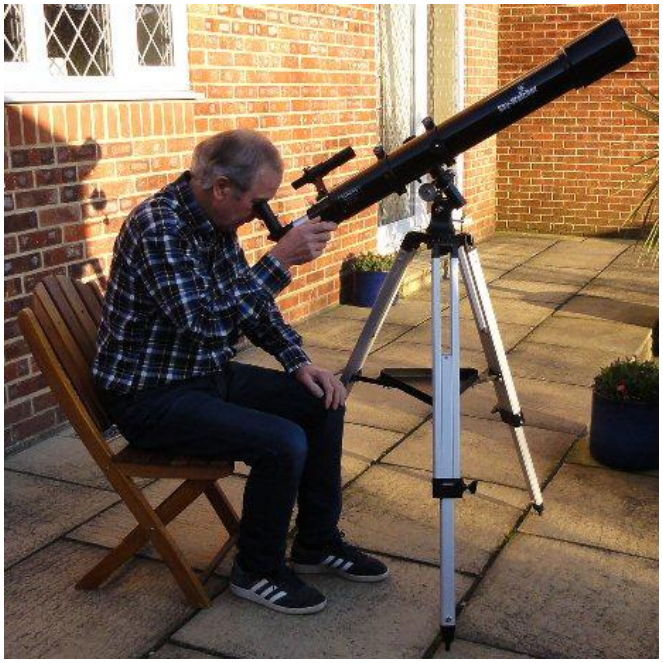
The tripod was then set up so that two of the legs were aligned with the edges of the patio slabs so it could be reset in the same approximate direction every time the telescope was to be used. The Hand Nut, used to secure the mounting to the stand, was loosened (see the previous column) and the mounting rotated until it pointed north as directed using a compass. The RA axis set at 51° must be pointing to the north. See the image at the top above. The Hand Nut was then tightened.

The finder scope showing the adjusting screws.

Final setting up before starting observing is required to align the finder scope with the main telescope. The first thing to do was to extend the tripod legs to the most comfortable position. Adjustment to the height can be made after using the telescope. Two legs of the tripod that were realigned parallel to the patio slabs as previously when carrying out the initial setting. (Marks can be made for alignment if the patio slabs are not suitable.) A bubble levelling gauge was placed on the accessory tray level and used to level the mounting. This ensures the telescope will track accurately.

After the drive clutches were released the telescope pointed at a neighbour's TV aerial. The finder scope was used to locate the aerial then the drive clutches were retightened. With the low power eyepiece in the diagonal, the drive knobs were used to centralise a selected point on the aerial in the eyepiece. With this point on the aerial central in the eyepiece the two adjusting screws were used to centralise the same point on the cross hairs in the finder. See the picture at the bottom of the previous column.

The Finder alignment process above was repeated using a bright star when it was dark. It was necessary to do this two or three times because the star moved through the field of view as the adjustments are made. It was essential to realign the main telescope on the star to check the accuracy of the alignment of the finder. The telescope was now ready for use. With the final set up complete the telescope was left to acclimatise before starting to use it.



The author with his new Skywatcher 90 ready to go

So how did the new telescope perform?

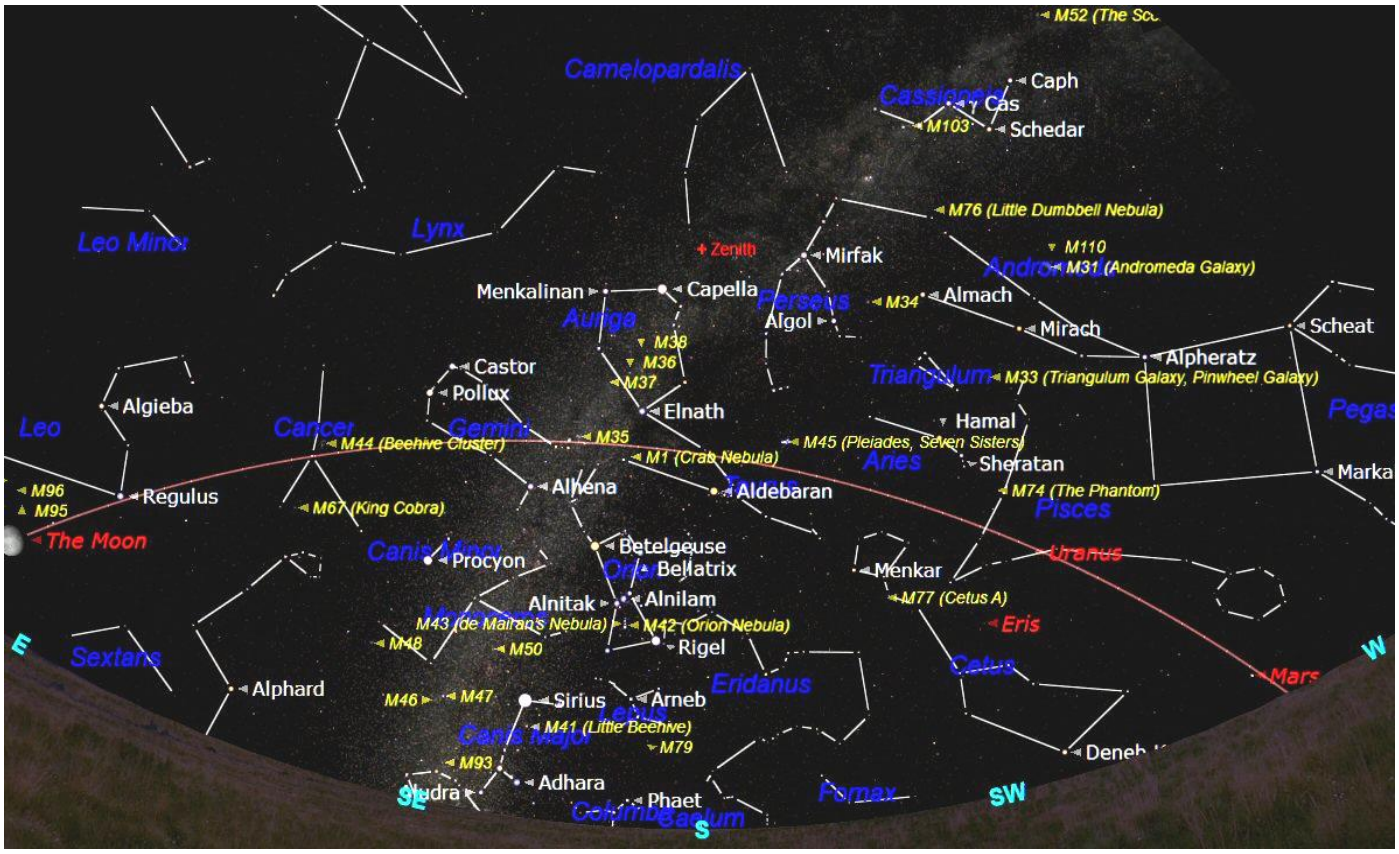
The telescope was easy to use as the stand and mounting were robust and provided a steady mount. The main optic was very good but the eyepieces would need upgrading.

Overall the Skywatcher Evostar 90 telescope was very good value for money. It produced excellent views of the Moon right up to maximum magnification. Jupiter was a joy to see with the cloud belts easy visible. The Orion nebula was quite impressive for the size and cost of the telescope.

GOOD POINTS: Very good value for the money
It can be upgraded by fitting a RA Drive

BAD POINTS: Why didn't I get one of these earlier?

THE NIGHT SKY - JANUARY 2017



The night Sky January 2017

The chart above shows the night sky looking south at about 21:00 GMT on 15th January. West is to the right and east to the left. The point in the sky directly overhead is known as the Zenith and is shown at the upper centre of the chart. The curved brown line across the sky at the bottom is the Ecliptic or Zodiac. This is the imaginary line along which the Sun, Moon and planets appear to move across the sky. The constellations through which the ecliptic passes are known as the constellations of the 'Zodiac'.

Constellations through which the ecliptic passes this month are: Aquarius (the Water Carrier), Pisces (the Fishes), Aries (the Ram), Taurus (the Bull), Gemini (the Twins), Cancer (the Crab) and Leo (the Lion) just rising in the east.

The Milky Way (our Galaxy) appears to rise up from the south eastern horizon. It continues up through the constellations of Monoceros, Orion, Gemini, Auriga and into Cassiopeia.

Mars (the Red Planet) is in Aquarius and is still visible in the south west in the evening twilight. Neptune is in Aquarius and Uranus is in Pisces and still in a good position for telescopic observation. Saturn is now too close to the Sun and not observable. Venus is moving away from the Sun and will be rising higher in the west in the evening over the next few months. Jupiter is an early morning object rising about eight hours before the Sun in the east. It is very bright and easy to find in the south until the sky brightens at about 7 o'clock.

The beautiful constellation Orion is now dominating the southern sky. Orion is the mythical hunter with his two hunting dogs Sirius and Procyon. It is almost due south by 21:00 but can be seen in the south east and east in the earlier evening. Orion is the constellation of the month and is described in more detail starting on page 6.

To the north of Orion are the fairly obvious constellations of Taurus and Gemini. To the north west and sitting astride the ecliptic is the constellation of Taurus (the Bull). The Taurus asterism (shape) looks like a squashed cross 'X'. At the centre of the cross is a large, faint and dispersed Open Cluster called the Hyades. It has the bright Red Giant star Aldebaran in the centre. The real beauty of Taurus is the naked eye Open Cluster M45 the Pleiades. See the article in the November magazine.

Following Taurus along the ecliptic is Gemini (the Twins). The twin stars Pollux and Castor are easy to find. There is a lovely Messier Open Cluster M35 in Gemini just off the end of the line of stars emanating from the bright star Castor. See the December magazine. Castor is a rather nice double star when viewed through a telescope.

To the east of Gemini is the faint and rather indistinct constellation of Cancer (the Crab). Even though the asterism (shape) of Cancer looks quite uninteresting it does have a rather nice Open Cluster called Messier 44 (M44) Praesepe or the Beehive Cluster. It is large and dispersed and best seen using binoculars. The cluster has a central group of brighter stars that looks a little like a young child's drawing of a simple house. It has in the past been likened to an old straw beehive with the fainter stars looking like a swarm of bees buzzing around the hive. It really is lovely to see using binoculars.

High in the west are the conjoined constellations of Pegasus and Andromeda. Following the lower and brighter line of stars that define Andromeda, count along two stars (three including Alpheratz) to Mirach. Then count two stars up (three including Mirack) and just to the right of the second star is a small fuzzy patch of light, this is Messier 31 (M31) the Great Spiral Galaxy. See the December magazine.

THE CONSTELLATION OF ORION (THE HUNTER)

The constellation of Orion showing the 'stick' figure and an Illustration

Orion is one of the easiest constellations to recognise and dominates the southern sky at this time of the year. There are many depictions of Orion shown on many different star charts. Some old pictures of Orion are very beautifully drawn in fact some are so beautiful that the artists even moved the positions of some of the stars so they would fit the image they had drawn.

Orion the Hunter appears in the winter sky, with his club held over his head and his shield (sometimes shown as a lion's skin) held out in front of him. His hunting dogs, Canis Major (the star Sirius) and Canis Minor (the star Procyon) following behind him.

Greek mythology tells us that Orion was known as a great hunter. He boasted that he could rid the earth of all the wild animals. However this angered the Earth goddess Gaia so she sent a scorpion to defeat Orion. Orion tried to battle the scorpion but he quickly realised that he could not shoot his arrow through the creature's armour. To avoid the scorpion he jumped into the sea.

It was then that Apollo (the Greek god of the Sun) decided to take action. He pointed out to his twin sister Artemis a black object in the sea. Claiming it was a horrible villain he dared her to shoot it with her bow and arrow. Artemis easily hit the target. However when she swam out to retrieve her victim she discovered that the villain was in fact her friend Orion.

Artemis begged the gods to bring Orion back to life but they refused. Instead she put Orion's picture in the sky so she could always see him.

Orion is not only one of the most beautiful constellations it is also one of the most interesting with stars ranging from the very youngest to stars reaching the end of their life.

Orion is one of the few constellations that does look (with a little imagination) like what it is named after. The most obvious feature is the line of three stars, called Alnitak, Alnilam and Mintaka that make up Orion's belt. From his belt we can see two bright stars called Saiph and Rigel below. These define the bottom of his 'skirt like' tunic.

Above the belt are two stars Betelgeuse and Bellatrix that denote the position of his shoulders. Above and between his shoulders is a little group of stars that mark out the head. From his left shoulder (Bellatrix) he holds out a shield. From his right shoulder (Betelgeuse) a club is held above his head. It almost looks as if Orion is fending off the charge of the great bull Taurus who is located above and to the west (right) of Orion.

Appearing to hang down from Orion's very distinctive belt is a line of stars, ending at the star Nair al Saif that looks very much like a sword attached to his belt. Here can be found the main interest in Orion, the Great Nebula, see the next page for details.

If an imaginary line is traced down from the belt for about six belt length towards the south eastern horizon, a bright twinkling star will be seen. This is Sirius, Orion's Large Hunting Dog in the constellation of Canis Major. It is the brightest and closest star to be seen from the UK at just 8.6 light years from us. It is also the brightest star in the whole of the night sky. It shines with a magnitude of -1.4 and is almost pure white. Sirius is 1.8 times as massive as our Sun and 23 times brighter. To Orion's left (east) of Betelgeuse, a bright star in a rather large empty area of sky can be seen. This is Procyon in Canis Minor, Orion's Small Hunting Dog. Coincidentally both of these 'Dog Stars' are double stars that have a small, very massive but invisible white dwarf companion.

M42 THE GREAT NEBULA IN ORION

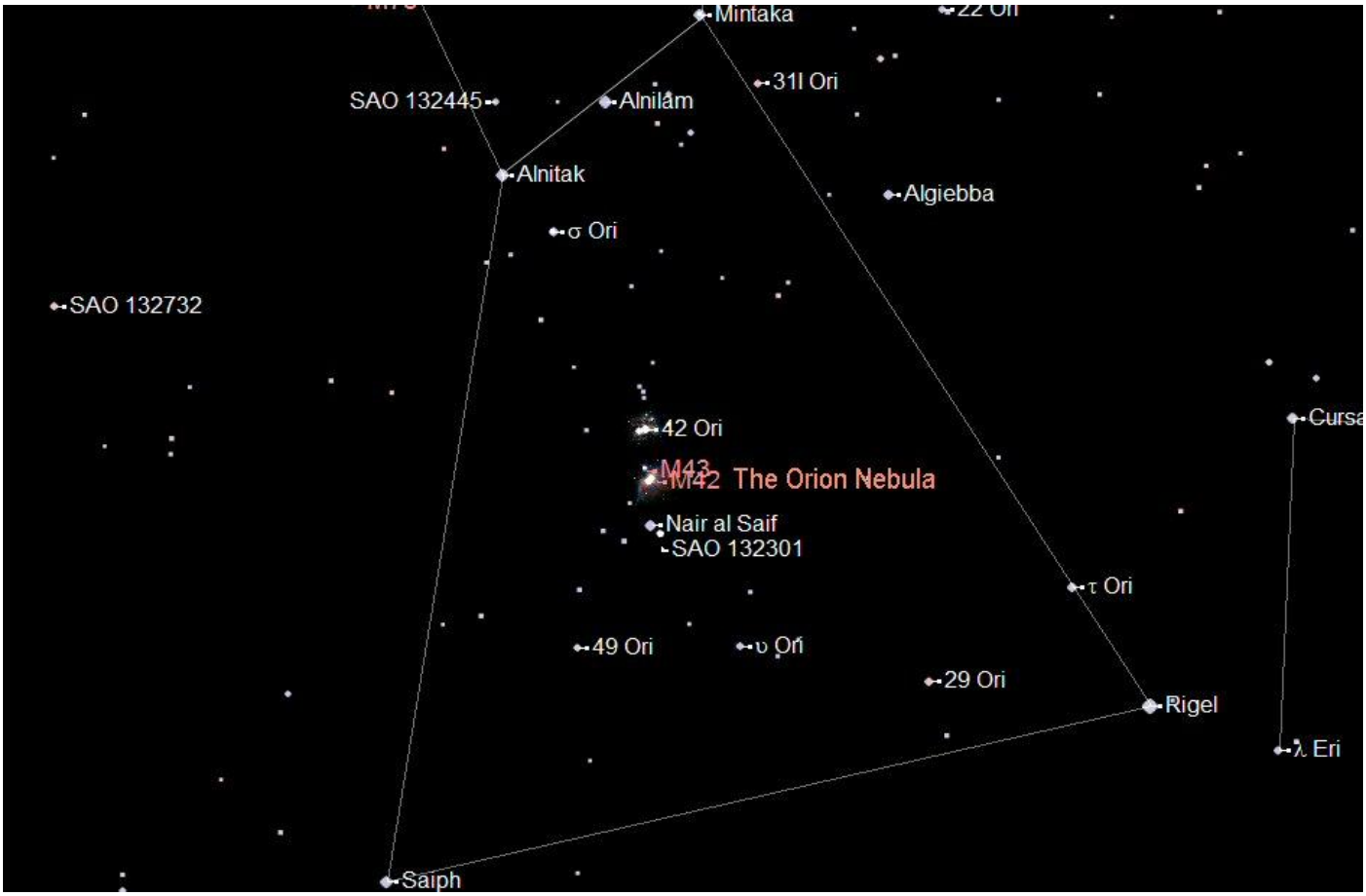
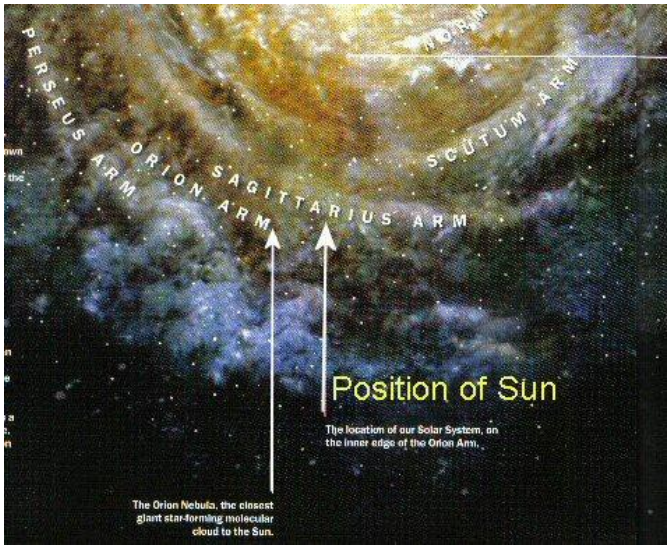


Chart showing M42 the Great Nebula in Orion

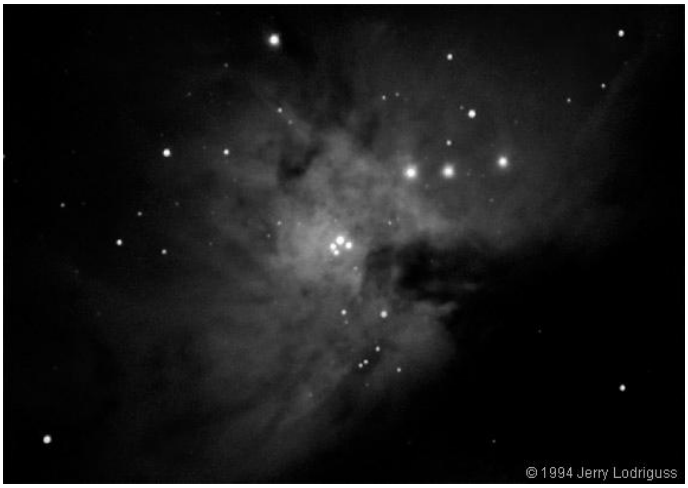
When we look towards Orion we are looking into one of the nearest spiral arms of our galaxy the Milky Way. Our Sun appears to be located in the area between two spiral arms. Towards the centre of the Galaxy from our point of view is the Sagittarius Arm and looking away from the centre is the Orion Arm.



An artist impression of our position in the Galaxy

Most of the stars in Orion are located about 900 light years away from us including Rigel but Betelgeuse is much closer at only 650 light years distant. Because the stars of Orion are in a spiral arm there is a lot of gas and dust around the whole area of the constellation. Huge numbers of young bright stars are hidden by the gas and dust.

Below the line of three stars of Orion's belt there is a vertical line of stars forming his sword (hanging below his belt). In the line of stars making up Orion's sword a small hazy patch can be seen using binoculars or even with just the naked eye on a clear night. The hazy patch is known as M42 (Messier 42), the Great Orion Nebula. This Nebula is a gigantic cloud of mainly Hydrogen gas mixed with other gases and dust from which new stars are being formed. Using a pair of binoculars the nebula looks like a small fuzzy patch in the line of stars.



The Trapezium cluster superimposed on M42

When seen through a telescope the 'fan shaped' cloud like structure can been made out. Swirls of gas and dust can be seen, some are lit up but some are dark and silhouetted against the illuminated clouds behind.

The cloud is actually illuminated by the young stars forming in it. Most of the energy illuminating this nebula comes from a group of four stars known as the Trapezium. These stars have formed from the gas and dust in the nebula; they are young, hot and very active. The Trapezium can be seen easily using a small telescope. The four stars of the Trapezium (there is a fifth fainter star) are just the brightest of what is an Open Star Cluster in the process of being created. The Orion Nebula actually contains many more very young stars that are still hidden by the gas and dust of the nebula.

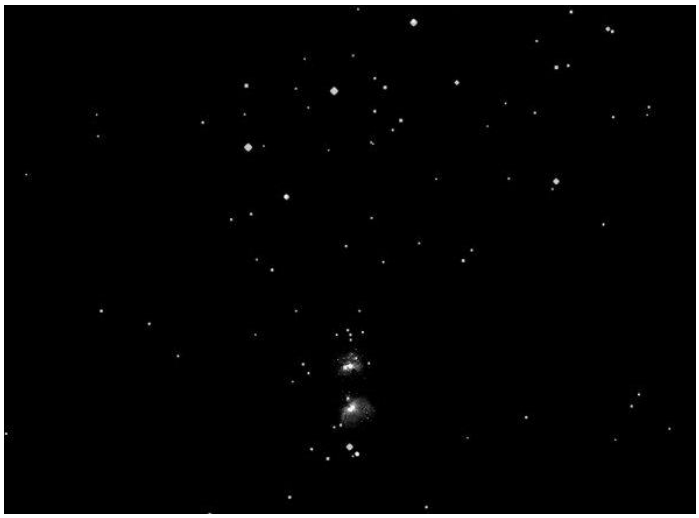
Special telescopes, that can detect ultraviolet and inferred radiation, can be used to penetrate the gas and dust to see the stars forming inside the nebula. There are in fact another 300+ stars forming the new Open Cluster that are currently hidden by the gas and dust clouds.

Gravity draws the atoms of Hydrogen gas together and as the gas gets denser it pulls in even more until huge contracting spherical spheres of gas are formed. As the pressure in the core of a sphere increases the temperature rises to tens of millions of degrees and the Hydrogen atoms begin to fuse together to form an atom of Helium. In this process, known as Nuclear Fusion, a small amount of mass is lost and converted into energy in the form of Gamma and X Rays. This heats the mass of gas and it begins to shine as a bright new star.

Much of the gas and dust of the nebula is illuminated by reflecting light from the very young stars of the Trapezium in the centre of the nebula. Some gas also produces its own light because the ultraviolet radiation energy from the powerful young stars excites the gas atoms causing them to emit light somewhat like a fluorescent light.

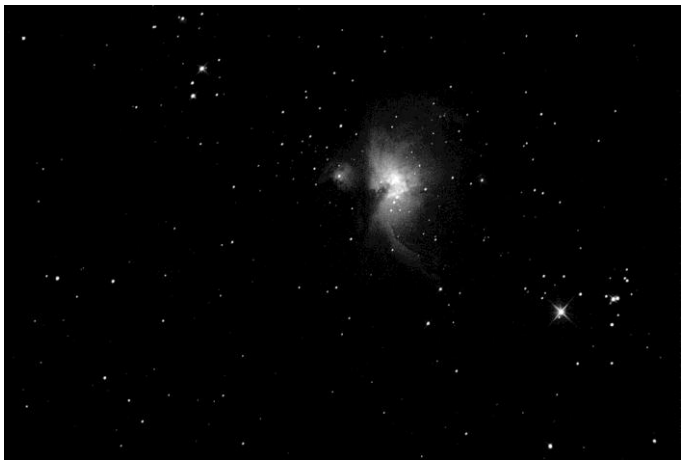
When a photon of ultraviolet light from the powerful young stars hits a gas atom it is absorbed and causes an electron to jump from its normal orbit to a higher orbit. After a short time the electron jumps back to its original orbit and emits the excess energy in a flash of light. The colour of this light is unique to the type of atom that has emitted it. For example Hydrogen always emits red light. The glowing Hydrogen gas can be seen in the images in the next column.

The Orion Nebula can be seen with the naked eye from a dark location on a clear moonless night. It is easily seen using a pair of binoculars. The image below shows the sort of view seen using a pair of 8 x 50 binoculars.



Binocular view of M42 with Orion's belt at the top

A small telescope will show a larger view and some detail in M42. Structure in the nebula can be seen with parts of the nebula illuminated and other parts appearing dark.



The sort of view seen using a small telescope

A larger telescope will show more detail and the structure of the nebula with wisps of gas appearing. Photographic images show much more detail including colour in the clouds of gas and dust. The red in the image below is typical of the emissions from Hydrogen gas.

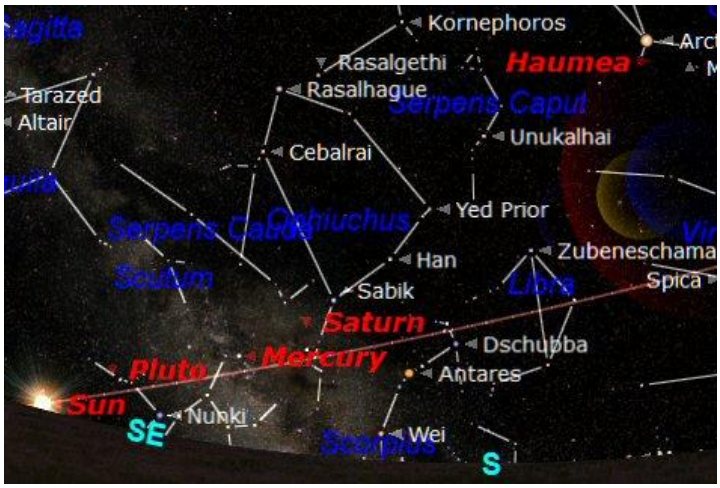
A photographic image of M42

The whole of the sky around Orion is full of vast Hydrogen clouds. These huge clouds called Nebulae (single Nebula) and produce some of the best astronomical images. The image below shows some of the nebula to the east of Orion's belt.

The Horse Head Nebula imaged by our own John Napper

THE SOLAR SYSTEM JANUARY 2017

MERCURY is a morning object this month, rising in the east at 06:20. It will be difficult to see in the brightening dawn sky and a clear view to the eastern horizon will be required.



VENUS is moving away from the Sun and can be seen in the constellation of Aquarius. It will appear very bright at magnitude -4.5 in the south as the Sun sets. The telescopic view is not very good because Venus is still low and in the turbulent, dirty air close to the horizon. However using a Moon filter does reduce the dazzling effect and will improve the view of Venus. See the chart below.

Chart showing Mars, Venus, Uranus and Neptune at sunset

Venus appears 'Half Moon' shaped through a telescope. It would appear very bright and dazzling so the image below shows what it might look like using a Moon filter.

Venus as it will appear on 15th January

MARS will be in the south as the Sun is setting and the sky begins to darken. The Red Planet appears small at just 5.5 arc-seconds in diameter and is fading to magnitude +1.0. Mars is getting low in the turbulent air near the horizon and will set at 21:30. Mars is falling further behind as we on Earth move faster along our orbit inside the orbit of Mars. We will have to wait until the end of this year before we begin to catch up with Mars again and it starts to look bigger. See the Venus chart in the previous column.

JUPITER is now a good early morning object. It rises over the eastern horizon at midnight this is about 8 hours before the Sun rises. It will be in a good position for observing between 03:00 and 07:00. See page 1.

SATURN will be just visible towards the end of January in the brightening dawn sky close to the south eastern horizon. The ringed planet rises at about 05:00 by the end of this month, this about three hours before the Sun arrears over the horizon. Saturn may be seen before 07:00 but will be close to the horizon and in turbulent air so the view will not be good. See the Mercury chart in the previous column.

URANUS will be in a good observable position this month. It will be quite high in the south as the sky darkens. It will be visible using a good pair of 10 x 50 binoculars but a telescope at a magnification of 100x or higher will be needed to see it as a small blue/green disc.

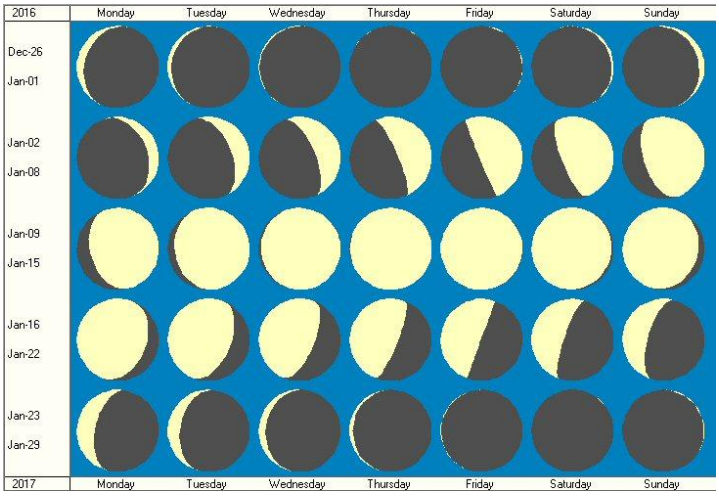
NEPTUNE will be visible in the south west as soon as the sky darkens. A telescope with a magnification of 150x will be needed to show Neptune as a small blue/green disc but it is small and difficult to find. See the Venus chart.

THE SUN

There are still occasional sunspots to see even though the active phase of the Solar Cycle is drawing to a close.

The Sun rises at 08:00 at the beginning of the month and at 07:45 by the end of the month. It will be setting at 16:00 at the beginning and 16:40 by the end of the month. Sunspots and other activity on the Sun can be followed live and day to day by visiting the SOHO website at : http://sohowww.nascom.nasa.gov/ .

THE MOON PHASES IN JANUARY



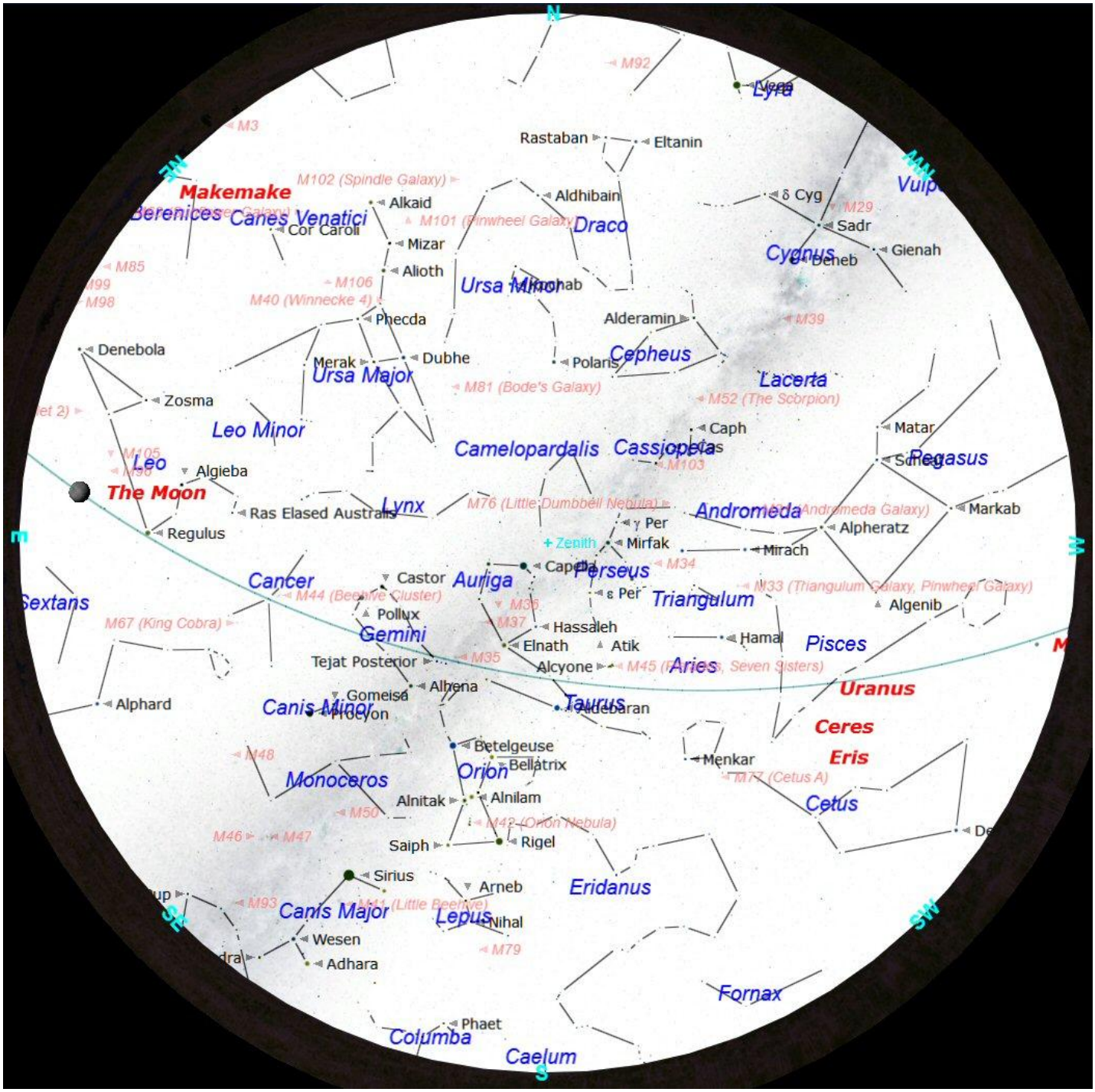
First Quarter will be on 5th January

Full Moon will be on 12th January

Last Quarter will be on 19th January

New Moon will be on 28th January

THE NIGHT SKY THIS MONTH



The chart above shows the night sky as it appears on 15th January at 21:00 (9 o'clock) in the evening Greenwich Mean Time (GMT). As the Earth orbits the Sun and we look out into space each night the stars will appear to have moved across the sky by a small amount. Every month Earth moves one twelfth of its circuit around the Sun, this amounts to 30 degrees each month. There are about 30 days in each month so each night the stars appear to move about 1 degree. The sky will therefore appear the same as shown on the chart above at 10 o'clock GMT at the beginning of the month and at 8 o'clock GMT at the end of the month. The stars also appear to move 15º (360º divided by 24) each hour from east to west, due to the Earth rotating once every 24 hours.

The centre of the chart will be the position in the sky directly overhead, called the Zenith. First we need to find some familiar objects so we can get our bearings. The Pole Star **Polaris** can be easily found by first finding the familiar shape of the Great Bear 'Ursa Major' that is also sometimes called the Plough or even the Big Dipper by the Americans. Ursa Major is visible throughout the year from Britain and is always quite easy to find. This month it is in the north east. Look for the distinctive saucepan shape, four stars forming the bowl and three stars forming the handle. Follow an imaginary line, up from the two stars in the bowl furthest from the handle. These will point the way to Polaris which will be to the north of overhead at about 50º above the northern horizon. Polaris is the only moderately bright star in a fairly empty patch of sky. When you have found Polaris turn completely around and you will be facing south. To use this chart, position yourself looking south and hold the chart above your eyes.

Planets observable in the evening sky: Uranus, Mars and Venus. Jupiter is observable from around 03:00 until dawn.