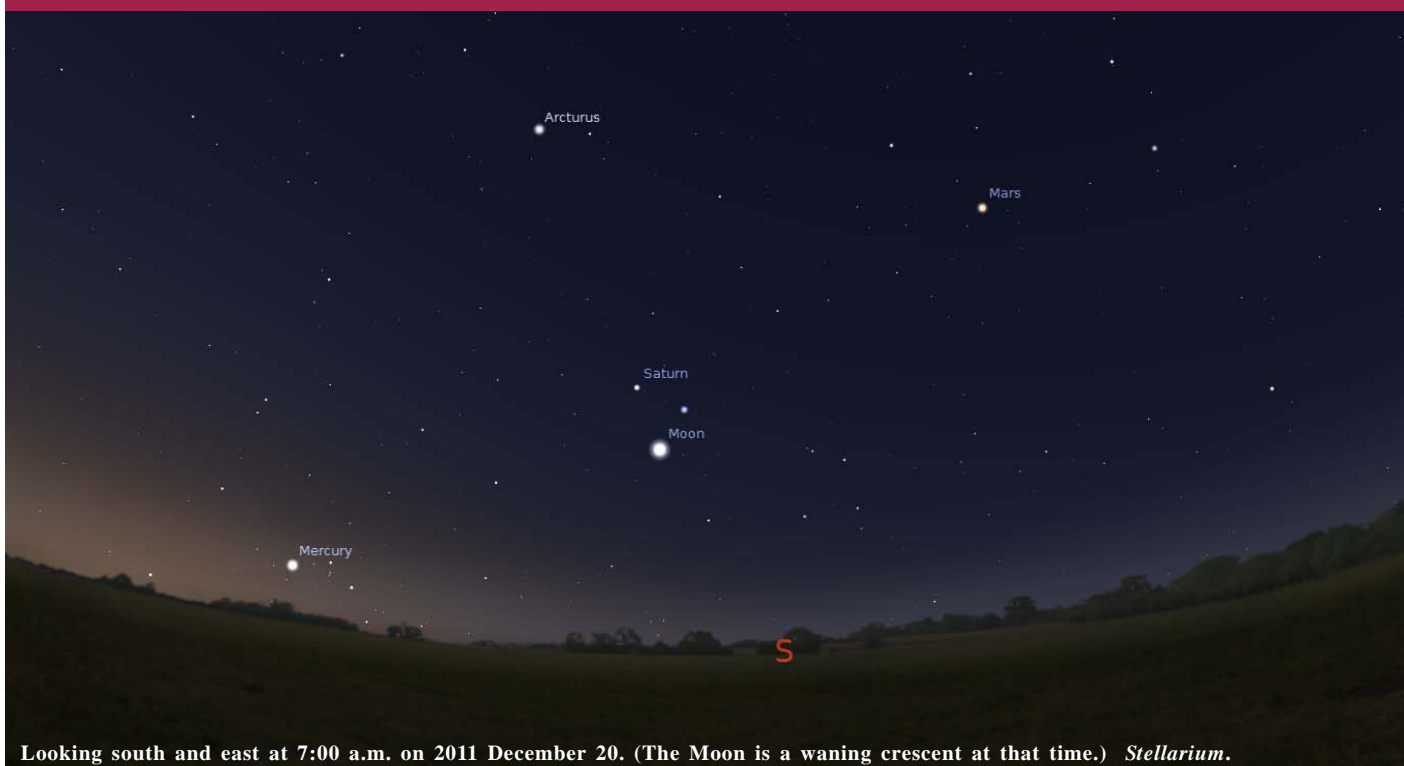


Sky Notes: 2011 December & 2012 January

by Callum Potter



Looking south and east at 7:00 a.m. on 2011 December 20. (The Moon is a waning crescent at that time.) *Stellarium*.

It was good to meet up with many old friends and make some new ones at the Equinox Star Camp in September. Unfortunately I did not see the best of the weather, with only one decent observing session. Luckily it was cloudy rather than rainy, which at least made the camping pleasant. However the limited observing this year meant most of the targets I had hoped for were not available – but there's always next year.

This year's autumn star camp season is more or less over at the time of writing; it would seem that if you do want to get some good observing, then you really need to camp for several days to maximise your chances with the weather. Look-

ing forward to next spring, the new season kicks off with the Isle of Wight star camp and Star Gazers Lounge camp in Herefordshire, both on March 22 to 26. The Spring Equinox Camp at Kelling Heath will be from April 19 to 23. There are many star camps around the country these days – if you know of other interesting events, please let me know, and reports of your experiences at any of the camps would be welcome.

There are no camps in the UK in these frosty winter months, but there is still a lot to see, so here are the highlights and some suggestions for the coming season.

And as the Sun is active, it is certainly worth being alert for displays of the Aurora Borealis, the Northern Lights. Displays have been seen even down to the south of England in September and October this year already. I like to follow the website spaceweather.com for the latest on what is happening on the Sun and in our magnetosphere, and the Lancaster University Aurorawatch website aurorawatch.lancs.ac.uk provides real-time plots of the magnetic field in the UK, and free alert services by e-mail and Twitter, which are well worth subscribing to.

The Moon is full on December 10 and January 9, and new on Christmas Eve and January 23. A total lunar eclipse takes place on December 10, but the UK is not well favoured – the Moon will rise at around 15:52 in the last stage of the partial phase of the eclipse, which will end around 16:18, and then the penumbral phase will end around 17:31. To get a better view of this event you would need to be in Australia or Asia where the entire eclipse will be visible.

Sun and Moon

The winter solstice, when the Sun reaches its most southerly declination for the year, occurs on December 22. Although the Sun will have low altitude from the UK, it has been active over recent months so observation will be rewarding. You can count sunspot numbers or make sketches in white light without much outlay in equipment – it is straightforward to build a simple projection system for a small refracting telescope, and a very satisfying way to get started. For the next step a specialised H-alpha telescope (one which shows the Sun in hydrogen alpha light, 656 nanometres) is an exciting development, and in addition to sunspots, prominences, flares and faculae can also be seen.

The planets

Mercury has a fine morning apparition in December. It will be at its best between December 17 and 22, low in the southeast just before sunrise. On Dec 21, 22 and 23 the waning crescent Moon will be nearby, and make a nice photo opportunity – get out around 7:00 a.m. Mercury will achieve a greater altitude later, around 7°, but as the sky lightens it will be harder to record.

Venus is an evening object now; it will be obvious low in the west after sunset in December, and in January will be a brilliant sentinel in the



Jupiter and Ganymede imaged by Mike Glenny on 2011 Sept 26 from Vergt, Dordogne, France (latitude N45.00). 203mm LX90 classic at f/40 approx. (Televue barlow) and DMK21AU04 colour videocam.



evening sky. On December 26 and 27 the new crescent Moon will be close to Venus, and if you have a good western horizon should make another pleasing photo opportunity.

Mars is steadily improving, brightening and increasing in diameter from around 7" at the start of December, to nearly 12" at the end of January. It will still be best observed in the hours after midnight towards morning, until it reaches opposition in March. Although the planet is small, careful observation with high power should reveal surface structure and the polar cap.

Jupiter is still the standout planet, though decreasing in apparent diameter from 47" to 40" at the end of this period. It will still be bright in the evening sky, and an ideal target for those holding events for *Stargazing Live*.

Saturn is now visible before sunrise in the morning sky. It can't really be said to be very favourable, being low in the East, but over the following months it will improve as it rises earlier every month. The rings are tilting towards us, inclined at around 15°.



Sketch of NGC 2371/72 by Dale Holt with a 350mm Newtonian & Watec 120N video camera.

For a few mornings in December it will be possible to see Mercury, Saturn and Mars with the waning Moon. Look out around 7:00 a.m. on Dec 17 to 20 – although a wide field or panoramic shot is needed, this could make an interesting photo. An impression from the free, open-source *Stellarium* software is shown above.

Uranus and Neptune are now not really observable.

Comets & meteors

Comet 2009 P1 (Garradd) should still be visible in the early evening, low in the west, in Hercules. It is fading now but should still be obvious in binoculars as it reduces from magnitude 6 to 7.

The Geminids meteor shower, one of the most

reliable of the annual showers, peaks on December 12. Unfortunately this year the shower is unfavourable as the Moon will interfere being just past full. However it may still be worth observing, trying to select a location shaded from the Moon. Geminids are typically slow and bright.

The Ursids have a maximum on December 24. The shower has had outbursts in the past, but how this year will fare is unknown. It is a little-observed shower, so observations would be particularly useful. Being at New Moon the prospects for observing are very favourable.

The following week sees the maximum of the Quadrantids on January 4, also quite favourable. Quadrantid meteors can be blue and yellow. Again this is an under-observed shower, possibly due to its proximity to Hogmanay.

Deep sky

As we move into winter Orion takes his place as the most popular of constellations, but it would be a shame to miss out on some of the other sights to be seen, and other challenges in winter sky. The zodiacal constellations Taurus and Gemini are well placed, and hold a number of interesting objects to see for all levels of observers. Supernova remnant and first object in Messier's catalogue, the Crab Nebula (M1), is a fascinating object to locate in Taurus. Zeta Tauri is the best jump-off star if star-hopping, and M1 is just north and west.

The easier open clusters are NGC 1647 and 1746. 1746 is a looser cluster with fewer stars than 1647. For more of a challenge, NGC 1555, better known as Hind's Variable Nebula, is an interesting object. It is related and physically close to T Tauri, shining from the light of this star. The BAA Deep Sky Section has an observing programme on Variable Nebulae, so images of this object are particularly welcome – especially over the long term with the same equipment.

Gemini is home to three interesting and challenging planetary nebulae. The easiest is



Supernova remnant M1 in Taurus imaged by Ron Arbour.

probably the 10th magnitude Eskimo Nebula, NGC 2392 – it is not far from Delta Gem, just track east by 5° and then drop south, and you will come upon it. More challenging is 13th magnitude NGC 2371/2372. At first this was thought to be two objects, but it became clear that in fact this planetary is dual lobed (like the Dumbbell Nebula) with an NGC number for each lobe. There are not many bright stars for star-hopping, but if you start at Castor, and track south by 2° and west by a similar amount you should not be far away.

A bigger challenge is 14th magnitude Abell 21, the Medusa Nebula. Abell 21 is difficult due to its large size and low surface brightness – clear dark skies and an OIII or UHC filter will certainly help in identifying it. It is actually easier to find by star-hopping using the stars of Canis Minor; start at Procyon, move to Gomeisa, then northwards to 6 CMi, and then the Medusa should be just a short nudge northwards by a degree or so.

As always your observations will be welcomed by the various BAA Sections – please do send them in. And remember during these winter months that it will be cold out there, so wrap up well!

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