



The sky tonight notes for

LAS Observatory Public Open Evening(s)

7.00 pm to 9.00pm (18th January 2018)

The stars of the winter skies

Welcome to the LAS Observatory for tonight's winter skies public open evening. The theme of the evening is the stars of the winter skies` Binoculars show star colours which may be too subtle to see with the unaided eye, look through one of the telescopes available tonight and you will see stars with colours ranging from blue (O type) to white blue, green through yellow to orange and red (M type) stars .All star colours are dependant on the stars surface temperature for example our Sun is an `ordinary` yellow (G type) star. Blue stars are hot young stars, whilst red stars are larger cooler giant stars- so not all stars are the same.

As you become dark-adapted as twilight fades, look overhead to find the first star in our *winter skies star tour*, high overhead is the white star **Capella** in the constellation of **Auriga**. – Follow the winter skies star tour with LAS members tonight and spot the named stars (underlined). Look over your left shoulder i.e. to the northeast and see the well know constellation of **Ursa Major** and the asterism known as the `The Plough. Early evening *The Plough* is almost vertical, standing on its handle. Look at the two `pointer` stars on the right hand side of the constellation, **Merek and Dubhe**. Follow a line through these two for a distance of five times the separation to find the fainter Pole star `Polaris` in the constellation of **Ursa Minor** (The Little Bear). You are now looking north. The night sky appears to rotate about the Pole star, **Polaris** as the Earth rotates once on its axis in 24 hours, our day.

You now need to look southward (turn to put **Polaris** behind you). In the southern aspect you will see easily recognisable constellation of Orion (you will find its three `belt` stars easily). Top left in Orion is the star **Betelgeuse** (a Red super giant star),

Below the three belt stars in Orion, **Alnitak, Anilam and Mintaka**, note the faint misty patch which is the Orion Nebula (Messier 42), a stellar nursery where new stars cause the gas clouds to shine. A wonderful sight in a small telescope is magnificent when viewed with the 0.5m telescope. Bottom right in Orion is the white star **Rigel**. Orion`s belt points up to the bright red star **Aldebaran**, (*The Follower*).

Aldebaran (*Al Dabaran*) follows the *Seven Sisters* across the night sky and is also named from old English, *Oculus Tauri* refers to `the Eye of the Bull`. **Aldebaran** is a star , 65 light years from Earth it lies in front of the `V` shape open cluster of **Taurus** (Hyades cluster), the closest open star cluster to Earth, contains some 200 stars at 151 light years distance . You can find **Taurus** above and to the right of **Orion**. You will easily find the famous seven sisters` or Pleiades star cluster – how many stars can you count with the unaided eye? Binoculars show many more stars with up to 400 stars visible in a telescope.

Follow Orion`s belt stars downward to find the brightest star in the heavens, **Sirius** (The Dog Star) in the constellation **Canis Major**, (The Greater Dog) low in the southeast. **Sirius** is actually 25 times brighter than our Sun and is relatively close at 8.6 light year distance. Compare this with distant Rigel, 55,000 times more luminous than our Sun. **Sirius** can be seen to `twinkle` and flash blue/white.

To the left above **Orion**, lies the constellation of **Gemini**, a long rectangle of stars marked by two bright stars **Castor** and **Pollux**. (The Heavenly Twins) which point to the bright star **Regulus** in the constellation **Leo** (The Lion) seen rising low in the east by late evening. **Gemini** also has a nice star cluster M35 visible in 10 x50 binoculars and small telescopes. To the left (east) of **Gemini** lies the obscure constellation of **Cancer** (The Crab), noted for the splendid `Beehive Star Cluster` (M44).

Currently Comet 2016 R2 (Panstarrs) is a telescopic object located in the constellation of **Taurus**. It is presently moving towards perihelion i.e. its closest point in its orbit to the Sun in May 2018) . This long period comet (orbital period over 20,800 years) only comes to within 2.7AU (400 million km) of the Sun and currently is at its closest to Earth at 2.06 AU (300 million km). At 12^m magnitude it is rather faint and difficult to observe in Luton skies, but astroimagers located at high altitude have captured images of the comet even at this great distance showing a disconnection event of the comets dust tail. This is quite rare and is thought to be due to Carbon Monoxide production.

For further information please contact Geoff Mitchell (LAS Secretary)

via the LAS Website www.lutonastrolink.org.uk

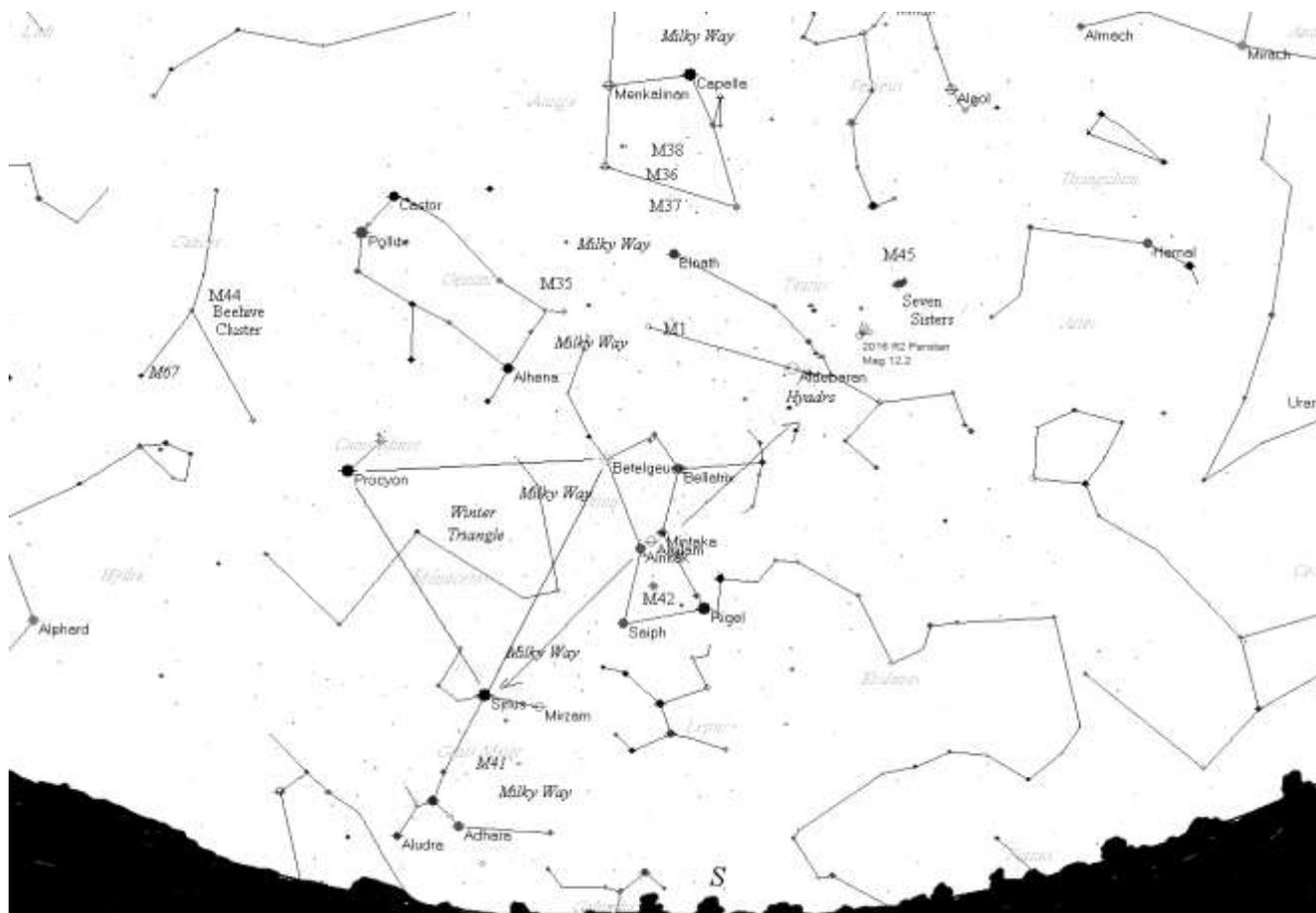


Fig 1 General sky map looking south early evening – Use your binoculars or the LAS telescopes to have a look at some of the stars and star clusters of the winter skies.

Principle winter constellations Orion (due south mid evening) with Taurus and Gemini rising Identify the winter constellations and the Winter Triangle asterism (Procyon, Betelgeuse and Sirius).

Nice binocular star clusters include `The Beehive Cluster` (M44) in Cancer (*The Crab*), The Seven Sister's (M45) in Taurus (*The Bull*) and M41 in Canis Major (*Greater Dog*). Telescopic `gems` include The Orion Nebula (M42) and star cluster M35 in Gemini (*The Twins*).

You may like to keep these notes handy and if you have binoculars at home, why not take look at the colours of some of the principle stars shown on darker moonless nights in coming months.

The LAS holds regular indoor meetings at Univ of Bedfordshire, Putteridge Bury doors open from 7 pm, meeting 7.30pm until 9pm on the last Thursday each month (Our next meeting will be on Thursday 25th January 2018 and is an informal meeting with Night Sky presentation and Telescope clinic, for those wanting help with new telescopes All visitors are welcome – so why not come along - see Geoff Mitchell or visit the LAS website www.lutonastrolink.org.uk for more details of our 2018 programme and to book for our forthcoming open evenings, observing evenings and much more astronomical news.

Next LAS public open evening(s), clear skies permitting are planned for February 15th and British Science Week on 15th March for viewing the spring night sky.

We hope that you have enjoyed our open evening tonight *Geoff Mitchell*
Also see the *Society for Popular Astronomy (SPA)* website as an introduction, especially suited for younger observers or visit the *British Astronomical Association (BAA)* website for more advanced observers. Popular monthly publications are also available from newspapers and more details on line.