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# Journal

of the

## Nottingham Astronomical Society

### November 2020

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Thursday, November 5<sup>th</sup>

8pm: **ONLINE**  
Tonight we welcome

**Damian Peach**



who will be delivering the  
NAS Prestigious Lecture

**High Resolution  
Astrophotography**

#### **Our November “Gotham” meeting will be broadcast live online**

The live stream meeting will start at 8pm. The stream can be accessed from 7:30pm onwards. Members will be emailed a link an hour before the meeting is due to begin.

Alternatively the live stream can be viewed directly on our website at <https://nottinghamastro.org.uk/> from 7:30pm.

If you are a registered user of YouTube you will be able to ask questions during the live broadcast via the YouTube live chat, alternatively send your questions live via our social media:

**Facebook** <https://www.facebook.com/nas.org.uk>

**Twitter** [www.twitter.com/nottinghamastro](https://twitter.com/nottinghamastro)

**email:** [membership@nottinghamastro.org.uk](mailto:membership@nottinghamastro.org.uk)

We would especially welcome live interaction during the event to keep the meeting as interactive as possible for members, and make it like our normal face-to-face gatherings. Please encourage your family and friends to watch by forwarding them the link.

## Chairman' Message – November 2020

Dear all,

Optimism is in rather short supply at the moment, but we do still have a thriving 'virtual' society! Looking forward, next year's speaker programme is coming together well, though it's a bit trickier than usual as I am trying to 'save' some talks for when we can meet up again at Gotham – whenever that might be! We had a very enjoyable talk this month from Steve Barratt on the Hubble Space Telescope. That replaced his talk on the LSST (Large Synoptic Survey Telescope), a real giant project. That will be next year. Meanwhile our mid month meetings continue, thanks again to Richard and James, with special thanks to Julian, our very own 'resident pro'. We do need more contributors to our mid month meetings, which are intended as 'practical and social' gatherings. If you can give a short talk or demo on anything astronomical, please contact [membership@nottinghamastro.org.uk](mailto:membership@nottinghamastro.org.uk) Don't miss our November 5<sup>th</sup> meeting, when Damian Peach talks about Astrophotography, showing us some astro fireworks!

That's it for now, please take care – and stay safe.

**John**

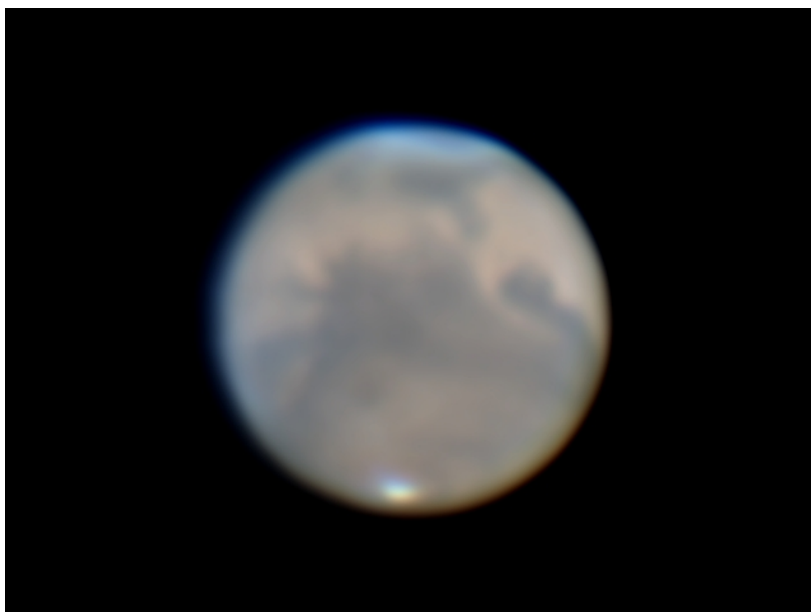
*John Hurst*

*Chairman*

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## Mars: Up-to-date

An image of Mars captured by **Richard Severn** at 9:50pm on October 25<sup>th</sup>



Richard was using a Celestron C11 Schmidt-Cassegrain telescope.

The image was captured with a ZWO 224MC, with a x4 TeleVue 4x PowerMate. The frames were stacked in AutoStakkert and processed in RegiStax.

# Sky Notes

## November 2020

Compiled by Roy Gretton



*All times given below are in Universal Time (Greenwich Mean Time)*

### PHASES OF THE MOON

<i>Phase</i>	<i>Date</i>
Third Quarter	November 8 <sup>th</sup>
New Moon	November 15 <sup>th</sup>
First Quarter	November 22 <sup>nd</sup>
Full Moon	November 30 <sup>th</sup>

This month the Moon is closest to Earth on the 14<sup>th</sup>, and furthest on the 27<sup>th</sup>.

### THE PLANETS

This month provides one of the best opportunities of 2020 to observe **Mercury** in the morning sky. Greatest western elongation (19 degrees) will occur on November 10<sup>th</sup>, when Mercury will be rising nearly two hours before the Sun, shining at magnitude  $-0.5$  and exhibiting a phase similar to that of the Moon at Third Quarter. Being a few degrees south of the celestial equator, Mercury will, as usual, be a challenging object to spot. On the morning of November 13<sup>th</sup>, Mercury and Venus will be joined by a thin crescent Moon, and all three should be visible from 6:30am: Venus highest, Mercury lowest, with the Moon in between.



**Looking ESE  
at 6:45am on  
November 10<sup>th</sup>**

*Mercury at  
greatest  
western  
elongation*

**Venus**, which has been shining brilliantly in the early morning sky for several months, will still be prominent (magnitude  $-4.0$ ) before sunrise as November begins, but will become less of a spectacle as the weeks pass, as its elongation from the Sun steadily diminishes (to 28 degrees by the end of the month) and its declination becomes more negative.

**Mars**, shining a bright orange (magnitude  $-2$ ) and still a rewarding planet to observe through a telescope as November begins, will be decidedly past its best by the close of the month, when its angular diameter will have diminished to 15 arcseconds (having reached 22.6

arcseconds in early October). After mid-month it will re-commence its direct motion, heading eastward again through the constellation of Pisces.

**Jupiter** remains more than 21 degrees south of the celestial equator, and will be visible low in the south to southwest every evening this month. On November 1<sup>st</sup> it will be due south as the sky darkens after sunset, and ends the month at magnitude  $-2$  with an equatorial diameter of 34 arcseconds (down from nearly 48 arcseconds in mid-July). It continues to move closer to Saturn, such that by the end of November the two gas giants will be just a few degrees apart.

**Saturn**, about 10.6 AU from Earth, manages to creep just north of declination  $-21$  degrees before the end of November, so just a little further north than Jupiter, which will pass it by when they come into conjunction late in December.

**Uranus** (magnitude 5.7) in the constellation of Aries, is visible all night to the east of Mars. Its apparent diameter is 3.8 arcseconds.

**Neptune**, shining at magnitude 7.8 and having an apparent diameter of 2.8 arcseconds, is observable through a telescope in the evening sky.

## METEORS

The Leonids are November's most renowned shower, although in recent years they have been relatively quiet, perhaps giving little more than ten events per hour at best. However this year their maximum activity on the morning of November 18<sup>th</sup> occurs under nearly ideal conditions, with a 3-day old Moon.



# Nottingham Astronomical Society

Watch recordings of our online meetings on  
the NAS website [www.nottinghamastro.org.uk](http://www.nottinghamastro.org.uk)  
or go to the NAS YouTube Channel.

<p><b>2<sup>nd</sup> April</b>    Galaxies: One Gigayear at a time Dr Julian Onions</p> <p><b>7<sup>th</sup> May</b>    Variable Star Astronomy &amp; Cataclysmic Variables Dr Jeremy Shears</p> <p><b>4<sup>th</sup> June</b>    Wonders of the Southern Sky Professor Ian Morison</p> <p><b>2<sup>nd</sup> July</b>    Mars in 2020 Dr Richard McKim</p> <p><b>6<sup>th</sup> August</b>    Centenary of The Great Debate Dr Nick Hewitt</p> <p><b>3<sup>rd</sup> September</b>    The Plumes of Enceladus Dr Chris Arridge</p> <p><b>1<sup>st</sup> October</b>    Legacy of the Hubble Space Telescope Dr Steve Barrett</p>	<p><b>16<sup>th</sup> April</b>    Venus J Dawson, G Davies, R Severn, J Onions</p> <p><b>21<sup>st</sup> May</b>    Backyard Astronomy NAS members</p> <p><b>18<sup>th</sup> June</b>    Foundations of Astrophotography Dr James Dawson</p> <p><b>16<sup>th</sup> July</b>    A Life Time of Astronomical Observations Alan Heath</p> <p><b>20<sup>th</sup> August</b>    Deep Sky Astronomy Callum Potter</p> <p><b>17<sup>th</sup> September</b>    Live Telescope Stream Jupiter &amp; Saturn <b>27<sup>th</sup> September</b>    Live Telescope Stream Moon &amp; Mars</p> <p><b>15<sup>th</sup> October</b>    Astronomy &amp; Physics of the autumn sky</p>
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[YouTube](https://www.youtube.com/NottinghamAstro)

[@NottinghamAstro](https://twitter.com/NottinghamAstro)

[nas.org.uk](https://www.facebook.com/nas.org.uk)

[nottinghamastro.org.uk](http://nottinghamastro.org.uk)

## DIARY DATES 2020

### Monthly Meetings of the Nottingham Astronomical Society

**There will be no meetings at  
Gotham or Plumtree until further notice**

*We nevertheless continue to display our pre-arranged programme of speakers  
in the hope that it may be possible to livestream these talks.*

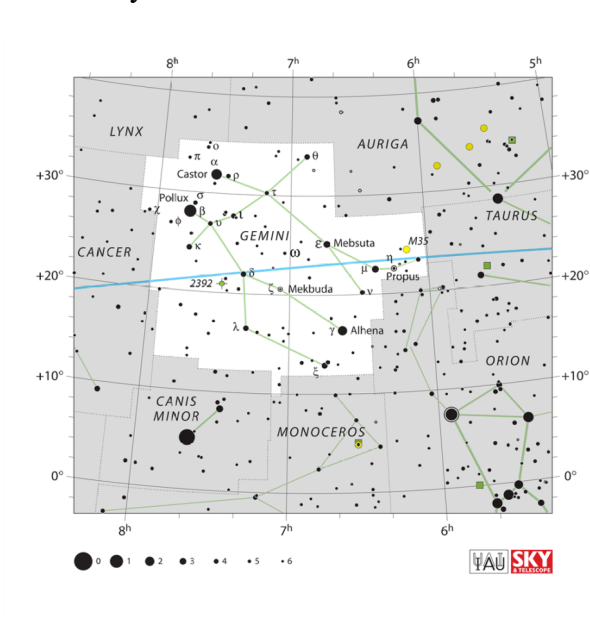
***Members of the Society will receive further updates  
each month from the Chairman***

<u>Date</u>	<u>Topic</u>	<u>Speaker</u>
<b>ALL ONLINE</b>		
<b>November 5<sup>th</sup></b>	<b>NAS Prestigious Lecture: High Resolution Astrophotography</b>	<b>Damian Peach</b>
<b>December 3<sup>rd</sup></b>	<b>The Vikings at Barsom - Part 1 Orbital Operations</b>	<b>Paul Money</b>

### Social and Practical Astronomy, Plumtree, November 2020

The **October** Plumtree meeting, [Astronomy and Physics of the autumn sky](#), saw James and Julian talk about some of the constellations which are on view now at about 9:30pm, along with some information about the origins and mythology, as well as amateur images of the constellations in question and deep sky objects within. Julian described the physics at play in these distant structures, both which allowed them to form and change, as well as how some of them may end.

The 88 constellations we have today (both in the north and southern hemispheres) were defined by the International Astronomical Union ([IAU](#)) soon after it forms in the 1920s.



Over the years, countless different asterisms and constellations had been proposed, many which overlapped one another, but it was clear there was a need to ensure there was a unified view of the night sky to aid in all astronomers speaking the same language and being able to quickly and reliably find the correct star.

Information about the constellations can be found on the [IAU's website](#) along with copyright-free images of the boundaries for all 88 of them, like the image of Gemini here on the left.

Julian talked about some of the constellations which are no longer recognised, the largest being [Argo Navis](#),



or the Ship Argo. In mythology the ship had been sailed by Jason of Argonaut fame. Like many other now obsolete constellations, it was not recognised by the IAU and now is just of historical interest, though if you know what to look for, you can still see this ship sailing the southerly sky.

*The constellations discussed were: Andromeda; Cassiopeia; Cepheus; Cygnus; Delphinus and Lyra. The interesting astrophysical structures within these were: the great spiral galaxy in Andromeda; the Bubble Nebula; the Elephant Trunk Nebula; the Garnet Star; the colourful double star Alberio; globular clusters; and planetary nebula like the Ring Nebula. [Image of the Bubble Nebula, right, by [Nik Szymanek](#), with permission].*



After the autumn sky talk by James and Julian, Richard talked about a fascinating event which will be occurring in December 2020. The [Great Conjunction](#) of Jupiter and Saturn is an event which will see the two planets appearing to come very close together in the sky.



They are closest together on the 21<sup>st</sup> December 2020 when they'll be just 0.1 degrees apart, which means they'll both be visible in the same field of view through a telescope, which will be a spectacle indeed. Richard's talk can be found 40 minutes into the recording of October's Plumtree [video](#).

If there are topics you want our Plumtree meetings to cover, let me know, and if you have something you'd be happy to share with others using the Plumtree meetings I'd love to hear from you.

Thanks to Julian, Richard and Leigh for helping with the October Plumtree meeting.

**James Dawson**, NAS Helpdesk & Plumtree Meetings  
[helpdesk@nottinghamastro.org.uk](mailto:helpdesk@nottinghamastro.org.uk)

## Comets and Disasters

For UK observers one of the astronomical highlights of 2020, along with a fine opposition of Mars, was the arrival of a bright comet in our skies. Thinking back to the mid-17<sup>th</sup> Century, 356 years ago, another notable comet appeared over the northern hemisphere, where it was recorded by Samuel Pepys in his diaries, and by colonists in New England. It was December 1664, and in those days comets were widely regarded as harbingers of woe, and these prejudices seemed to be confirmed in the two years that followed the arrival of that particular comet, for 1665 and 1666 witnessed the ravages of the Great Plague, England's final big outbreak of the dreaded bubonic plague that had devastated Europe repeatedly in the previous centuries. However, this time the plague resulted in a notable advancement for science rather than for superstition, as one young man from Lincolnshire was sent home on furlough from Cambridge University when it was locked down. His name was Isaac Newton, and confined to his home at Woolsthorpe for those two years he did some of his most enduring work in theoretical physics. Even today spacecraft visiting planets, asteroids and comets are programmed on their trajectories according to Newton's Laws.

However, before we completely dismiss a possible connection between comets and natural disasters, it is worth noting a view put forward by Sir Fred Hoyle, one of Britain's leading astronomers of the past half-century. Along with Nadine Chandra Wickramasinghe he published two notable books on the subject: *"Diseases from Space"* and *"Living Comets"*, in which he propounded his panspermia theory, that primitive life was brought to Earth by comets, and that comets continue to deliver deadly new viruses to our planet.

As it happened, **Comet C/2020 F3 (Neowise)** was discovered in the same week of March that our first national lockdown was announced, and by July it had turned out to be arguably the brightest comet for over 20 years.



A lovely image of Comet Neowise captured from Keyworth by **Gareth Davies** on 12<sup>th</sup> July 2020, with a Canon 700D at the prime focus of a Skywatcher ED80 mounted on an EQ3. The camera setting was ISO800, and this image was created by combining 100 x 15 second exposures in Deepsky Stacker

While it may be natural to want to find someone (or something) to blame for an unexpected pandemic, the question of whether comets are responsible for showering the Earth with deadly viruses is an issue on which the jury is, as they say, still out.

**Roy Gretton**

## Images of Mars captured by Marcus Stone

### 1. Mars on 21st September 2020



Marcus took this using a Philips webcam with IR filter. 3060 frames were captured over a 2-minute period (no longer to avoid smearing of the surface features due to Mars' rotation). The seeing wasn't great but 586 frames were stacked using Registax 6, finally sharpening in wavelets. Note that the south polar cap was still fairly prominent.

### 2. Mars on October 8<sup>th</sup>



A second picture of Mars taken nearly 3 weeks later under much better seeing conditions. This is a stack of 834 out of more than 3000 frames digitally processed in the same way as earlier image. You can see how much the south polar cap has shrunk in such a short time also the north polar hood is just about visible.



## **A test of SharpenAI on lunar images**

The following images of the Tycho region on the Moon show before and after sharpening using software called SharpenAI. This software first came to my attention through an article by Nik Syzmanek, and although developed with daytime photography in mind it has many uses for astrophotography. It can be downloaded for 30-day trial period, and after that it can be purchased for £63. It works well on lunar images and on some planetary ones too.

The first image was taken using my Meade DSI PRO 2 which has internal stacking processes. I also used a built-in kernel filter at the med edge enhanced setting. A total of 48 stacked images were used. The second image is a copy that has been sharpened using the Sharpen AI.

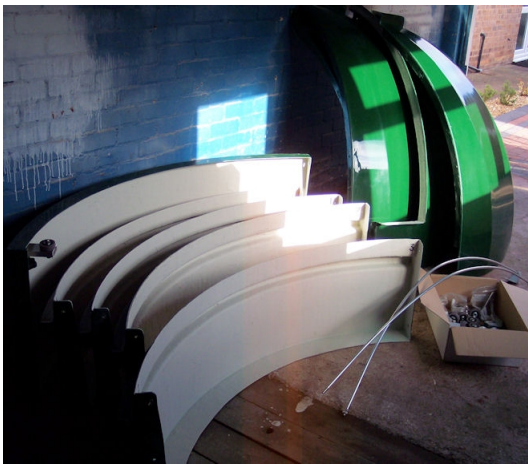


## Advertisements

### FOR SALE

#### **Pulsar 2.1-metre Observatory Dome and Track in Racing Green**

Made by the leading UK manufacturer of GRP observatory domes.  
The dome and the track are each fabricated in four segments that bolt together.  
The track is intended to be fixed to a flat roof (and could be used for converting a roll-off roof observatory into a domed one).  
The complete kit was purchased in 2008.



The dome and track sections as delivered from Pulsar



The track fitted to a flat-roofed shed



The dome mounted on the track

The original price of the dome and track was **£2000**

Suggested price **£500**  
but any offer will be considered

Contact **Roy Gretton** on 07483868162 or [journal@nottinghamastro.org.uk](mailto:journal@nottinghamastro.org.uk)

## FOR SALE

### Skywatcher Heritage-114 Virtuoso telescope



Little used and in new condition, with eyepieces.

Current price new £182

Reasonable offers invited

email : [grahammarch2@btinternet.com](mailto:grahammarch2@btinternet.com)

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### Magazines being given away

I subscribe to **Astronomy Now** and normally give my old magazines to the Society's library after I have kept them for a year. Sadly I have not been able to bring the magazines during the pandemic, but members are welcome to come and collect them from me. I will leave the magazines in my front porch at 17 Rannock Gardens, Keyworth NG12 5FQ, which is normally unlocked between 10.00 and 20.00 each day.

**Sam Boote**

#### The Nottingham Astronomical Society: E - SERVICES

Whether or not you are a NAS member, you can keep up to date with details of the Society's meetings and other events by visiting the NAS website: [www.nottinghamastro.org.uk](http://www.nottinghamastro.org.uk)

##### **NAS on Facebook**

You are welcome to connect with other members and friends of the NAS on Facebook by going to: <http://www.facebook.com/nas.org.uk>

##### **NAS on Twitter**

The Society has a Twitter account at <https://twitter.com/NottinghamAstro>

##### **NAS Journal e-mailing list**

To register for your monthly e-mailed link to the NAS Journal, and a copy of our SkyNotes, just e-mail [secretary@nottinghamastro.org.uk](mailto:secretary@nottinghamastro.org.uk)

You don't have to be a Society member to take advantage of this service.

*If you happen to change your email address, please remember to inform the Society by emailing us at [treasurer@nottinghamastro.org.uk](mailto:treasurer@nottinghamastro.org.uk)*

# Nottingham Astronomical Society

Affiliated to the **British Astronomical Association**  
Member of the **Federation of Astronomical Societies**  
Supporters of the **Commission for Dark Skies**

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**Leigh Blake**

## **DIRECTOR OF OBSERVING:**

**(vacant post)**

email: [observatory@nottinghamastro.org.uk](mailto:observatory@nottinghamastro.org.uk)

## **ORDINARY COMMITTEE MEMBER:**

**David Buxton**

**Observatory line: 07726 940700** (line open during observing sessions)

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## **Meetings**

**Under normal circumstances** our formal meetings, often with an illustrated talk by a guest speaker, are held on the first Thursday of each month (except in August) at:

**Gotham Memorial Hall**

**Gotham**

**Nottingham NG11 0HE**

Doors open 7.00pm

**Meetings start 8.00pm**

Meetings end 10.00pm

These meetings are open to the public, and visitors are welcome to attend.

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## **Annual subscriptions 2020**

Full	£30
Joint rate for partners living at the same address	£45
Under-18s and full-time students	£5

Subscriptions become due on 1<sup>st</sup> January. Half-price subscription is charged if joining after 30<sup>th</sup> June (minimum subscription £5).

Please make cheques payable to:  
*Nottingham Astronomical Society.*

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If you would like more information about the **Nottingham Astronomical Society**, or would like to become a member, please contact the Secretary [secretary@nottinghamastro.org.uk](mailto:secretary@nottinghamastro.org.uk) or speak to any NAS committee member at one of the regular monthly meetings. A membership application form is inside this issue of the Journal.

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## **The Nottingham Astronomical Society**

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