



August/September 2020 EDITION

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Editorial

Welcome to the latest edition of Janus. Due to a shortage of material, it spans 2 months (August and September). It contains a summary of Gary Walker's observations covering a period from mid-July onwards and, in lighter vein, a slightly tongue-in-cheek item from Adrian Bourne. As before, all contributions are gratefully received, with a high probability that they will be published. In the unlikely event that I am overwhelmed with offers, items which are not time critical can be held over for a later edition!

Physical EAS meetings and observing sessions remain suspended until further notice, but Ad-hoc sessions are possible, provided that numbers do not exceed 30, and Social Distancing requirements are observed.

The probability of there being a physical meeting before Christmas now seems very low, but the good news is that EAS's first on-line meeting is scheduled for **Friday 9 October**.

From mid-July onwards, a number of members (myself included) sought, with varying degrees of success, to view (and image) Comet Neowise. Many excellent images were taken and posted on social media. The prospect of seeing all 7 planets on one night (1/2 August) also appealed to some.

Starlink satellites continue to be visible shortly after launch. Following a number of launch delays due to bad weather, the latest launches on 7 August and 18 August bring the total number of satellites launched to 631 with more to follow.

John



The Solar System September

MERCURY: recently passed behind the Sun at superior solar conjunction. At the beginning of the month it is not observable, reaching its highest point in the sky during daytime and is being 0° below the horizon at dusk. By the end of the month it is approaching greatest elongation E but remains unobservable as it will reach its highest point in the sky during daytime and is 1° below the horizon at dusk.

VENUS: is visible throughout the month as a morning object, having recently passed greatest elongation W. It begins the month visible in the dawn sky, rising at 02:11 (BST) and reaching an altitude of 31° above the E horizon before fading from view as dawn breaks around 05:50. By month's end, it is rising at 03:07 (BST) – 3 hours and 52 minutes before the Sun – and reaching an altitude of 31° above the E horizon before fading from view as dawn breaks around 06:37.

On 14th September, Venus will be close to, and below, a thin crescent Moon.

MARS: is currently approaching opposition and is visible as a morning object. At the beginning of the month, it becomes accessible around 22:21 (BST), when it rises to an altitude of 7° above the E horizon. It will then reach its highest point in the sky at 04:06, 45° above the S horizon before being lost to dawn twilight around 05:50, 40° above the SW horizon. By month's end it becomes accessible around 20:19 (BST), when it rises to an altitude of 7° above the E horizon, before reaching its highest point in the sky at 02:03, 44° above the S horizon. It will be lost to dawn twilight around 06:37, 18° above the W horizon.

On the night of 5/6 September, the Moon passes close by Mars.

JUPITER: is visible throughout the hours of darkness, making September a particularly good month for its observation. Currently an early evening object, it begins the month becoming accessible around 20:07 (BST) as the dusk sky fades, 13° above the S horizon, going on to reach its highest point in the sky at 21:31, 15° above the S horizon. It will continue to be observable until around 00:15, when it sinks below 8° above the SW horizon. At the end of the month, it is becoming accessible around 19:00 (BST) as the dusk sky fades, 15° above the S horizon. Reaching its highest point in the sky at 19:38, 15° above the S horizon, it will continue to be observable until around 22:19, when it sinks below 8° above the SW horizon.

On 25th September, Jupiter and Saturn will be visible above a third quarter Moon.

SATURN: is also currently an early evening object, and becomes accessible around 20:23 (BST), shortly after Jupiter, 13° above the SE horizon. It will then reach its highest point in the sky at 22:06, 17° above the S horizon and continue to be observable until around 00:40, when it sinks below 10° above the SW horizon. By the end of the month it becomes accessible around 19:16 (BST) as the dusk sky fades, 16° above the S horizon. Reaching its highest point in the sky at 20:10, 17° above the S horizon, it will continue to be observable until around 22:36, when it sinks below 10° above the SW horizon.

URANUS: begins the month as a morning object visible in the dawn sky, rising at 21:27 (BST) and reaching an altitude of 53° above the S horizon before fading from view as dawn breaks around 04:46. By the end of the month, approaching opposition and visible as a morning object, it becomes accessible around 21:56 (BST), when it rises to an altitude of 21° above the E horizon. It will then reach its highest point in the sky at 02:54, 52° above the S horizon, before being lost to dawn twilight around 05:39, 40° above the SW horizon.

NEPTUNE: is currently approaching opposition and is visible for much of the night throughout the month. It begins the month becoming accessible around 22:41 (BST), when it rises to an altitude of 21° above the SE horizon before reaching its highest point in the sky at 01:42, 33° above the S horizon.

It will become inaccessible around 04:40 when it sinks below 22° above the SW horizon. By the end of the month, it will become accessible around 20:46, when it rises to an altitude of 21° above the SE horizon. Reaching its highest point in the sky at 23:41, 33° above the S horizon, it will become inaccessible around 02:40 when it sinks below 22° above the SW horizon.

MOON PHASES:

Full Moon	2 September
Last Quarter	10 September
New Moon	17 September
First Quarter	24 September

The 27th September will be a particularly good night for observing 2 great Lunar Craters - Tycho and Copernicus.

Collected Observations – Gary Walker

This collection of observations begins in mid-July with my best view to date of Comet Neowise.

In the early hours of 11th July, after waiting impatiently for three days for an irritating cloud system to go away, I finally had a clear night. The comet was still very low in the North, but I eventually espied it between trees!

And WHAT a comet it was! It was easily visible, even to the naked eye, appearing as a fairly bright yellow "star", with the tail clearly visible streaming above it, like a thin thread.

In binoculars, the coma appeared as a bright yellow, and minute, disk, and the tail was clearly visible streaming upwards, for about 2 degrees. In short, it appeared just as a "classic" comet should appear!

In my 8" SCT, the coma still presented as yellow, although quite small, even at 222x.

And, just to round things off, there was another display of the Notilucent Clouds I'd seen previously.

For me, this year for comets has not proved to be "third time lucky", but rather, "fourth time lucky"!

This comet compares well with other bright comets that I have seen, such as Comet

McNaught, of January 2007 and, maybe, Comet Hale-Bopp of 1997, too.

Most comets, of course, are faint, only being visible in a telescope, like the recent Comets Atlas and Panstarrs, which appear only as a dim, fuzzy ball, with no tails.

Comets are inherently unpredictable as regards how bright they will be. A number of key factors have to come into play together, for a Great Comet to appear.

The nucleus needs to be active, and the comet to pass close, or reasonably close, to the Earth and the Sun. The Sun will cause the nucleus to vigorously out-gas. Sadly, this is the point at which many comets meet their nemesis, as either the heat of the sun, or its gravity can cause a cometary nucleus to disintegrate into nothing. This results in a cometary "dud", as indeed happened with recent comets. Many a promising comet hyped up by the media, and even astronomers, can just fizzle out, which is what happened to Comets ISON (November 2013), or the notorious Comet Kohoutek of 1973-74.

It also helps if a bright comet can be visible against a dark sky (as this one was) - if it's too close to the sun, it won't be easy to see! Last but not least, it needs to be visible in the Northern Hemisphere (just for a change), rather than hiding in the Southern Hemisphere!

Conversely, some faint comets can unexpectedly flare up (e.g. Comet Holmes of late 2007, which flared from an extremely faint magnitude 17, up to magnitude 2, in only 24 hours!)

As David Levy, a noted amateur has said, "Comets are like cats, they do exactly what they like, and they both have tails".

Comet Neowise (yet again!) – 21 July

On 19th and 20th July, I observed the comet again. It had moved about 4-5 degrees in the 24 hours.

On 19th July, I observed it, and then went inside the house to make a hot chocolate drink, leaving my telescope, etc, outside, so I could have another look later on. The sky had been clear, and the weather forecast set fair,

after the rain in the morning. There had been a bank of cloud approaching when I went inside, but it just seemed to be a batch of random, patchy cloud, that you often get at night.

Then, later, when I was indoors, I suddenly heard heavy rain falling - just the thing that any astronomer doesn't want to hear. I had to make a mad dash out to get my telescope, and other gear, inside!

Of course, this shower was over in about 5 minutes, and the sky had cleared again, and stayed clear. So, it was just a spiteful, rogue shower, which came over for no apparent reason!

Lately, Jupiter and Saturn have been making a striking and beautiful pair, really obvious in the Southern sky. They were now about 8 degrees apart.

Completing a planetary collection, a few nights before, I saw Mars and, finally, Venus, come up!

Mars was now showing dark markings via my telescope as it was now about 12' arcseconds in size (which is BIG, for Mars!)

Mars – 26 July

Observing Mars on the morning of the 26th July, it now appeared quite "large" (for Mars, at any rate), via my scope, especially at 333X. I could easily see dark markings, which, according to the Sky & Telescope Mars Profiler Tool, (which shows which face of Mars one is seeing at any given time), were the features of Mare Cimmerum, Mare Tyrenheum, and Syrtis Major. I could also clearly see the Southern Polar Cap.

Mars is now up to 13.7' arcseconds in size, which may not seem to be very special, but it is interesting to note that at the most distant oppositions of Mars, this size would be the maximum size that it could attain.

Happily, though, at the coming opposition in October, it gets up to 20' arcseconds in size (at its closest oppositions it attains a maximum size of 25' arcseconds). Let's hope that we don't get another planet wide dust storm, as we did at the last opposition!

To the naked eye, Mars is now very bright and obvious in the sky.

Comet Neowise was still bright, situated below the Plough, with a 3-4 degree tail in binoculars. Of course, the trouble with comet's tails, is that the further they are "down wind" of the Coma, they just fade away into nothing, so it is very difficult to see how long the tail actually is!

I move my binoculars from side to side, as it is well known that movement of them, or your telescope, helps make very faint objects easier to see. And, of course, no matter how far you can see the tail, an imager will always see it extending out much further!

Jupiter and Saturn were still making a spectacular naked eye pairing in the evenings, about 6 degrees apart.

The Comet is fading! – 29 July

On the late evening of 28th July, I noticed a significant change in Comet Neowise, from my previous sighting only 3 nights earlier.

In my binoculars, the tail had faded and was barely visible (although still about 2 degrees long). The Coma was still bright.

In my telescope, the Coma still appeared as a small disk, but it was now surrounded by a larger fuzzy halo.

However, I had seen a few nights ago that, in my telescope, the Coma no longer appeared yellowish – instead it was rather a grey colour. This proves that the Coma was by then fainter-indeed, not bright enough any longer to activate the colour receptors in my eyes!

Magnitude of Comet Neowise – 30 July

By 29th July, the magnitude of Comet Neowise had dropped from 1.6 to 3.6. Incidentally, this magnitude is about the same as that of the Andromeda Galaxy, M31, which is listed as being of magnitude 3.4 to 4.7, depending on which source you are looking at.

However, when I looked at M31, tonight, it appeared to be of about the same magnitude as the comet now was, except that M31 was slightly larger in angular size.

Large Prominence – 31 July

From 29th July to 31st July, there had been a large Prominence on the bottom limb of the Sun, appearing like a spear. It was longer on 30th July and, on 31st July, I saw that it was even longer. By then, it was also slightly bent in shape, and quite spectacular (at ~ 12:15pm) but, by 2:15pm, there was no trace of it.

On 31st July, I estimated that it must have been ~ 10% of the width of the Sun. To put this in perspective, the diameter of the Sun is 864,000 miles, so the Prominence must have been ~ 80,000 miles long!

We tend to forget how large the scale of events that occur upon the Sun can be!

In addition, there has been a gigantic total of two sunspots on the Sun, at the same time, in later July, one of medium size, and the other one, very "small".

Thus, the Sun must be slowly waking up from its Solar Minimum cycle. For many days, or weeks, sunspots have been very rare, or entirely absent, and when they did appear, they were only very small.

Space Station – 31 July

On the evening of 31st July, at around 9:50pm, I saw the ISS passing very low in the South. It was on a possible course to transit the Moon, which was also very low down in the SE. Would it pass across the Moon? I watched, with bated breath, via my binoculars, but it just missed the Moon by a very small margin to the South of it!

However, the Moon is surprisingly small, and it is easy for the ISS to miss it (or, for it to miss occultating stars).

ISS PASS and bright flash from a satellite – 2 August

For the 31st July ISS pass, I did not have time to get my telescope ready to observe the ISS (even if it had transited the Moon). But some images have actually shown the ISS transiting the Moon, and even the Sun! It is better to image than simply view, as the fast-moving ISS only takes about half a second or so to cross the Moon/Sun! Nevertheless, excellent photographs have been obtained by amateurs, showing the ISS, with some of its

main structures (as its angular size is just over 40' arcseconds, or the average angular size of Jupiter, it is not difficult to see it as a structure, rather than just as a point of light).

When I observed this low, Southerly pass, my iPhone, showed me that the ISS was actually South of Spain, which just shows how far it can be from the UK, whilst still being visible!

On the evening of 1st August, at ~ 9:53pm, I saw a satellite flare up so brightly that it was actually dazzling to the naked eye. Then, after a couple of seconds, it faded right down. This satellite was low down in the SE, moving approximately South to North. It must have flared up as brightly as Jupiter, or even, Venus.

I used to see the Iridium flare satellites that did this, because their highly reflective surfaces caught the Sun. They were so predictable that the times and areas of flares could be known in advance. However, I don't think this was one of them, as they have been decommissioned.

Comet Neowise (yet again!) - 6 August

On the evening of 6th August, I saw the comet via my 11x 80 binoculars as a fairly bright fuzzy ball but, sadly, with no sign of the tail.

In my 8"SCT, the coma appeared as a fairly bright fuzzy ball, with a brighter condensation in the centre.

Then, I saw another fuzzy ball to the East of the comet, separated by less than half a degree, meaning that they both easily fitted in my 62x eyepiece field of view. The other fuzzy object proved to be M53, which is a globular cluster. As my scope could not resolve its stars, it meant that it appeared as a fuzzy ball.

You can see why the French astronomer, Messier, catalogued as many of these fuzzy objects as he could, so that he would not mistake them for comets, for which he was really searching. And thus, he listed this particular one as no 53, on his list.

M53 is listed as being from Magnitude 7.6 – 8, depending on which source you look at. I thought that the comet, (or rather, the Coma) appeared about 1-2 magnitudes brighter than M53, so it must have been of magnitude 5 or 6 by now.

The coma also appeared about twice the angular size of M53.

I have now been following this comet since 6th July – i.e. for exactly one month!

Comet Neowise - 18 August

I have continued to follow Comet Neowise, and I saw it again on 18th August. It was now a travesty of its former glory, and it was only just visible, even in my 8" SCT, as a very dim, diffuse haze. According to the Night Sky Live UK website its current magnitude was now down to 6.4.

Also, it was getting lower in the sky, only just above my tree-line. There was a race for it to be dark enough to be visible before it set behind my tree-line.

Mars - 1 September

Well, Mars is now appearing in the sky at a reasonable hour, and best of all, at this opposition, it will be much higher up in the sky than the one, in 2018, which was very low in the South.

In mid-late August, Mars was growing in size, from around 16' to nearly 18' arcseconds in size, which is BIG, for Mars!

I have found it easy to see dark features upon it, as well as the bright South Polar Cap. I can even glimpse them with powers down to 100X, but my best views come at 222X magnification. I saw Syrtis Major, on 24th August.

Let us hope, that we don't get a planet - wide dust storm, just as it gets to opposition, which is what happened 2 years ago!

Naturally, Mars is now very bright and obvious in the sky.

The joys of VERY amateur astrophotography! - Adrian Bourne

As they say on the Saturday news to warn you about hearing the football scores too soon serious astronomers and photographers please look away now!

This is about naked eye observing and mobile phone shooting! Enthusiastic, inquisitive, non-technical and rather lazy!

I spend more time studying astronomy online, on TV or in books than I do outside doing the “real thing”. And I rarely have the time to take the two or three hours necessary to set up equipment, let the eyes acclimatise, and explore more deeply. Even in a lockdown schedule!

I haven't ever invested in a telescope (and have been grateful for shared use of others' on Ranmore or on top of the school). I do have some binoculars, Carl Zeiss Jena 10 X 50, a tripod and access to an SLR... but often find the most enjoyable half an hour to be naked eye observing and quickly taking with a mobile. After all, I think, the pictures will be better on APOD, Sky at Night or taken by the “pros” for EAS presentations... I said it was lazy (!)..... and, moreover, I can enjoy the moment rather than frustrate myself mishandling the equipment!



For example, my Astro news links alerted me to the conjunction of Venus and the Pleiades shortly after lockdown started – didn't the sky seem clean and clear that Spring!?

On 4th April, around 22:00, I took these photos looking West from Carshalton



A few days later, a Supermoon was forecast and it rose in splendour looking south east on 8th April. Through the binoculars was a great view of the seas and craters, especially Tycho; of course, my mobile camera couldn't pick those up but it could capture a memory through the trees – as it did for other supermoons, and red moon, and pink moon, but you don't need pictures of those too!!



Somewhat more exotically, we were on the island of La Gomera in the Canaries in January/February 2016. By happy coincidence (you can tell I don't plan holidays by the stars!), there was visibility of five planets at the same time in the predawn sky. And (no surprise in the Canaries) there was a clear sky and a balmy temperature at 05:00 on 4th February.



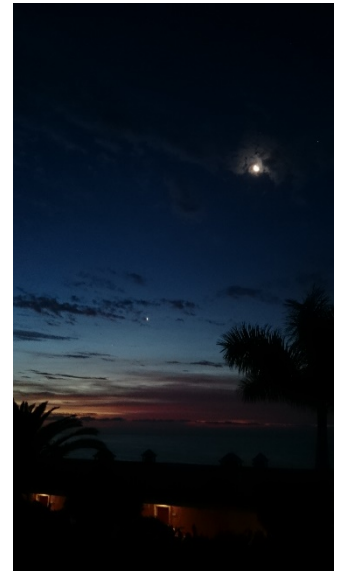
This Stellarium picture depicts Mercury, Venus, Saturn, Mars and Jupiter as seen from Delhi at end January. (Credit: astrointerest using Stellarium Software)



I did see all five, but the limits of my mobile photo show only Venus and Mercury. However, it does record that I saw Mercury for possibly the first time and photographed it definitely for the first time!

An expert could have taken a wonderful photo. Had I tried, I could have been

fumbling in frustration with the technical equipment as the sun rose and the moment was passing. Instead, I can remember the warmth, the gradual lightening of the sky, the sounds of birds waking, the silence of people sleeping, the magnificence of the night and the dawn.



And, as a bonus, I later discovered I had taken an unprecedented picture of planets and constellations just above our holiday village! That couldn't have happened without my mobile phone and a sky mapping app!

Thanks to EAS members for sharing their photos, observations and technical wisdom, which makes me feel more knowledgeable on the night, even if its erosion factor is accelerating the next day!

Looking forward to renewed learning from October, even if it's on screen and not in person.

Up Next:

NEXT MEETING:

Date to be advised – check EAS web site.

NEXT USER GROUP:

Date to be advised – check EAS web site.

This is an informal session for members to meet and discuss anything related to their telescopes and sky events and, if weather permits, to go up on the roof for observing.

Enter via the Main Entrance opposite the Car Park

NEXT DENBIES OBSERVING SESSION:

Date to be advised – please check EAS web site.

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.