



## July 2021 EDITION

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### Editorial

Welcome to the July edition of Janus.

A relative dearth of material means this month's edition is short on content when compared with those in the recent past. In fairness to those who look forward to reading it, I decided to publish anyway, but this illustrates just how vital members' contributions are to its continued publication. Quite simply, whilst I can (and do) write some articles myself, a low number of contributions means a smaller Janus, so I'd like to take the opportunity to stress that all contributions are welcome. In the (probably unlikely) event that I was to receive more material than it was sensible to publish in a single month, I would simply carry some material forward to the next month.

The anticipated highlight for June was the Partial Solar Eclipse (20% coverage of the Sun) on 10<sup>th</sup> June. The hoped for sunny, cloudless day didn't materialise, but the cloud cover was sufficiently thin for decent sightings either through or between clouds. In fact, the clouds helped those who wanted to view the eclipse with the minimum of difficulty, as it was easy to see the Sun, with the moon obscuring chunk taken out of it, with the naked eye. It was also possible, with care, to image the eclipse through the cloud without needing a solar filter - I did it myself!

Limited group observing sessions remain a possibility and, if all goes well with the Government's plans to ease restrictions further, it might be possible to return to physical meetings in September. Fingers crossed for this but, in the meantime, virtual meetings will continue.

John



## The Solar System July

**MERCURY:** is emerging into the morning sky as it approaches greatest elongation west. At the beginning of the month, it is not observable, reaching its highest point in the sky during daytime and being 1° below the horizon at dawn. Later in the month, it may become visible, but by the end of the month it will be extremely difficult to see, being very close to the Sun, at a separation of only 2° from it.

**VENUS:** recently passed behind the Sun at superior solar conjunction and, throughout the month, will be extremely difficult to observe. It will reach its highest point in the sky during daytime and be no higher than 7° above the horizon at dusk.

**MARS:** will soon pass behind the Sun at solar conjunction., It might just be observable at the beginning of the month, although it will reach its highest point in the sky during daytime and be no higher than 1° above the horizon at dusk. By the end of the month, it will not be observable, reaching its highest point in the sky during daytime and being 3° below the horizon at dusk.

**JUPITER:** is visible as a morning object throughout the month. It begins the month visible in the dawn sky, rising at 23:42 BST and reaching an altitude of 26° above the S horizon before fading from view as dawn breaks around 04:20. By the end of the month, approaching opposition, it is visible in the morning sky from around 22:39, when it reaches an altitude of 7° above the SE horizon. Reaching its highest point in the sky at 02:37, 25° above the S horizon, it will be lost to dawn twilight around 04:58, 19° above the SW horizon.

**SATURN:** is also visible throughout the month. It begins the month visible in the morning sky, becoming accessible around 00:28 BST, when it reaches an altitude of 10° above the SE horizon. It will then reach its highest point in the sky at 03:27, 20° above

the S horizon, before being lost to dawn twilight around 03:56, 20° above the S horizon. By the end of the month, it is visible between 22:27 and 04:18. Becoming accessible around 22:27, when it rises to an altitude of 10° above the SE horizon, it will reach its highest point in the sky at 01:23, 20° above the S horizon. It will become inaccessible around 04:18 when it sinks below 10° above the SW horizon.

**URANUS:** recently passed behind the Sun at solar conjunction. At the beginning of the month, rising around 01:45 BST, it will be extremely difficult to see before twilight intervenes. By the end of the month, rising earlier at 23:50, it will be more visible reaching an altitude of 33° above the E horizon before fading from view as dawn breaks around 03:34.

**NEPTUNE:** is currently emerging from behind the Sun. It begins the month rising shortly after midnight but will be difficult to see – it will reach its highest point in the sky during daytime and be no higher than 18° above the horizon at dawn. By the end of the month, it will rise earlier - around 22:22 - and reach an altitude of 34° above the S horizon before fading from view as dawn breaks around 03:34.

### MOON PHASES:

Last Quarter	1 July
New Moon	10 July
First Quarter	17 July
Full Moon	24 July
Last Quarter	31 July

### Notable Events:

Observation of some of these events may require a telescope, although some will be visible with the naked eye. More information at <https://in-the-sky.org>

### July

- 1 IC4756 is well placed
- 5 Mercury at greatest elongation west
- 12 Mercury at highest altitude in morning sky
- 5 The Earth at aphelion
- 7 15P/Finlay reaches its brightest
- 9 Mercury at dichotomy
- 10 C/2020 T2 (Palomar) at perihelion
- 12 Conjunction of the Moon and Venus
- 14 15P/Finlay at perihelion
- 18 134340 Pluto at opposition

- 19 Asteroid 6 Hebe at opposition
- 24 Conjunction of the Moon and Saturn
- 26 Conjunction of the Moon and Jupiter
- 28 Piscis Austrinus meteor shower 2021  
Southern δ-Aquariid meteor shower 2021
- 30 α-Capricornid meteor shower 2021  
Asteroid 12 Victoria at opposition

### Collected Observations (and thoughts) – Gary Walker

#### Notilucent Clouds - 9 June

I saw my first Notilucent Clouds of this "season" in the late evening of 9<sup>th</sup> June, from about 10:45pm onwards, in the NW sky. They appeared as two bright ribbons and, at one point, the bright star, Capella, was "immersed" in the centre of one of these ribbons, which gave a very pretty effect, like a diamond in a ring.

#### Partial Solar Eclipse - 10 June

After a gap of nearly 13 years, I managed to see the eclipse on 10<sup>th</sup> June. The last one I managed to see was in August 2008!

The next two eclipses were clouded out, and this one looked as if it would follow suit! The weather forecasts (such as they were) predicted cloudy conditions, so it was impossible to assess whether or the eclipse would be visible or not.

Frustratingly, the previous day was beautifully clear, which made the likelihood of clouds even more galling. I was, however, optimistic that this one might have a fighting chance of being seen; firstly, it was Summer and, secondly, the Sun would be high up in the sky. Predictably, the weather still managed to be ropy, despite being under a High-Pressure Zone, and in a heatwave!

The cloud consisted of stratocumulus, and scud-cloud. The cloud base must have been less than 1000 feet high, as a helicopter flew over, out of sight, above the clouds, and a light plane was only just below the cloud base, but occasionally skimming it.

The eclipse started at 10:08am, was at its maximum at 11:13am, and ended at 12:24pm. I missed First Contact but first saw the Sun, (and the eclipse), at 10.13am, when it was already visible in my 10 X 50

binoculars. It was very quickly visible to the naked eye, too!

During the eclipse, the Sun was only intermittently visible - indeed, after about 10:30am, there was no further sign of it for three quarters of an hour, until 11:15am.

By 11:15am, the eclipse was at its maximum extent of 20% coverage of the top limb of the Sun. The "bite" in the Sun was visibly starting to move around the Sun, from about 11:32am, as the Moon moved onwards!

I could see some "lumps and bumps" in the Moon's limb, due to mountains on the limb of the Moon.

I last saw the eclipse at 12:20pm. By then, the "bite" was clearly shortening, and shallowing out. Then, more cloud came over, and by the time I next saw the Sun, at 12:29pm, the eclipse had ended.

I observed this eclipse with the naked eye, binoculars, and my 8" SCT. Ironically, due to dimming by the cloud, the Sun was often invisible when viewed via the Mylor filter on my telescope. However, in the end, I did manage to get some good views and, even, some photographs!

Was this observation a success? Well, yes, as I had at least managed to see the eclipse, even though the cloud was frustrating.

Solar eclipses must be one of the very few astronomical objects that can be, and are, worth observing in less than perfect, even poor, conditions. Unlike many astronomical observations, that require clear skies, the fact that the Sun is so bright makes this possible. It is therefore incredibly frustrating when solar eclipses are entirely clouded out, as was the case with the last two (especially the big one of 20<sup>th</sup> March 2015).

This is only the 12<sup>th</sup> solar eclipse that I have managed to see, in just over 50 years, since my first one on 25<sup>th</sup> February 1971. In about the same period, I have seen over twice as many Lunar eclipses!

Actually, the presence of clouds made the eclipse appear more atmospheric, as you could easily see the Sun, with the chunk taken out of it, with the naked eye. As a result, people (including myself) could image

the eclipse shining through the thin clouds, without having to use filters!

I always get a big kick out of seeing the semi-circular "bite" cutting into the Sun during solar eclipses. Indeed, in some ways, I find it even more exciting than lunar eclipses.

On the day, the eclipse was featured on the TV news, and it appeared in all the national newspapers the following day.

Due to the piece taken out of the Sun by it, a solar eclipse is the only time that we can "see" a New Moon as, normally, these are invariably invisible!

In addition, some people have even detected, or imaged, the lunar maria on the Moon, during totality, although, it is usually just seen as a black silhouette disk.

However, this eclipse was not total, but annular, where a "Ring of Fire" can be seen surrounding the Moon. This is because the Moon was a bit further away, so it could not entirely cover the Sun. Unfortunately, the annular path was only visible in awkward places such as part of Greenland and Russia!

### **Latest Observations - 30 June**

The Nova in Cassiopeia just keeps going and going. Since it first appeared in mid-March, some 3.5 months ago, it is still clearly visible in my scope. On 29<sup>th</sup> - 30<sup>th</sup> June, it must have still been about magnitude 7. I have read that this Nova has now flared 5x in all. Most novae just flare up once, and then fade into obscurity for good!

The Sun has now definitely woken up, and there have been sunspots on most days for the last month or two. In late June, a new group of spots appeared with two big spots.

On 29<sup>th</sup> June, the largest spot had multiple umbra - one big central umbra, with two small umbrae above it, making the whole thing appear like a face, with a mouth and two eyes, within a head (the penumbra!).

Just for a change, over the past month, I have been observing several double stars in Draco, Lyra, Serpens, Cygnus, and Boötes. I have also been looking at globular Clusters, such as M4, M80, M13, M22, M5, and M3.

## **Up Next:**

### **NEXT MEETING: 8pm Friday 9 July 2021 - Virtual meeting via Zoom**

*Presentation by Anna Nash from the Mullard Space Science Laboratory, UCL (MSSL) on Planetary protection and the Rosalind Franklin Rover. Anna will delve into some of the challenges faced by the PanCam team in producing a bespoke camera system for a planetary mission to Mars and how they managed to overcome them. If you would like further details, please contact Anita King.*

*Ron Canham will also deliver his Sky at Night presentation for the month to come.*

### **NEXT USER GROUP:**

*Suspended until further notice.*

### **NEXT DENBIES OBSERVING SESSION:**

*Suspended until further notice.*

### **AD HOC OBSERVING AT WARREN FARM:**

*These will be at short notice when the weather is favourable. Please watch our Whats App feed for alerts.*