

Popular Clair-Obscur Effects: Times for 2025

Lunar X & V, the Face in Albategnius, the Eyes of Clavius, the Jewelled Handle, Cassini's Moon Maiden and Reiner Gamma
by Mary McIntyre

For the past few years I have produced a table showing the times that the Lunar X and V are visible for the coming year. I know these are the most popular of the Clair-Obscur effects but they are not the only ones, so a couple of years ago I added the Face in Albategnius, the Eyes of Clavius, the Jewelled Handle AKA Sinus Iridum, Cassini's Moon Maiden AKA Promontorium Heraclides. This year I've an additional feature to look for and that is the lunar swirl Reiner Gamma. Although Reiner Gamma is not actually a clair obscur effect, its appearance is related to the way the light plays over the lunar surface. More about this at the end!

The full list of times in UT for these features being visible can be found in the tables below but for those of us in the UK I've collated everything into one quick reference table so you can see month by month if a feature is visible or not. I hope this simplifies things a bit and hopefully this will give you something new to tick off your lunar observing list. More detailed information about each of these effects is below, but for those of you who are only interested in the data tables, I've put those first.

Quick Check Visibility Table for UK Observers

	Lunar X & V	Face in Albategnius	Eyes of Clavius	Jewelled Handle	Cassini's Moon Maiden	Reiner Gamma
January	06 Jan 18:00 UT	-----	08 Jan 01:00 UT	09 Jan	10 Jan	12 Jan
February	05 Feb 09:00 UT (rising)	05 Feb ~ 15:00 UT	06 Feb 17:00 UT	08 Feb	09 Feb	10 Feb
March	-----	-----	-----	09 Mar	10 Mar	12 Mar
April	05 Apr 13:00 UT / 14:00 BST	05 Apr ~ 20:00 UT ~21:00 BST	07 Apr 01:00 UT 02:00 BST	08 Apr	09 Apr	10 Apr
May	-----	-----	06 May 16:00 UT 17:00 BST	07 May	08 May	10 May
June	03 Jun 13:00 UT / 14:00 BST	03 Jun ~19:00 UT ~20:00 BST	-----	06 June	07 Jun	08 Jun
July	02 Jul 23:30 UT / 00:30 BST	-----	04 Jul 15:00 UT 16:00 BST	05 July	06 Jul	08 Jul
August	-----	01 Aug ~17:00 UT ~18:00 BST	-----	04 Aug	05 Aug	06 Aug
September	-----	-----	30 Sep 19:00 UT 20:00 BST	02 Sept	03 Sep	05 Sep
October	-----	-----	-----	02 Oct 31 Oct	03 Oct	04 Oct
November	27 Nov 11:00 UT	27 Nov ~17:00 UT ~18:00 BST	28 Nov 19:00 UT	30 Nov	01 Nov	03 Nov
December	-----	-----	-----	30 Dec	01 Dec 31 Dec	02 Dec

The moonrise/moonset times in the table above are for London and the exact times will vary slightly across the UK. The times are listed in UT so if you're outside of the UK you can convert this to your own local time then and check the moonrise and set times for your area. The Jewelled Handle, Moon Maiden and Reiner Gamma are not as time critical and will be nice to observe anytime on the dates shown in the table, but detailed times are in the next set of tables.

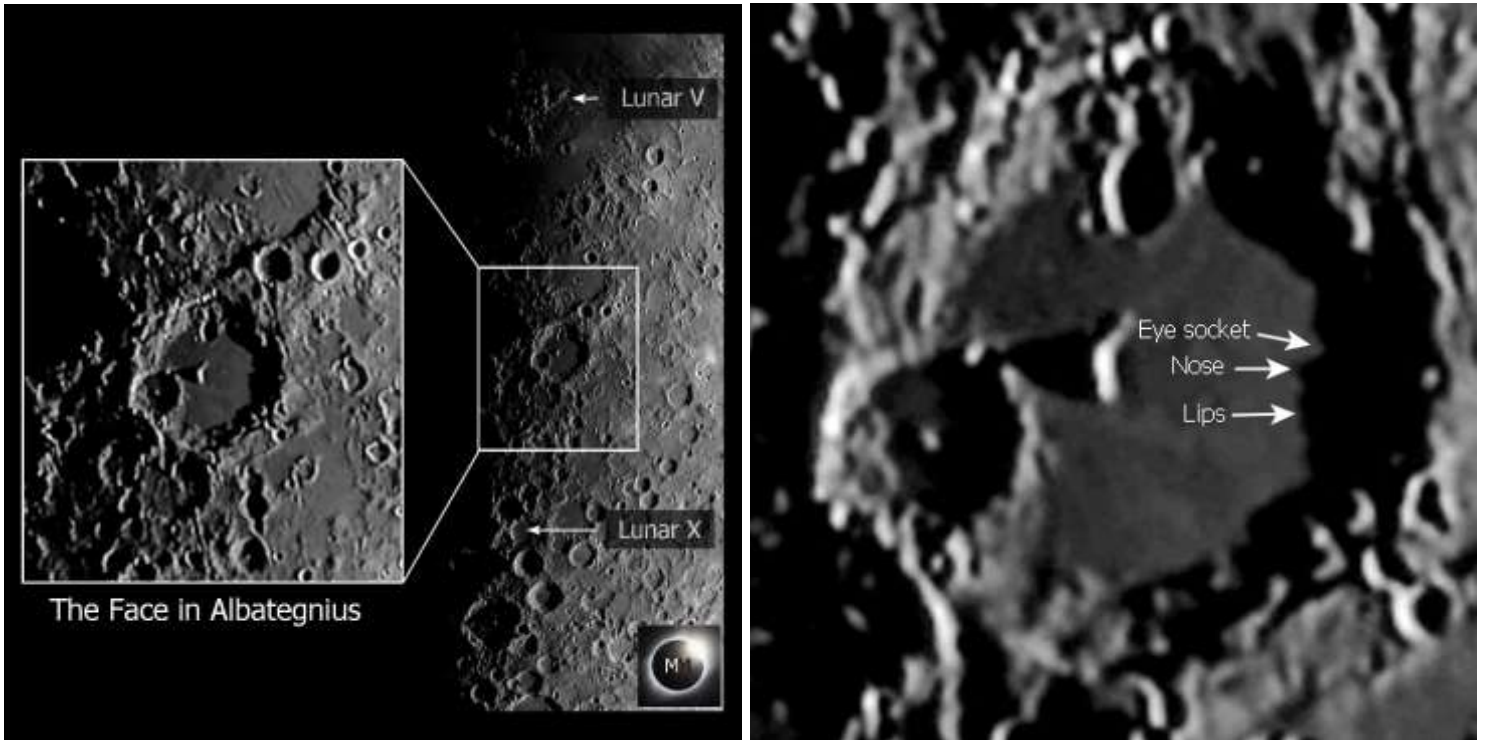
The Lunar X and V



Lunar X and V Visibility Table

Date	Start	Moonrise	Moonset	Visible UK?	% illuminated
06 Jan	18:00 UT	11:07 UT	00:35 UT	Y	47.3
05 Feb	09:00 UT	10:00 UT	02:46 UT	Y (rising)	50.5
06 Mar	23:00 UT	09:01 UT	03:16 UT	N	53.1
05 Apr	13:00 UT 14:00 BST	09:57 UT 10:57 BST	03:32 UT 04:32 BST	Y (Daytime)	54.9
05 May	02:00 UT 03:00 BST	11:42 UT 12:42 BST	02:30 UT 03:30 BST	N	55.3
03 Jun	13:00 UT 14:00 BST	11:57 UT 12:57 BST	00:58 UT 01:58 BST	Y (daytime)	53.9
02 / 03 Jul	23:30 UT 00:30 BST	12:04 UT 13:04 BST	23:24 UT 00:24 BST	Y (setting)	51.9
01 Aug	11:00 UT 12:00 BST	13:24 UT 14:24 BST	22:08 UT 23:08 BST	N	49.5
30 Aug	22:00 UT 23:00 BST	13:34 UT 14:34 BST	20:53 UT 21:53 BST	N	46.8
29 Sep	09:00 UT 10:00 BST	14:29 UT 15:29 BST	20:58 UT 21:58 BST	N	44.1
28 Oct	21:00 UT	13:42 UT	21:05 UT	N	42.1
27 Nov	11:00 UT	12:45 UT	22:47 UT	Y (rising)	41.5
27 Dec	01:00 UT	11:28 UT	00:33 UT	N	41.9

The Face in Albategnius



Approximately 6 hours after the Lunar X is at its best, when the terminator has moved across to cover the area around it, take a close look at the shadows on the right hand side of the crater Albategnius (located almost halfway between the X and V). At just the right time the shadow looks like the side profile of a face. This shows up more clearly on stacked photos which have better resolution and sharper features. The above image was taken with a William Optics 70mm refractor with Celestron 3x Barlow. The camera was an ASI120MC. This is another short-lived Clair-Obscur effect, so make sure you don't miss it!

The Eyes of Clavius



The Eyes of Clavius Visibility Table

Date	Start	Moonrise	Moonset	Visible UK?	% illuminated
08 Jan	01:00 UT	11:20 UT (7 th Jan)	03:30 UT	Y	61.9
06 Feb	17:00 UT	10:25 UT	04:10 UT	Y	65.3
08 Mar	09:00 UT	10:53 UT	04:58 UT	N	68.1
07 Apr	01:00 UT	11:17 UT 12:17 BST (6 th Apr)	04:09 UT 05:09 BST	Y	70.0
06 May	16:00 UT	12:57 UT 13:57 BST	02:41 UT 03:41 BST	Y	70.5
05 June	05:00 UT	14:18 UT 15:18 BST	01:18 UT 02:18 BST	N	69.5
04 July	15:00 UT	14:27 UT 15:27 BST	23:48 UT 00:48 BST	Y (daylight)	67.0
03 Aug	01:00 UT	15:51 UT 16:51 BST (2 nd Aug)	22:54 UT 23:54 BST (2 nd Aug)	N	64.3
01 Sept	10:00 UT	15:47 UT 16:47 BST	22:12 UT 23:12 BST	N	61.1
30 Sept	19:00 UT	15:11 UT 16:11 BST	22:06 UT 23:06 BST	Y	60.0
30 Oct	06:00 UT	14:25 UT	23:44 UT	N	55.9
28 Nov	19:00 UT	12:58 UT	00:06 UT	Y	55.4
28 Dec	10:00 UT	11:41 UT	01:57 UT	N	57.0

The Jewelled Handle

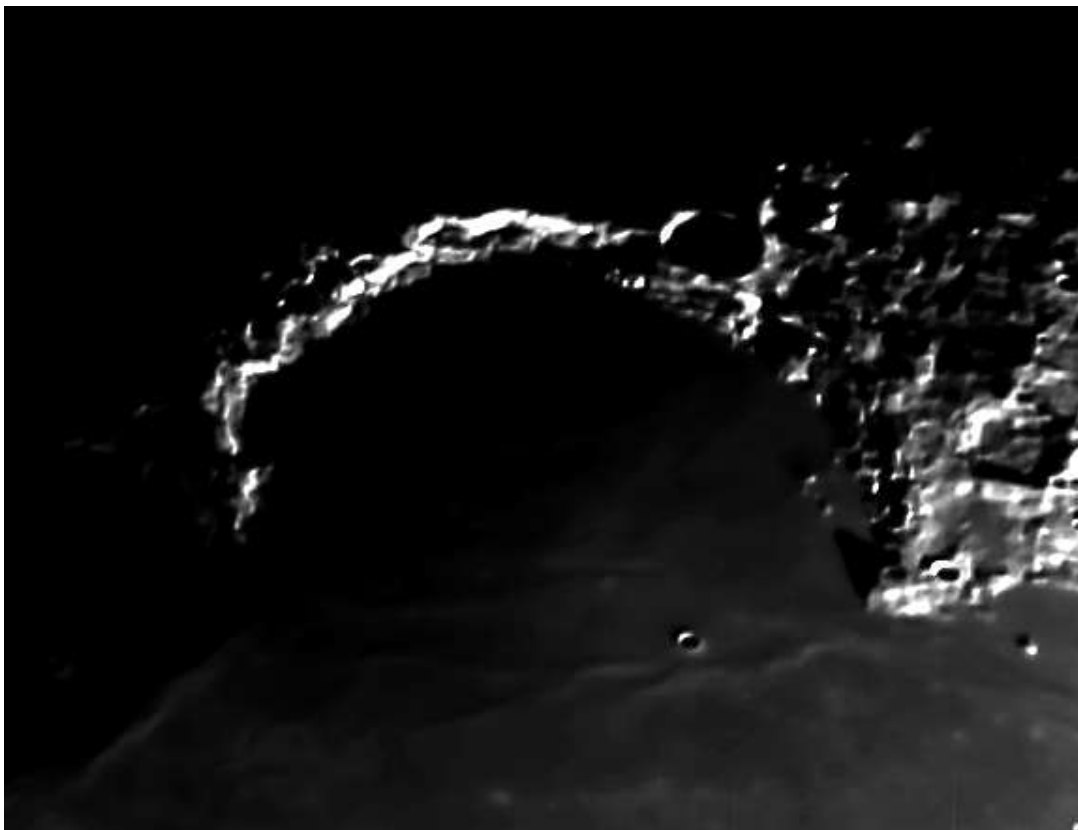


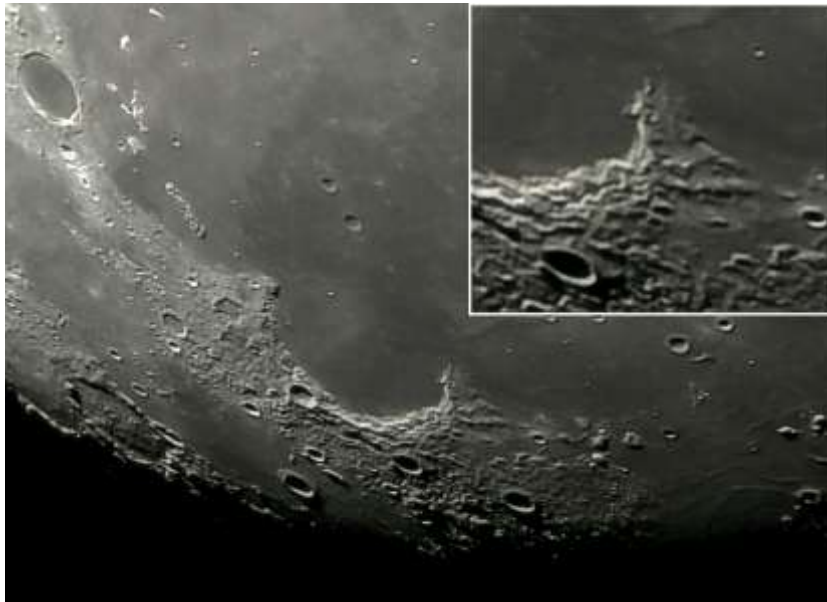
Photo of Sinus Iridum by Mary McIntyre

This clair-obscur effect is best viewed at the start time below but remains visible after the lunar terminator has passed over the region so it should therefore be visible for a large part the dates listed below.

The Jewelled Handle Visibility Table

Date	Start	% illuminated
09 Jan	18:00 UT	79.5
08 Feb	09:00 UT	81.4
09 Mar	20:00 UT	81.4
08 Apr	09:00 UT / 10:00 BST	81.4
07 May	19:00 UT / 20:00 BST	79.8
06 June	07:00 UT / 08:00 BST	78.5
05 July	17:00 UT / 18:00 BST	76.2
04 Aug	06:00 UT / 07:00 BST	74.9
02 Sept	18:00 UT / 19:00 BST	73.4
02 Oct	07:00 UT	72.5
31 Oct	22:00 UT	73.0
30 Nov	13:00 UT	73.8
30 Dec	03:00 UT	75.3

Cassini's Moon Maiden



Cassini's Moon Maiden starts to become visible and is at its best as the Sun rises over Sinus Iridum and illuminates Promontorium Heraclides, then remains visible for a couple of days. The times below are just a guide.

Cassini's Moon Maiden Visibility Table

Date	Start
10 Jan	15:00 UT
09 Feb	06:00 UT
10 Mar	17:00 UT
09 Apr	06:00 UT / 07:00 BST
08 May	16:00 UT / 17:00 BST
07 Jun	04:00 UT / 05:00 BST
06 Jul	14:00 UT / 15:00 BST
05 Aug	03:00 UT / 04:00 BST
03 Sep	15:00 UT / 16:00 BST
03 Oct	04:00 UT
01 Nov	13:00 UT
01 Dec	10:00 UT
31 Dec	00:00 UT

Reiner Gamma

Reiner Gamma is a prominent lunar swirl that I think resembles a tadpole!



Reiner Gamma Visibility Table

Date	Start	% illuminated
12 Jan	05:00 UT	96.2
10 Feb	17:00 UT	96.2
12 Mar	07:00 UT	96.2
10 Apr	17:00 UT / 18:00 BST	95.3
10 May	07:00 UT / 08:00 BST	94.8
08 Jun	14:00 UT / 15:00 BST	93.0
08 Jul	05:00 UT / 06:00 BST	92.9
06 Aug	14:00 UT / 15:00 BST	91.6
05 Sep	03:00 UT / 04:00 BST	91.5
04 Oct	13:00 UT	90.9
03 Nov	02:00 UT	91.2
02 Dec	15:00 UT	91.7

Additional information if you're new to these effects

The times given in the data tables are in 24 hour clock and are in UT/GMT (and BST where appropriate) so you will need to correct for time zones and daylight time savings if you are not in the UK. I have also included the approximate moonrise and moonset times in the tables for the effects that are time critical. These times were taken from the Time and Date website and relate to my location in Oxford, UK. Your exact rise and set times will vary depending on where you are in the UK. You can check sunrise and set times for your location here:

<https://www.timeanddate.com/moon/uk/london>

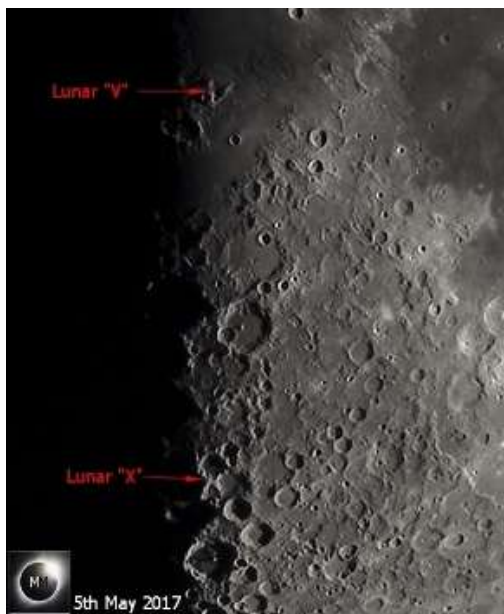
To ascertain the times these effect appear each month, I used the NASA Scientific Visualisation Studio Moon Phase and Libration tool for 2025 - <https://svs.gsfc.nasa.gov/5415/>



Lunar X and V

The Lunar X and V are transient Clair Obscur effects which are visible on the lunar surface once a month for about four hours. The “X” is caused by light illuminating the rims of craters Blanchinus, La Caille and Purback. The “V” is caused by light illuminating crater Ukert along with several smaller craters. The X is at its most striking when it is visible on the shadow side of the terminator. The X is located about a quarter of the way up from the bottom, and the V is approximately half way up just inside the illuminated side of the terminator, and it really shines brightly against the darker background of Mare Vaporum. Once you know where to look, you will be able to spot them with large binoculars (it will help if they are mounted) but they are best viewed through a telescope. They will show up on photos taken with a 300mm zoom lens or through a modest telescope.

They will remain visible against the lunar surface for a few hours even after the terminator has moved over them as shown in the photo below.



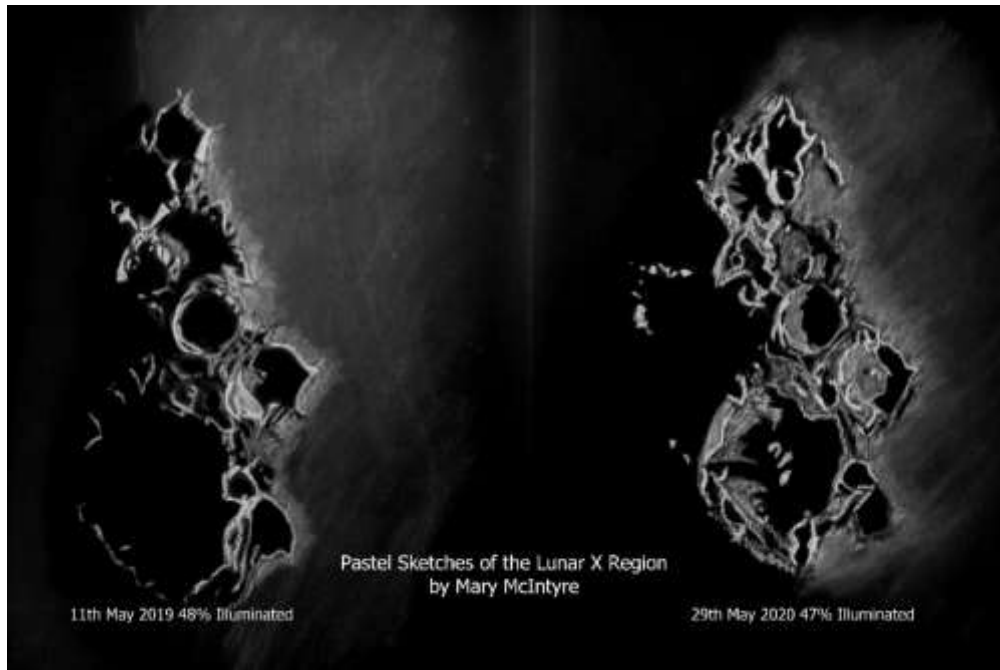
Left: The lunar X and V can still be seen for a short time when the Sun has risen over those craters, but it isn't as striking as when the X is illuminated against the unlit surface.

The X and V are visible close to the First Quarter phase, however, due to libration, the exact time that they are visible is different from month to month. The lunar phase illumination at the time they're seen during 2025 varies between 41.1% - 54.9%. They occur every month but time that they're visible may not coincide with the Moon being above the horizon from your location, so you will not see them every month.

From the UK, the Lunar X is visible several times during 2025, but only one of those times is in a dark sky. Clair-Obscur effects are more difficult to observe in daylight but capturing them photographically can still be done during the daytime.

In previous years when I've observed the Lunar X using the start times from this tool, I have found it may take about 45 minutes from the start time before the X becomes clearly visible. The V tends to become visible a little earlier than the X. The start times are approximate, and they should be visible for a few hours after this. There is no fixed end-time listed because as mentioned above, these features remain visible even after the terminator moves across them, but if you assume they are visible for around four hours from the start time, you will see them at their best.

It's really great fun to observe how the Lunar X and V regions evolve over time, so if you do make the effort to see them when they first appear, make sure you check that region again periodically to see how things have changed. The sketches below show how the Lunar X is far less prominent once the terminator has passed over it.



Pastel sketches showing how the Lunar X stands out against better against the darker background before the lunar terminator has passed over it.

The Eyes of Clavius

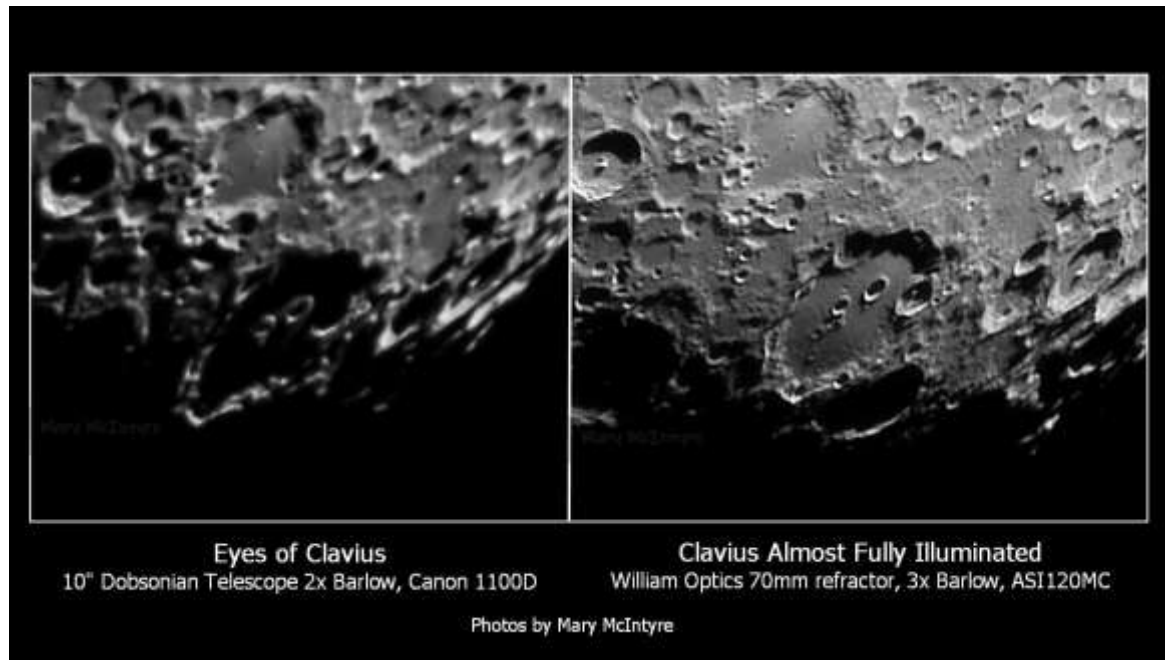
Clavius is the second largest crater on the lunar nearside so it's a brilliant crater to observe, even with modest equipment. It is a roughly circular crater that has a diameter of 225km, but its location near the southern limb means it appears foreshortened top to bottom so it therefore looks oval shaped when viewed from Earth. Interestingly, there are very few truly oval shaped craters on the Moon; almost all oval craters only look that shape to us because they're foreshortened by their position near to the limb.



Comparison of Clavius as seen from Earth and from orbit. Clavius appears oval from Earth due to foreshortening

Clavius has several satellite craters along its floor. Clavius C and D, with diameters 21km and 28km respectively, have walls that are higher than the crater floor. As the Sun rises over Clavius, the tops of these crater walls catch the sunlight before the rest of the crater floor and this creates two white rings that resemble a pair of eyes looking out from the shadowy crater floor.

The Eyes of Clavius are visible during a Waxing Gibbous Moon, but as with other Clair-Obscur effects, the exact phase angle varies each month due to libration. During 2025 there are seven dates when the Eyes are visible from the UK, one of those being more challenging in a daytime sky.



Left side: The Eyes of Clavius shine out from the shadowy crater floor as the Sun rises over Clavius.

Right side: Clavius fully illuminated with more satellite craters visible

The Jewelled Handle / Sinus Iridum

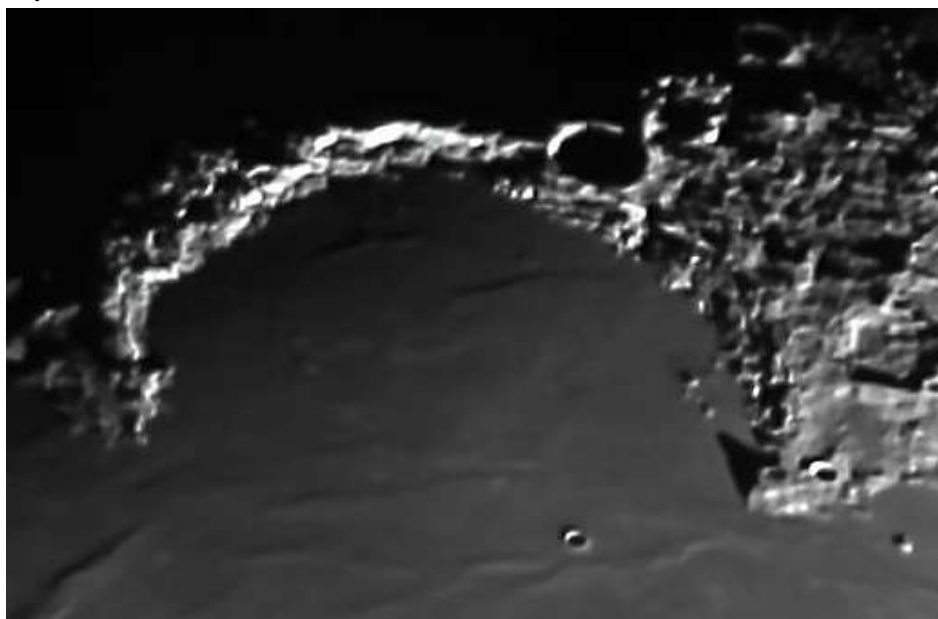
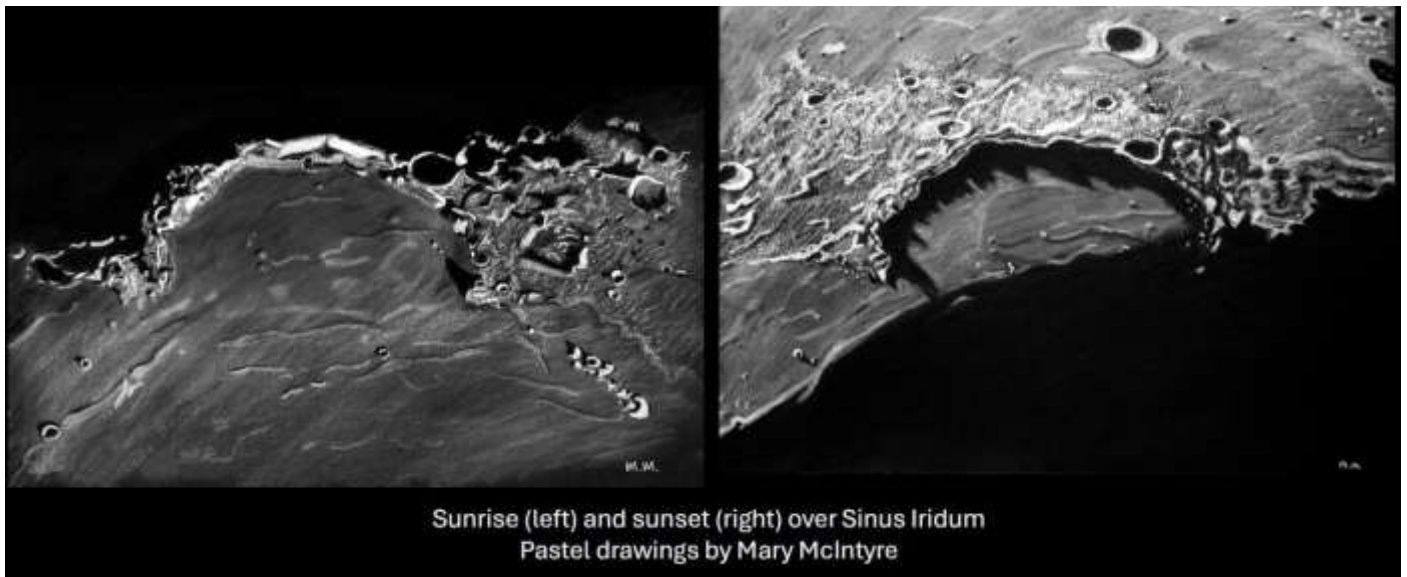


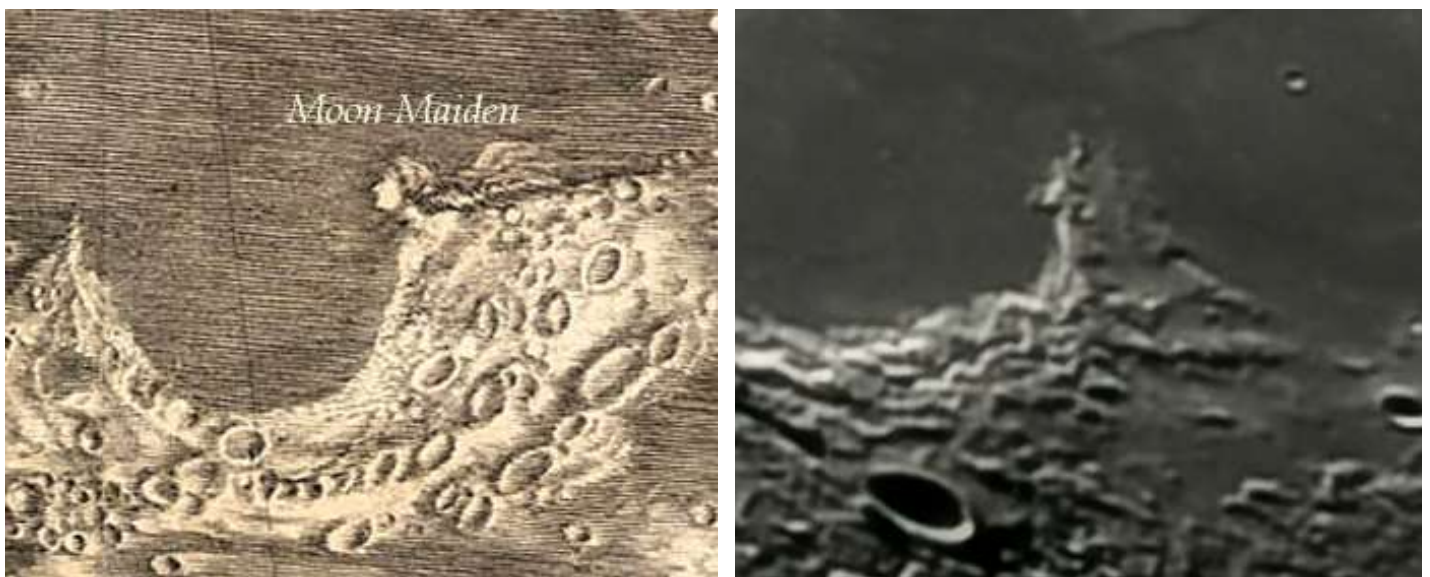
Photo by Mary McIntyre

As the Sun rises over Sinus Iridum, sunlight catches the tops of the Jura mountain range, causing a bright semi-circle pattern that shows up through the shadows. This clair-obscur effect is best viewed at the start time, but the bright arc along the Jura Mountains remains visible for quite a while, even after the lunar terminator has passed over the region. When observing this, don't forget to look for the shadow being cast by Mount Laplace on the top corner – seen on the right of the above photo.

We see photos of the Sun rising over this area quite frequently but we don't see as many photographs of the Sun setting over that area. Last July Dave Eagle took a photo that showed the Sun setting over the region so I just had to create a pastel drawing of it to go with my Jewelled handle pastel drawing. It's fascinating seeing the jagged shadows being cast by the mountain range along the wall of the bay.



Cassini's Moon Maiden / Promontorium Heraclides



Left: Moon Maiden drawn by Giovanni Cassini in 1679 | Right: Moon Maiden photograph by Mary McIntyre

Humans are predisposed to see faces everywhere, even in the most unexpected places; this is a phenomenon called Pareidolia. In his 1679 map of the Moon, created from telescopic views hence south being up, Giovanni Cassini depicted Promontorium Heraclides on the edge of Sinus Iridum as a woman's head with long, wavy hair. It is believed to have represented the head of Geneviève de Laistre, who Cassini's married in 1673. This makes her the first woman on the Moon! This Clair-Obscur effect starts to become visible as soon as the Sun has risen over the area when the height differences and contrast with the darker maria surface around her create areas of light shade that give the impression of her face and hair effect. She actually remains visible for through to Full Moon but the when the whole area becomes so illuminated some of the surface relief and definition are lost, so she is best viewed when the Moon is a Waxing Gibbous.

Reiner Gamma

Reiner Gamma is a large and prominent lunar swirl that snakes its way along the western edge of the Moon. Lunar swirls are brighter than the surrounding surface so they stand out when fully illuminated, and Reiner Gamma is very easy to spot. Usually when something is brighter on the lunar surface it means it is higher ground and when the terminator is nearby you will see shadows being cast by those features. However, if you observe Reiner Gamma when the terminator is nearby you will see no shadows being cast; this is because these features are flush with the lunar surface. If you photograph Reiner Gamma at the times listed above, compare it to how the light is playing over nearby features such as the crater Reiner that lies to the east of it.



The left side photo above shows Reiner Gamma during a 95% Waning Gibbous Moon. The area is fully illuminated and the bright regions are very visible. The right side photo was taken during a 98% Waxing Gibbous Moon when the terminator was closer to Reiner Gamma. All of the surrounding high ground and craters are now casting shadows but Reiner Gamma does not.

We do not fully understand how these features have formed with such a high albedo (brightness level) whilst being flush to the surface. It is thought that they could be due to magnetic anomalies within the lunar regolith, but NASA are planning to send a probe to investigate these curious features and try to learn more about them. Although lunar swirls are not clair obscur effects, observing their appearance as the lighting changes is kind of related and they are actually a very fascinating to observe, so I hope you enjoy looking for Reiner Gamma.

I hope you enjoy looking for a few more clair-obscure effects this year. Don't forget there are many other clair-obscure effects that are well worth seeking out. There is a comprehensive list of them on Wikipedia here:

[https://the-moon.us/wiki/Clair-obscure#List of Clair-Obscure Effects and Informal Optical Feature Names](https://the-moon.us/wiki/Clair-obscure#List_of_Clair-Obscure_Effects_and_Informal_Optical_Feature_Names)

I really hope you found this post helpful. Please feel free to share it with anybody who may find it useful.

Clear skies!

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