

# SPACEWATCH

**the newsletter of the Abingdon Astronomical Society**

**14<sup>th</sup> June 2021**

**Astrophotography  
Mel Giggs  
CNAAG**

**Meeting will be on Zoom**

**EDITORIAL**

Welcome to the last Spacewatch of the 20/21 session. It has been a strange year with all meetings held on Zoom but hopefully we have managed to provide enough of interest to keep you going. The weather of course has not been conducive for astronomy over the last few months with the coldest April and wettest May on record but some images have been taken. I am impressed with the images of the Leo triplet by John Napper displayed later in Spacewatch.

Hopefully we will have a break in the weather so you can see the partial solar eclipse on the 10<sup>th</sup> June. We have details on observing this in the Whats Up section and I hope to see images on the FB page and in the next Spacewatch in September. I guess we are all watching the dates of the next update in the loosening of the lockdown restrictions but it appears that the spread of the Indian variant may slow this down. Looking further ahead the Persad meteor shower in August should be a good one if the weather holds as there is no moon present during the maximum. So again we can keep our fingers crossed for good weather, although surprisingly I believe that August is often a wet month in the UK.

As Steve notes in the What's up section the NLC season is just beginning and there are hopes for a good season this year as the mesosphere where the clouds form appears to be both wetter and colder than previous years which should allow for a good prospect, if the low level clouds ever clear so we can

get a look. As always if you get some good images send them in for Spacewatch.

In the mean time I hope you have a good summer and come back refreshed for next season, hopefully back in the hall.

On a Spacewatch point at the last committee meeting we decided that given the success? of the online edition over the last year and the additional flexibility that it gives us that we will no longer be providing printed versions at meetings as there seems very little uptake on this. If you feel strongly that this is the wrong decision, please let a member of the committee know.

The editor of "SpaceWatch" is Owen Brazell, who would very much appreciate your stories & contributions. In particular whilst many fine images are being posted on the discussion group it would be nice to have some in the SpaceWatch. Please send any news, observations, photos, etc. to:

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## REPORT OF LAST MEETING

Gwyneth Hueter

May's talk:

Our after-AGM talk is normally presented by one of our members, but because we were still limited to zoom I took the liberty of asking a member of a local low-key astronomical group in Oxford. ABAS member Bob Bell leads this group and member Robin Morris gave a very stimulating short talk which I'd heard him give before:

'The hunt for the Sun's twin'. Judging by the level of discussion after the talk the AAS members also found it stimulating.

Points to consider 1: It has long been known that many stars are in pairs or even triplets. John Herschel recorded 700 pairs of stars in the early 1800s, along with the alpha Centauri triplet, so it seemed logical that somewhere out there might be stars which formed out of the same dust cloud that gave us the Sun. The dust cloud would have a composition a bit like a genetic code, so any stars formed in it would have a similar code. If there is such a star, why is it not nearby? How can we do the equivalent of stellar DNA testing? We now have lots of GAIA information to sift through, including the recent data release from December 2020. But! The Sun is 4.5 billion years old and has been rambling round the Milky Way for a long time. Any of its more massive siblings (had they existed) would be long gone, but there might be sun-like stars still around, or something smaller. In that time they could have had simply drifted off. Robin showed a 3d graphic of stars in our neighbourhood (see below) but there are other details to take into account in the search.

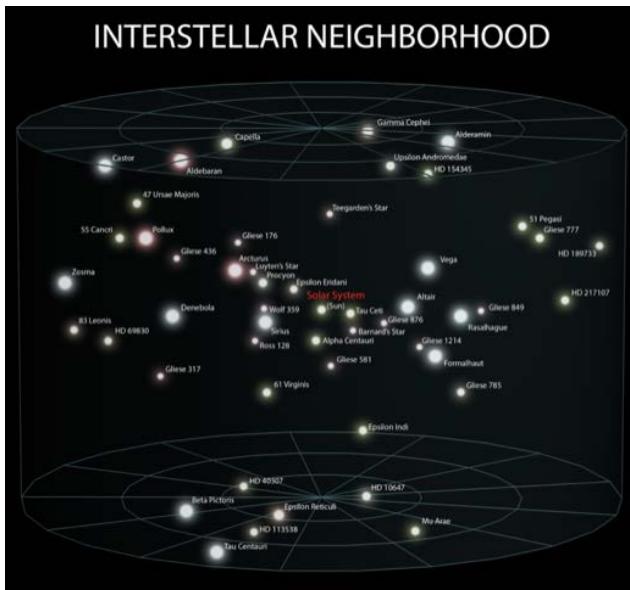
2: Abraham (Avi) Loeb, head of astronomy at Harvard, said in 2020 that a companion star might have formed around 1,000 AU away from the Sun and helped gather material into the Oort Cloud. It may also be responsible for bodies moving in directions not fitting in with the original formation

of the pre-Solar cloud. It was also noted that a lot of objects in the Kuiper belt had retrograde orbits, suggesting something may have messed with it in the past.

3: The December 2020 GAIA data release was used by Berkeley student Kareem El-Badry. He mapped 1.3 million pairs of stars to 3,000 light years away and found that most were separated by less than 1,000 AU, but that the most common separation was 30 to 50 AU.

After laying the foundations for a possible hunt, Robin found an earlier rather brilliant study of GAIA data in 2012 looked at 17,000 stars with similarities to the Sun's spectrum. (V. Adebekyan/P. De Laverny) (look up AMBRE, a French database of 250,000 stars which have Magnesium/Yttrium ratios similar to that of the Sun. There are updates from 2018 too) The abundance of iron and ratio of carbon isotopes were thought to be pointers. There are also magnesium isotope ratios and lithium abundances that could be used to determine a match in age and composition.

This 2012 study found that 55 stars matched the Sun's iron abundance and 12 of these were chosen for further analysis. Adibekyan and de Laverny then used carbon isotope ratios to narrow them down to four, and two candidates were chosen out of them as they were more equal in age to the Sun. The 'winner' was HD 186302, a G-type star (mag 8.7) 184 LY away in Pavo. Located at RA 19h49' and Dec -70.11°, it is moving away from us at 1km/second and its temperature is about 5675k. Its absolute magnitude is 5.1 (the Sun's is 4.8). If your interest is piqued by this, look up HD 162826 and HD 52456.



# THE NIGHT SKY FOR JUNE 2021

## Steve and Cristina

Not making excuses, but the wettest May on record did play quite a significant part in me not getting out into the observatory at all in May, very disappointing when you look at the fantastic weather we had last year. It has also been made all the more frustrating as I now have my main mount back from being tuned and serviced, and I am itching to try it out!

On the plus side it is now NLC (Noctilucent Cloud) season and I have already seen the hint of one as of the 26<sup>th</sup> May. If you frequently feel the need to get up during the night, most importantly, get your prostate checked, but also check the skies to the North, especially from 23:00 to 00:30 and again from 01:45 to 03:30, you may be lucky enough to see some ghostly looking clouds between NW and NE, be sure to get a Photo if you do. As confirmation NLC's were seen from the Isle of Skye on this date

Summer Solstice happens at 04:31 on the 21<sup>st</sup>, where the Sun reaches its most Northerly point in the sky, after which the hours of daylight will start to get shorter.

Hopefully see some of you at Stonehenge for the Pagan celebrations :-)

# The Planets

**Mercury** – in the evening sky, heading back towards the Sun for inferior conjunction, which occurs on **11 June**. This follows an excellent period of evening visibility for this tricky planet last month. On **1 June**, Mercury sets one hour after the Sun, but is dim at mag. +3.2. This will make it hard to spot against the bright evening twilight.

**Venus** – is an evening planet, setting 1.5 hours after the Sun on **1 June**, a time that doesn't vary much over the month. The Moon lies nearby on **11 June** as a thin 1%-lit waxing crescent and on **12 June** as a 5%-lit waxing crescent. The biggest issue with viewing the planet is low altitude after sunset.

**Mars** – is now too small for serious telescopic observation, the planet appearing just 3.9 arcseconds across at the end of the month. Mars cannot be seen against a dark sky this month and at mag. +1.8 will be tricky to spot against a bright June evening twilight. An 11%-lit waxing crescent Moon passes 2° north of Mars on **13 June**.

**Jupiter** – rises three hours before the Sun at June's start, attaining a maximum height of  $20^{\circ}$  above the south-southeast horizon as the

Sun rises. A 62%-lit waning gibbous Moon sits southwest of Jupiter on the morning of **1 June** and, with a 76%-lit waning gibbous phase, to the southeast of the planet on **29 June**. Jupiter rises five hours before the Sun by the month's end when it's possible to observe it close to maximum altitude as it nears its most southerly position in the sky.

Jupiter's equinox was on **2 May**, a time when the planet is sideways on to the Sun. For the next few months its four largest moons, the Galilean moons, can appear to interact in mutual events, and Callisto casts its shadow on Jupiter. As Jupiter is now pulling away from the Sun in the morning sky, it's easier to see some of the better-timed events.

A Jovian equinox basically flattens the moon's orbital ellipses into an almost straight line. The three inner moons regularly cross Jupiter's disc, but this is not the case for outer Callisto except when near to a Jovian equinox.

**Saturn** – The planet reaches opposition on **2 August** and during June 2021 is almost able to reach its peak altitude in what passes for a dark sky at this time of year.

On **27 June** a bright 92%-lit waning gibbous Moon sits southwest of the planet in the dawn twilight. On **28 June**, now showing an 85%-lit waning gibbous phase, the Moon sits over to the east-southeast and forms a squat, down-pointing triangle with Jupiter and Saturn.

The low altitude isn't ideal for getting a decent telescopic view of a planet. Low down, you are looking through a thicker layer of atmosphere. If you are lucky enough to get a steady view Saturn's rings are currently nicely on view. Saturn's northern pole is currently tipped towards Earth by 17°.

Telescopically, look out for the shadow of the planet's globe on the rings – currently easiest to see to the west of the globe. Also look out for the razor thin dark 'gap' between the bright A and B rings. This is the Cassini Division, its visibility being a good indicator of steady conditions.

**Uranus** - Uranus is not visible this month.

**Neptune** – Neptune is not visible this month.

## Meteor Showers

**The June Bootids** – Beginning around the 22<sup>nd</sup> of June, peaking on the 27<sup>th</sup> and ending around the 2<sup>nd</sup> of July. This isn't a particularly prolific shower, hampered this year by a Moon only three days past full.

As a Look ahead as we have no further SpaceWatch's until September we also have a very favourable display of the Perseids on the 12<sup>th</sup> of August or so with no Moon interference

## Comets

There are no bright (greater than 10<sup>th</sup> magnitude comets this month)

## Deep Sky Objects

Obviously with no astronomical dark this time of year, Deep sky observing and imaging does become more of a challenge, the darkest part of the night only being quite a small window of opportunity. Having said that, for those able and keen enough, there is still plenty to look at, including many bright GCs (Globular Clusters) and some very nice Planetary Nebulae.

**NGC 5850, 5846 and 5845** – This line of three galaxies in the constellation of Virgo Starts with NGC 5850 a barred spiral galaxy, thought to have been disturbed by a high speed interaction with its neighbour NGC 5846 an elliptical galaxy, these two are around 90 million light years away. NGC 5845 is an Elliptical, galaxy (ES)(E3) with an intermediate scale disk.

**M10, M12, M14, M107** – Globular Clusters in Ophiuchus

**M11** – The Wild Duck cluster, an Open Cluster in Scutum

**NGC 6572** – A Planetary Nebula in Ophiuchus

**NGC 6781, 6790, 6803** – Planetary Nebulae in Aquila

## Solar Eclipse on the 10<sup>th</sup> June

There will be a partial solar eclipse visible from the Oxfordshire area on the 10<sup>th</sup> June. First contact is at 10:05 with mid eclipse when about 20% of the Sun will be covered at 11:15 and last contact at 12:15.

The sun will be quite high so if the weather is favourable this should be a decent chance to see the eclipse. Remember of course that you should never look at the Sun without some form of suitable filtering. Even 20% of sun covered will be insufficient to reduce its brightness at all. The Eclipse will be annular over parts of northern Canada and Greenland. Simulated images of the eclipse can be seen later in SpaceWatch.

## OTHER ONLINE TALKS

All meetings for the first half of the session will now be online using Zoom.

The Virtual Astronomy Club:

<https://www.star-gazing.co.uk/WebPage/virtual-astro-club/> who are offering free 7 pm Zoom meetings on a Tuesday and Thursday. PDFs of recent talks are here:

[https://www.dropbox.com/sh/9k7medirj1gkwlt/AA\\_C4dqakRuUiYIJHgz0KKqma?dl=0](https://www.dropbox.com/sh/9k7medirj1gkwlt/AA_C4dqakRuUiYIJHgz0KKqma?dl=0)

The BAA are also doing virtual webinars which are open to all at <https://www.britastro.org/meetings>

Look for the webinars page. They are also doing some presentations via Zoom as well which can be seen on their web page. If you miss them then they are available on their YouTube channel afterwards

**Observing evening:** There are no longer any observing sessions until September as it is not dark enough at a reasonable time

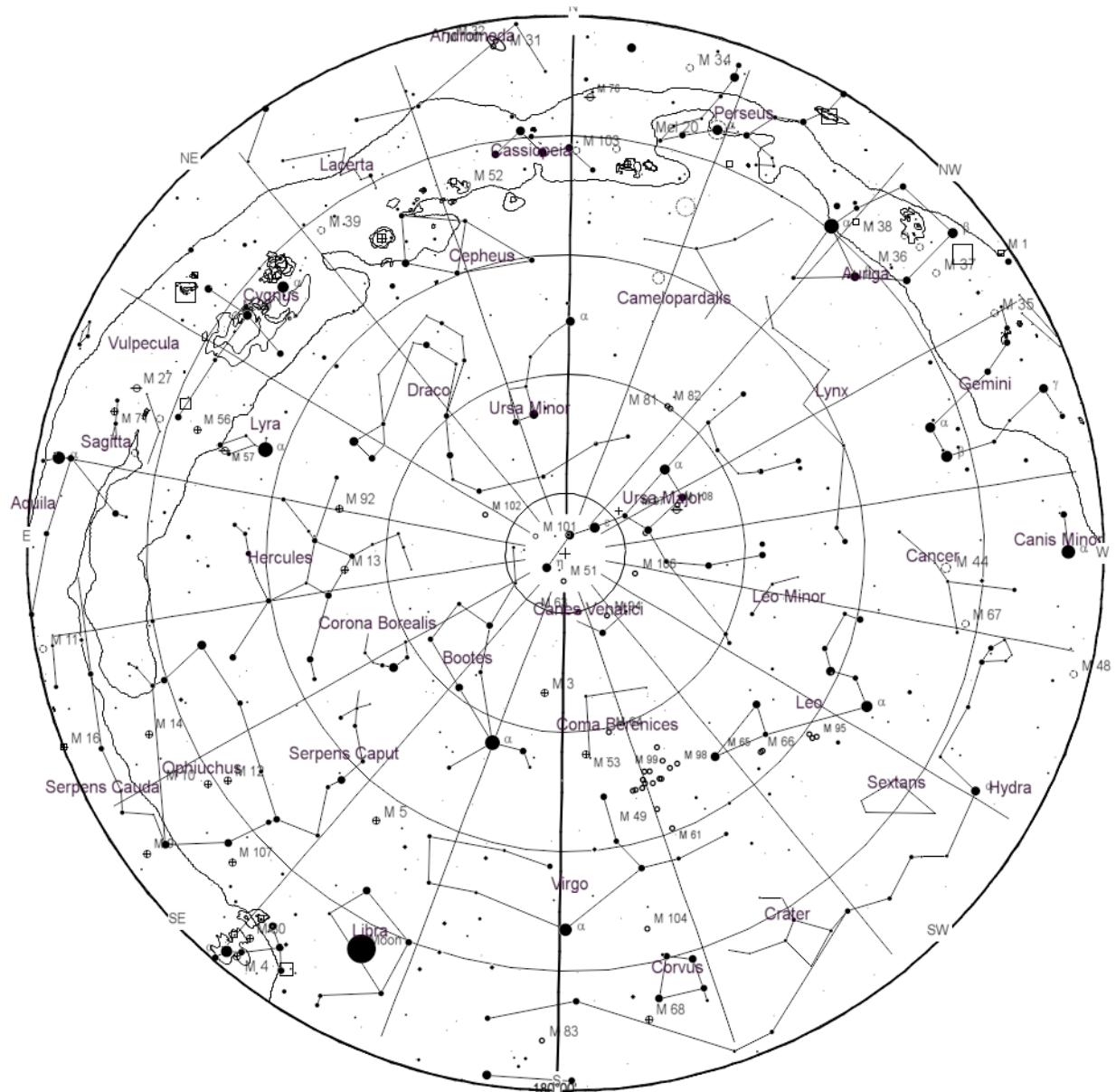
**Beginners' meetings:** As we no longer have access to our hall due to the Covid situation we are going to be running a series of Zoom beginner's meetings. The next one will take place on June 21<sup>st</sup> and the topics to be covered include Imaging planets and a historical talk.

**New Mailing List:** If you have not already done so, why not subscribe to our new email mailing list. The list is called 'aaslist'. Members use the list to alert each other about celestial events and to chat about amateur astronomy. The list is quite active, with several messages most weeks. This will also in the current circumstances be the main form of information going forward To subscribe to aaslist and to read through previous messages click on:

<http://lists.abingdonastro.org.uk/mail.cgi/list/aaslist>

## STAR CHART

The night sky at 22:00 (BST) Tuesday 15<sup>th</sup> June 2021



## MOON PHASES JUNE 2021

Moon phases and solar and lunar rise and set times for June 2021						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1  ↑01:03 ↓10:17 ↑04:01 ↓20:07 ---	2  ↑01:23 ↓11:33 ↑04:00 ↓20:08 ---	3  ↑01:39 ↓12:45 ↑04:00 ↓20:09 ---	4  ↑01:53 ↓13:56 ↑03:59 ↓20:10 ---	5  ↑02:06 ↓15:04 ↑03:59 ↓20:11 ---
6  ↑02:20 ↓16:13 ↑03:58 ↓20:12 ---	7  ↑02:34 ↓17:22 ↑03:58 ↓20:13 ---	8  ↑02:52 ↓18:31 ↑03:57 ↓20:14 ---	9  ↑03:13 ↓19:40 ↑03:57 ↓20:14 ---	10  ↑03:41 ↓20:45 ↑03:56 ↓20:15 ---	11  ↑04:16 ↓21:45 ↑03:56 ↓20:16 ---	12  ↑05:03 ↓22:33 ↑03:56 ↓20:16 ---
13  ↑06:00 ↓23:13 ↑03:55 ↓20:17 ---	14  ↑07:08 ↓23:43 ↑03:55 ↓20:17 ---	15  ↑08:21 ↓-- ↑03:55 ↓20:18 ---	16  ↑09:38 ↓00:07 ↑03:55 ↓20:18 ---	17  ↑10:55 ↓00:26 ↑03:55 ↓20:19 ---	18  ↑12:15 ↓00:43 ↑03:55 ↓20:19 ---	19  ↑13:36 ↓01:00 ↑03:55 ↓20:19 ---
20  ↑15:00 ↓01:16 ↑03:56 ↓20:20 ---	21  ↑16:28 ↓01:34 ↑03:56 ↓20:20 ---	22  ↑17:58 ↓01:57 ↑03:56 ↓20:20 ---	23  ↑19:26 ↓02:26 ↑03:56 ↓20:20 ---	24  ↑20:44 ↓03:07 ↑03:57 ↓20:20 ---	25  ↑21:46 ↓04:02 ↑03:57 ↓20:20 ---	26  ↑22:31 ↓05:13 ↑03:57 ↓20:20 ---
27  ↑23:03 ↓06:32 ↑03:58 ↓20:20 ---	28  ↑23:27 ↓07:54 ↑03:58 ↓20:20 ---	29  ↑23:45 ↓09:14 ↑03:59 ↓20:20 ---	30  ↑24:00 ↓10:29 ↑04:00 ↓20:20 ---			

Beginners Meeting Program 2020/2021

**2020/21 Long Talk**

JUN

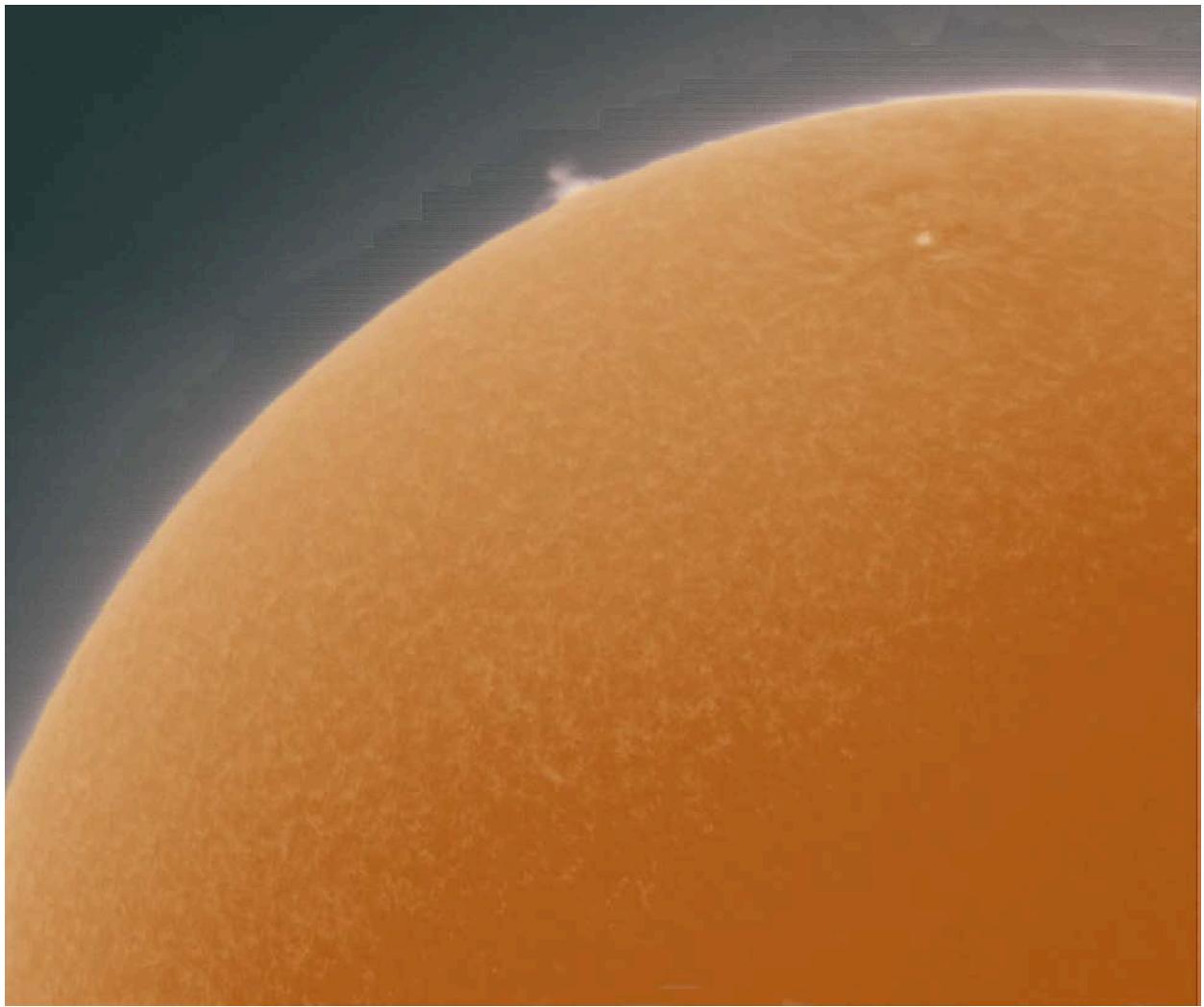
Imaging Planets

**Short Talk**

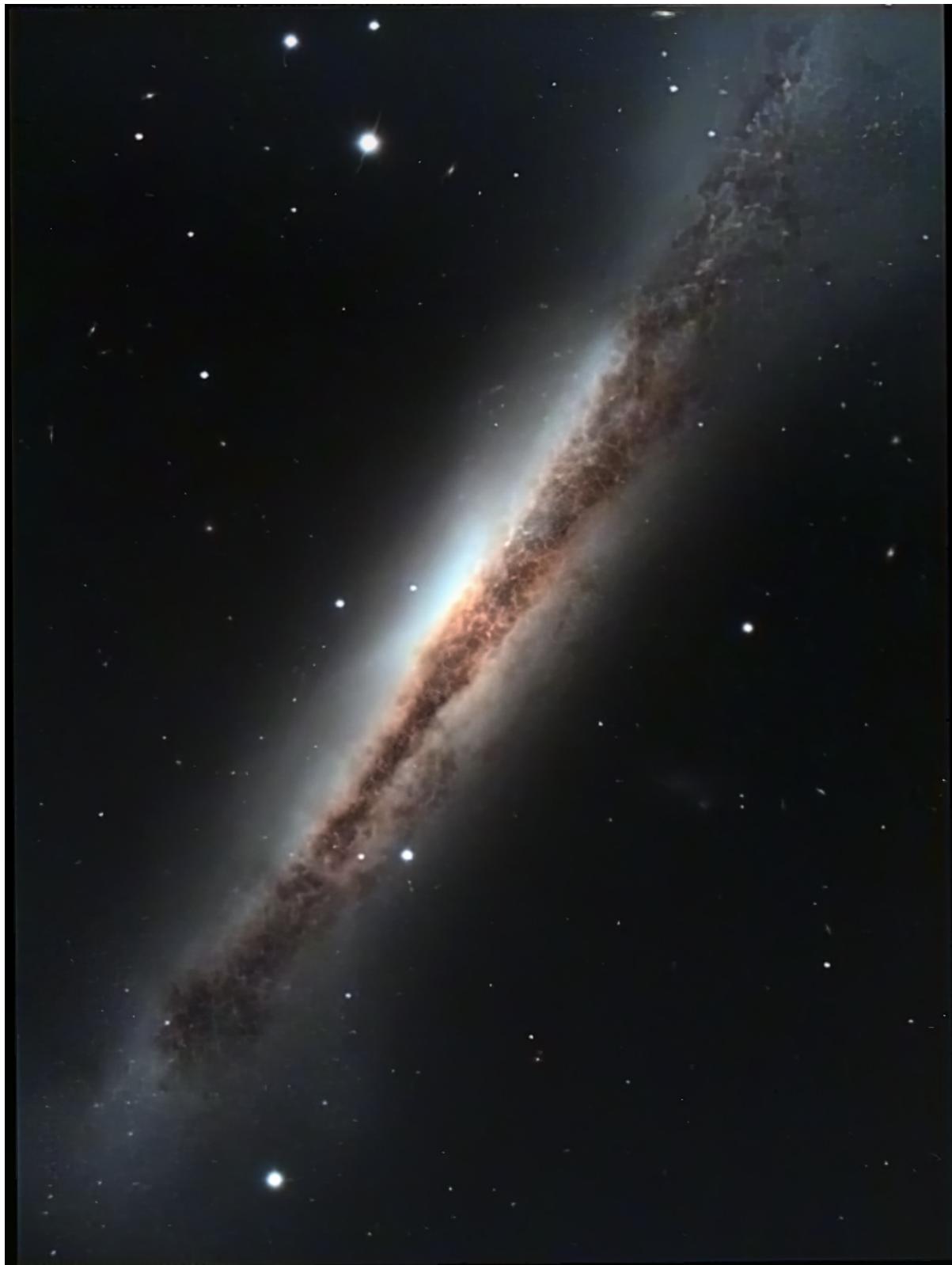
Astronomy 150-1543 AD: A 1400 year wait,  
and then Copernicus'



NGC 2371/2 – Ian Smith



Sun in H-Alpha – Trevor Pitt May 19th



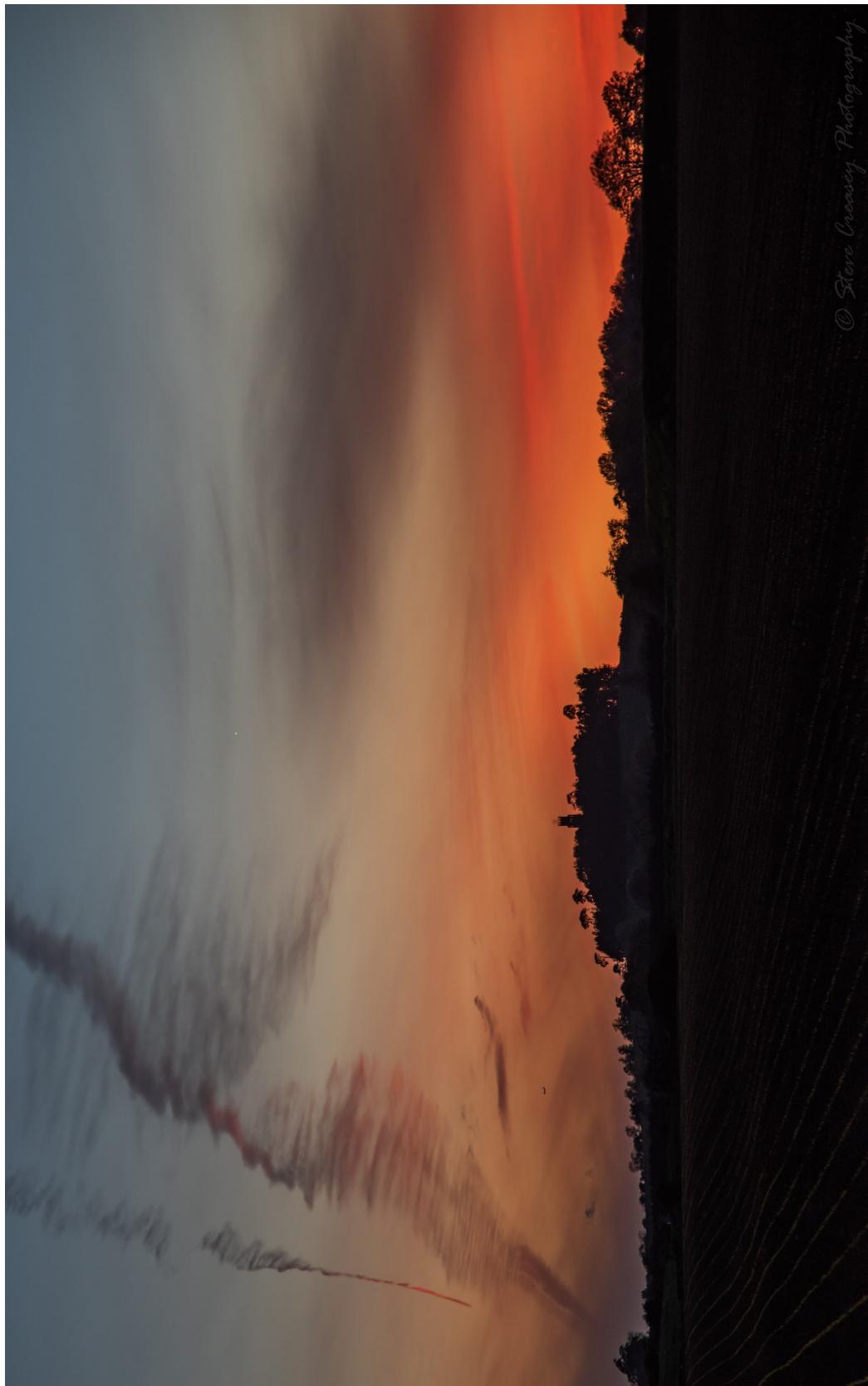
NGC 3628 – John Napper



M65 = John Napper



M66 – John Napper



Venus above Folly – Steve Creasey

© Steve Creasey Photography



Solar eclipse details at maximum eclipse as shown by Stellarium