



**SUN** Moving through *Scorpius* into *Sagittarius* the Archer. Winter Solstice at 17:46 on the 21<sup>st</sup>

**MOON** New Moon on the 16<sup>th</sup>, Full Moon on the 2<sup>nd</sup>.

**PLANETS** **Mercury** is an evening object, very low down in the SW after sunset. On the 18<sup>th</sup> it is in conjunction with a new Moon.

**Venus** is out of sight this month.

**Mars** is moving from *Cancer* into *Leo* shining at  $-0.4^m$ .

**Jupiter** is visible for most of the evening until 11pm in the South and is a brilliant object shining at  $-2.2^m$ .

**Saturn** is a  $1^m$  object in *Virgo* during the mornings. This is not a good chance to see ring detail since the rings are virtually edge-on but a good opportunity to observe the fainter moons.

**COMETS** No bright comets expected this month.

**METEORS** Two meteor showers are expected this month.

One of the best showers of the year occurs between the 9<sup>th</sup> and 14<sup>th</sup>, peaking on the 13<sup>th</sup>. This is the Geminid shower. On dark, clear nights, you can see up to 75 per hour. There will be moonlight to interfere this month, so don't expect a good display.

A much less spectacular shower are the Ursids, peaking on the 10<sup>th</sup> with ZHR of 10.

**STARS** The most interesting star to the casual observer is the winking "demon" star,  $\beta$  *perseii* or Algol. It is traditionally said to represent the eye of Medusa, the gorgon beheaded by Perseus.

The ancient Arabs were aware that its brightness varied, but it was John Goodricke, a British astronomer, who first measured its light curve in 1782. Normally this star is  $2.1^m$  but every 2.87 days it fades down to  $3.4^m$ . It is a fine example of an eclipsing binary system - two stars in orbit about their common centre of gravity, one bigger and brighter than the other. You should be able to see it dim during a week of observations by comparing it to nearby reference stars.

Almach ( $\alpha$  *andromedæ*) is a beautiful coloured double star when seen through a small telescope. It is actually a triple system, one orange and the other two a very close blue/green pair.

Less easy to see is the telescopic coloured double  $\delta$  (or  $\iota$ ) *trianguli*.

Mesarthim ( $\gamma$  *arietis*) is a fine telescopic double star with white matched components.

There is a famous star in *Cetus* by the name of Mira (the wonderful). It was first discovered to be variable in 1596 and ranges in brightness from  $2.5^m$  to  $9.3^m$  over 331 days. At its maximum it has a reddish tinge.

**NEBULÆ** There are no nebulae that are easy to observe in this area of sky.

**CLUSTERS** *Perseus* plays host to a beautiful double cluster comprising NGC 869 and 884. The naked eye can pick this out quite clearly in the region between the head of *Perseus* and the "W" of *Cassiopeia*. Binoculars reveal hundreds of stars clumped together in two adjacent swarms.

M34 is a fine open cluster of 80 stars best seen through binoculars or a rich-field telescope.

NGC 752 in *Andromeda* is a fairly bright open cluster visible in binoculars.

*Taurus* houses the Pleiades and Hyades, both spectacular and nearby clusters, easily visible with the naked eye.

**GALAXIES** The only galaxy worth looking for, apart from the spectacular M31 in *Andromeda* is the third largest member of our Local Group, the galaxy M33 in *Triangulum*. It is a large face on spiral with a low surface brightness and requires very clear skies to see it. Large binoculars are best, but don't expect to see any more than a faint disc.

M77 in *Cetus* is best seen telescopically.

Our own galaxy, the Milky Way stretches down through *Cassiopeia* and *Perseus*.