

<b>Forthcoming CAWAS Meetings</b>		
Friday 12th July	Keith White + John Davis	Distributed Ledger Technologies Me and the Moon Landing
Friday 9th August	Geoffrey Johnstone	The Life and Astronomy of Margaret Burbidge 1919-

**Make a note in your diary! This year's Christmas meal will be on Friday 13th December**

<b>BAA</b>		
Saturday 24th August 10:00 - 17:00	Spectroscopy Software Training Workshop 9 Margaret St., Birmingham. B3 3BS	

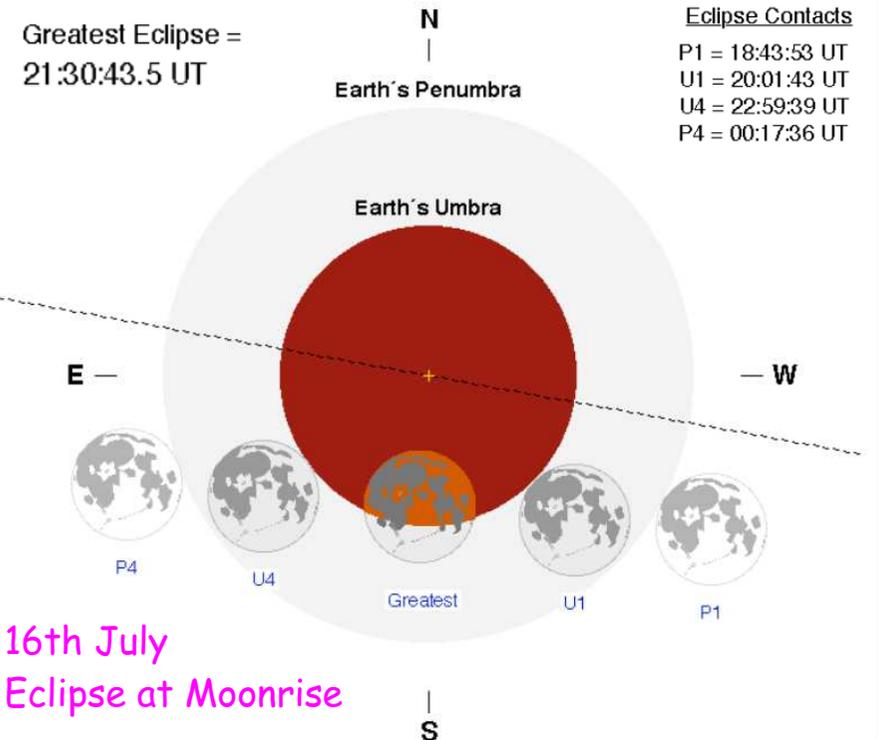
<u>July</u>	<u>Event</u>		
Saturday	13th	Moon near Jupiter	
Monday	15th	Moon near Saturn	
Tuesday	16th	Moon - full, partial eclipse	○
Saturday	20th	50th anniversary of Apollo 11 landing	
Sunday	21st	Mercury conjunction	
Thursday	25th	Moon - last quarter	☾
Sunday	28th	Southern Delta Aquarids maximum	☿
<b>August</b>			
Thursday	1st	Moon - new	●
Friday	2nd	Alpha Capricornids maximum	☿
Tuesday	6th	Iota Aquarids maximum	☿
Wednesday	7th	Moon - first quarter	☽
Friday	9th	Moon near Jupiter	

<b>Coventry and Warwickshire Astronomical Society</b>					
The society usually meets on the second Friday in the month, at Earlsdon Methodist Church Hall. The meetings begin at 19:15 and end at 21:30.					
<b>Web Site:</b> <a href="http://www.covastro.org.uk">http://www.covastro.org.uk</a>					
<b>Mailing list</b>					
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# Coventry and Warwickshire Astronomical Society

## Sky Notes

July 12 to August 9 2019 No. 262



As the Moon's orbit is tilted by about 5° to the Earth's, eclipses of the Sun and Moon only occur when the Moon is near one of the crossing points (the nodes) of the two orbits. This happens about every 6 months, with eclipses of the Sun and Moon separated by two weeks. As the last eclipse of the Sun was on July 2 the next eclipse of the Moon is on July 16. Like the eclipse of July 27 last year, we are unlucky that the umbral part of the eclipse starts before the Moon rises at 20:17 so the Moon will rise with a "bite" taken out of it. As the eclipse is a partial one (65.3%) it will be more difficult to see the usual red colour of a total eclipse.

**Time** given in these skynotes is Co-ordinated Universal Time (UTC) known as GMT here in the UK, add one hour to get clock time in BST.

**Sun** after last month's solstice moves south from Gemini into Cancer, so that astronomical twilight ends at midnight on July 26 and from that date dark skies return.

July 12th Rise 03:58 Set 20:25 Dec +21° 57'  
 August 9th Rise 04:38 Set 19:44 Dec +15° 53'

**Mercury** (+2.9 11.3" to +0.1 7.7") moves from Cancer into Gemini and as it passes through inferior conjunction on July 21 might be glimpsed low down in the ESE just before sunrise at the end of the month.

**Venus** (-3.9 9.8" to -3.9 9.6") moves from Gemini into Cancer and is too close to the Sun for observation as it heads towards conjunction next month.

**Mars** (+1.8 3.6" to +1.7 3.5") moves from Cancer into Leo and is too close to the NWN horizon at sunset to be visible this month.

**Jupiter** (-2.5 44.6" to -2.4 41.6") lies in Ophiuchus and is visible low in the SSW for the first half of the night, setting at 01:30 at the beginning of the month and 23:40 at the end. On July 13 the Moon lies just 1.5° to the north and on August 9, 2° to the north.

**Saturn** (+0.1 18.3" to +0.2 18.0") lies in Sagittarius and as it passed through opposition last month is visible low in the south for most of the night. On July 15 the Moon lies 4° to the west.

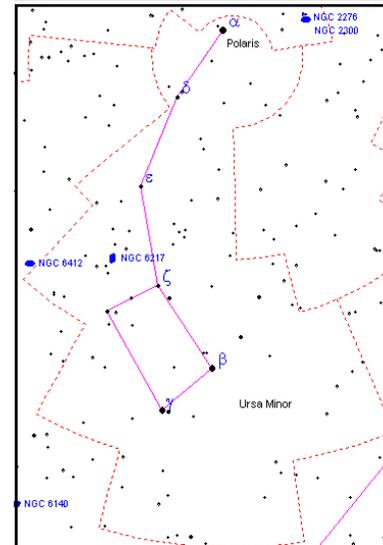
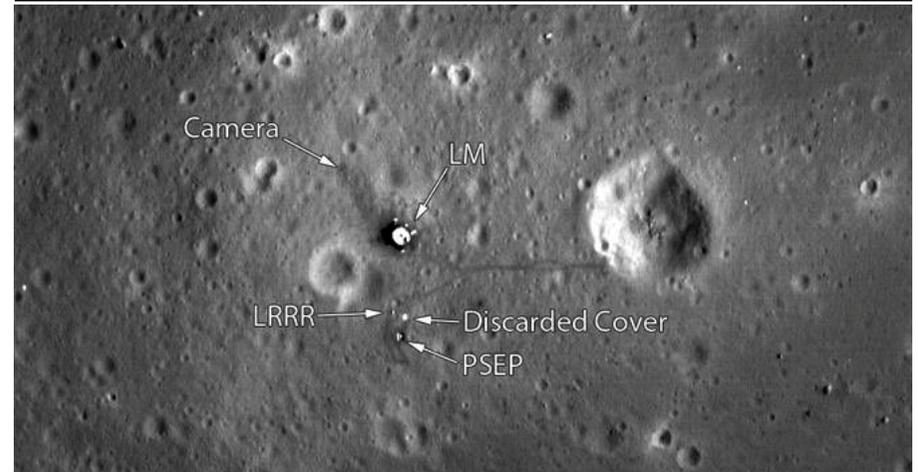
**Uranus** (+5.9 3.5" to +5.8 3.6") lies in Aries and can be seen in the latter part of the night and in the early hours high in the SE, as it rises at midnight at the beginning of the month and 22:00 at the end.

**Neptune** (+7.7 2.3") lies in Aquarius and can be seen in the latter part of the night low in the SE, as it rises at 22:30 at the beginning of the month and 20:40 at the end.

**Meteors** After a period of inactivity, there are a number of minor showers from the Summer Antihelion Source that have their maxima this month:-  
 Alpha Capricornids July 15 to August 20, max. August 2 - 3  
 Southern Delta Aquarids July 12 to August 23, max. July 28 - 29  
 Iota Aquarids July to August, max. August 6

With the Moon between last and first quarter conditions are favourable.

**First Footprint** on the Moon was placed there by Neil Armstrong at 02:56:15 on July 21 1969, having landed at 20:18 the previous day in Eagle, the lunar module of Apollo 11. He was followed shortly after by Buzz Aldrin, leaving Mike Collins in orbit in the command module. Their tracks on Mare Tranquillitatis can be seen in this picture of the landing site taken by the Lunar Reconnaissance Orbiter from a distance of 24km (LRRR - Lunar Ranging Retroreflector, PSEP - Passive Seismic Experiment Package). Apollo 11 was the first of 6 landers that made it to the Moon, the last footprint being that of Eugene Cernan left behind on December 14 1972 before he joined Harrison Schmitt in the lunar module of Apollo 17 for the return to Earth. Since then no-one has returned.



**Ursa Minor** or the Little Bear resembles a mini Plough and is always visible as it has the pole star at its northern extremity.

Polaris itself is a triple star, its main component (Aa mag. +1.98) is a yellow supergiant and a Cepheid variable (the closest to Earth at 447ly) whose brightness varies every 4 days, but with a varying range, currently only around 0.05 magnitudes.

To see its close companion (Ab) requires the Hubble telescope, whereas the third member of the system (B) is visible as a +8.7 mag star 18" away.