
Journal

of the

Nottingham Astronomical Society

February 2021

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Thursday, February 4th

8pm: ONLINE

Tonight we welcome

Prof Jim Al-Khalili



well-known author and broadcaster

who will be presenting our

New Year Special lecture on

‘The World According to Physics’

New Arrangements for our monthly “Gotham” meetings

These meetings, held on the first Thursday of each month, are intended for members of the Society only. “Plumtree” meetings – those held on the third Thursday of each month – will continue to be freely accessible to the public via YouTube.

Until further notice, our main meetings will be held on YouTube and will be for **members only**. Members will be emailed a link to the live stream on YouTube about 20 minutes before the meeting commences at 8pm. You will not be able to search for the meeting in YouTube, access is via the link provided in the email only.

For non-members wishing to watch our meetings, please email membership@nottinghamastro.org.uk before the meeting and we will send you a link to your first two meetings before requesting you join the society to join future online meetings.

Chairman's Message – February 2021

Dear all,

Welcome to the February 2021 issue of the NAS Journal. I hope everyone is doing well and managing in these current times.

Following the AGM, I have been elected as the new Chairman of the NAS, so I thought I would introduce myself to anyone who doesn't know me. I am taking over from John Hurst who has been both the Chair and a Committee member for many years. I think we can all agree how well the Society has done, and I hope to continue it and would like to thank John and the rest of the outgoing Committee for their work.

I have been attending NAS since 2007 and found it to be a wonderful group of people. I have been inspired and learnt a lot since first joining. My journey has taken me from interested amateur to professional astronomer over those years, so it appears anyone can do it! I'd also like to welcome the new Committee members who have stepped up to take on some of the responsibility beside me. Without them, I'd be in over my head!

We have a great new program for this year - thanks to John Hurst for the main meeting schedule, and James Dawson for organising the "Plumtree" meetings. Although both meetings will remain online for the foreseeable future, we are also looking into what can be done with the observatory site and equipment.

Also, a request for help. Things only happen in an organisation like ours if everyone contributes what they can. So please would each of you consider helping out in any way you can. We currently need help with running the internet meetings, creation of our online videos, and publicity – such as telling your family and friends about us and our hobby! The Committee would also benefit from more help, such as with the Helpdesk and Library. Wherever your skills lie - if you can, please pitch in, it spreads the load more fairly and is also a great way to get to know your fellow astronomers! So, don't be shy - contact me or any of the members of the Committee with ideas, suggestions and offers.

I'm looking forward to what the New Year will bring, and I hope you enjoy the journey with the Society.

Julian

NAS Chair

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

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

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

Sky Notes

February 2021



Compiled by Roy Gretton

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

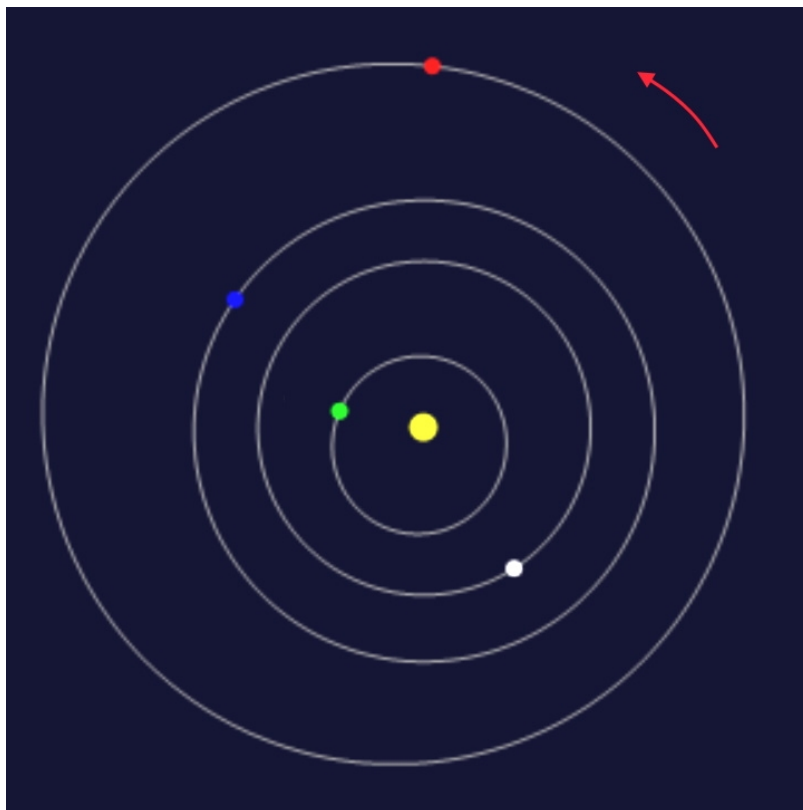
PHASES OF THE MOON

<i>Phase</i>	<i>Date</i>
Last Quarter	February 4 th
New Moon	February 11 th
First Quarter	February 19 th
Full Moon	February 27 th

This month the Moon is closest to Earth on the 3rd, and furthest on the 18th.

THE PLANETS

The inner Solar System on February 14th
(The red arrow shows the direction of rotation)



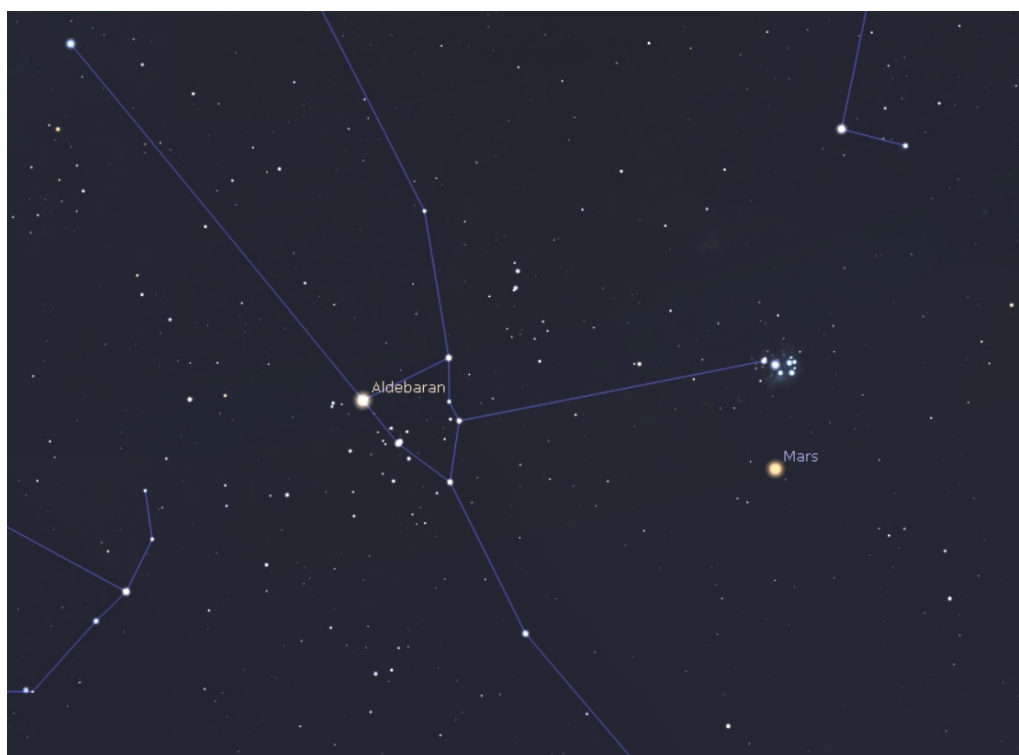
Earth (blue dot) has now left **Mars** (red dot) far behind at a distance of about 1.3 AU. When viewed from Earth, **Venus** (white dot) is moving behind the Sun, reaching superior conjunction next month. **Mercury** (green dot) is moving out from the Sun in the morning sky, and will reach greatest western elongation early in March

The dearth of bright planets in our skies that began last month continues into February

Mercury passes through inferior conjunction on February 8th, thereafter emerging as a morning object but not well placed for UK observers as it will be always more than 10 degrees south of the celestial equator.

Venus is unobservable this month, as it moves closer to the Sun ahead of superior conjunction next month.

Mars continues to move eastward, this month crossing the border from Aries into Taurus, and ending up close to the Pleiades star cluster. It also continues to fade from magnitude 0.4 to 0.9, and its angular diameter diminishes from 8 arcseconds to little more than 6 arcseconds.



Mars, the Pleiades and the Hyades in the southwest
on the evening of February 28th

Jupiter and **Saturn** are unobservable this month, both having been in conjunction with the Sun in the final few days of January.

Uranus, magnitude 5.8, is an evening object visible through binoculars or a small telescope, in the constellation of Aries. Mid-month it will be setting about midnight.

Neptune, magnitude 7.9, is a very challenging object to observe as February begins, and it will have been swallowed up by the solar glow by mid-month.

METEORS

There are no notable meteor showers in February.

DIARY DATES 2021

Monthly Meetings of the Nottingham Astronomical Society

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

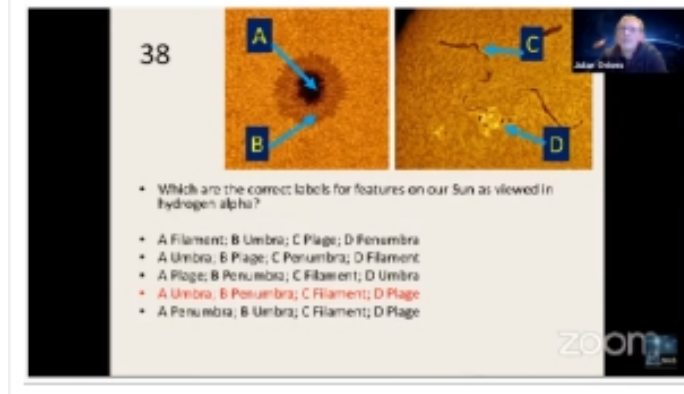
*We nevertheless continue to display our pre-arranged programme of speakers
with the intention of livestreaming these talks.*

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

Date	Topic	Speaker
February 4 th	NAS New Year Special: The World According to Physics	Prof Jim Al-Khalili Well-known author and broadcaster
March 4 th	Exploring Mars <i>Planning the next missions</i>	Dr Steve Banham Imperial College, London
April 1 st	Astronomical Adventures in Tenerife	Dave Eagle
May 6 th	Extremophiles <i>Why there must be life elsewhere in the Universe</i>	Dr Martin Braddock AstraZeneca UK
June 3 rd	Harbingers of Doom? Comets	Prof Ian Morison Emeritus Gresham Professor of Astronomy
July 1 st	The JUICE Mission <i>Exploring Jupiter's icy moons</i>	Dr Chris Arridge Lancaster University
August 7 th (Saturday)	Annual Barbecue at the Observatory (Members and their guests only)	
September 2 nd	The Vikings at Barsoom Part 2: The Search for Life	Paul Money FRAS, FIBS
October 7 th	Fiat Lux 3 <i>The Large Synoptic Survey Telescope</i>	Dr Steve Barrett University of Liverpool
November 4 th	Annual General Meeting with a Wine and Cheese Social	
December 2 nd	The NAS Christmas Lecture <i>to be confirmed</i>	

Social and Practical Astronomy, Plumtree, January 2021

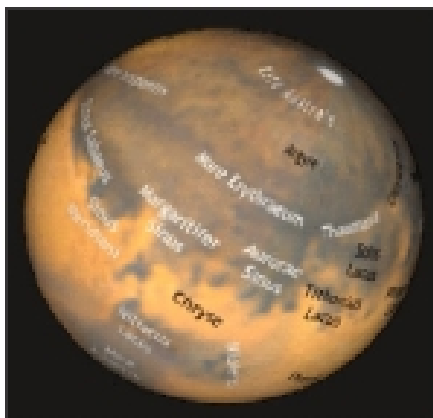
Our **January** 2021 online Plumtree meeting was a quiz put together by myself and Julian, and hosted on Microsoft Forms online. Participants were asked to take the quiz and submit their answers in advance of the meeting. The submissions were marked and slides to help explain the answers prepared.



We tried to pick a range of topics suitable for all levels of experience. The screen shot here shows Julian giving the answers to the solar features question which was answered very well. There were about 23 responses to the quiz, and the person with the highest score was Messier 74 – a cryptic pseudonym who we assumed was Sam given Sam’s past performance at Society quizzes. Indeed, Sam has since come forwards and revealed he is Messier 74. Well done Sam (pictured below), a thoroughly deserved win, but unfortunately there is no prize.



Sam pointed out that there is a Mare Australe on Mars, which we have since validated; we apologise for this error and even in our answer slide showing a map of Mars the name “Mare Australe” can clearly be seen near the southern pole cap. If you wish to read more about the Martian Mare Australe, there is an interesting page on [Marspedia](#) on the topic.



I've uploaded a PDF version of the answers and the explanation slides which can be accessed here: <https://hidrive.ionos.com/lnk/EzUDOSCh> If you would like to watch the Plumtree meeting again for a full explanation of the answers and to see how Julian managed to cover up the fact I was stuck in traffic and not present for the start of the live meeting, please visit the YouTube Channel:

<https://www.youtube.com/c/NottinghamAstronomicalSociety/videos>

The theme for the **February** 2021 Plumtree meeting is yet to be finalised, but I am sure it will be another gripping event, so be sure to tune in!

If anyone had any astronomy-related presents over Christmas, let us know.

James Dawson

helpdesk@nottinghamastro.org.uk

Messier 74 - spiral galaxy in Pisces

When taking part in the Society's recent Astro Quiz, I identified myself by the pseudonym "Messier 74". As I later explained to James, this was because I'm 74, faint and hard to get.

M74 is one out of 40 galaxies in the Messier catalogue, which comprises 110 deep-sky objects. Some versions of this catalogue hold that M101 and M102 are the same thing and that there are therefore only 109 objects, but I prefer to regard M102 as the Spindle Galaxy in Draco, otherwise known as NGC5866. The Messier catalogue was originated in the 18th. century by the French astronomer Charles Messier, who was keen on discovering comets and compiled a list of pesky fuzzy objects which he was in danger of mistaking for comets. Since then, his catalogue has become the most popular among amateur astronomers and is stored in the databases of many telescope mounts. The Messier objects range from easy bright targets such as the Pleiades (M45) to faint galaxies such as M74.



M74

ESO/PESSTO/S. Smartt, CC BY 4.0, via Wikimedia Commons

Some dedicated observers are keen on attempting the Messier Marathon - bagging all 110 objects in one night. This is possible during a 3-week window in March/April each year, but it requires a lower observing latitude than the UK is able to provide. However, many other observers like to see all the objects, but not all at once, and I count myself among their number. Over the space of 10 months in 2008-9, I saw many of the objects at home and most of the remainder at COAA in Portugal, where my wife and I were regular annual visitors. The last of this series was M74, which I struggled to see through the 20-inch Newtonian at COAA. This left two objects to be bagged - M68 (a globular cluster in Hydra) and M83 (a galaxy, also in Hydra). However, this wasn't the end of the story, as I then realised that I hadn't bagged the "other" version of M102, so I duly got it from home on 19 June 2010, and this completed the Messier set.

M74 has left me with a certain respect and awe of this challenging target, which is often regarded as the most difficult in the Messier catalogue. It is a face-on spiral galaxy containing about 40 billion stars at a distance of 32 million light-years. Having an actual diameter of 97,000 light-years, its apparent diameter is 10 arcminutes (one-third the size of the Full Moon) and its integrated magnitude (the apparent brightness if it were a single point of light) is 9.4, which makes it sound an easy target - but the light is spread over a large area, making it very faint. M74 responds well to imaging, but visual observers will have a difficult time - you need at least a 10-inch scope, a clear dark moonless night, low levels of light pollution, averted vision, and an acceptance that you are just going to glimpse a fuzzy blob without any chance of seeing spiral arms.

Having said all this, I was still motivated to have a go with my Celestron 11-inch SCT at home. A first attempt last autumn brought nothing but blank sky. A few weeks later brought success - a fuzzy blob, but one with the right size and shape to confirm that it was the real thing. I was surprised that this was easier than my earlier attempt with the large scope at COAA, where the light pollution is no worse than in Keyworth, but I must have been lucky with the transparent sky on that particular night. Perhaps the lockdown also helped in reducing light pollution from sources such as Keyworth Leisure Centre. In the right conditions, maybe aperture isn't the answer to everything.

Sam Boote

Transient Lunar Phenomena (TLPs)

For centuries there have been claims of events (foggy patches, permanent changes to the visible lunar landscape, reddish colourations, brightenings, flashes and flares) being observed on the face of the Moon; some of these with multiple witnesses. Such phenomena are generally referred to as TLPs.

Explanations for TLP have ranged from:

Impact events, meteorite/micrometeorite impacts throwing up debris clouds and causing flashes of light and perhaps molten patches. These should leave visible scars/craters but to date they have been too small to resolve from Earth.

Outgassing events, it is postulated that processes may from time-to-time cause gasses to escape from subsurface cavities.

Observation conditions, here the lensing effects of Earth's turbulent atmosphere causes small areas of the Moon's surface to apparently brighten then fade. This effect has been confirmed by video recordings.

Electrostatic charge, it is suggested that exposure to the solar wind may charge the dust on the lunar surface and cause it to levitate and even discharge lightning flashes.

While TLPs are undoubtedly real phenomena and there has been great interest in observing them, by their very nature, they do not occur frequently and the distribution of TLPs across the Lunar disk seems to be random; Seeing one is a matter of chance and the event is not reliably reproducible.

Despite this, there have been attempts at systematic observation of TLPs and observations are currently being coordinated by the Association of Lunar and Planetary Observers and the British Astronomical Association.

Without solid observational data, it is impossible to rule out any of the proposed causes for TLPs. However, one hypothesis, Meteorite impacts has been confirmed.

Cameras trained on the dark portion of the Lunar disk during favorably aligned meteor showers, have detected the flashes of members of the shower impacting the Moon. This said, it must follow that just as from time to time a bolide meteor is observed on Earth, similar bolides must impact the Moon and if you happen to be looking, guess what you will see?

Further reading :

https://science.nasa.gov/science-news/science-at-nasa/2007/23jan_https

https://science.nasa.gov/science-news/science-at-nasa/2007/23jan_https

Fred Hopper

Nottingham Astronomical Society

Watch recordings of our online meetings on the NAS website www.nottinghamastro.org.uk or go to the NAS YouTube Channel.

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

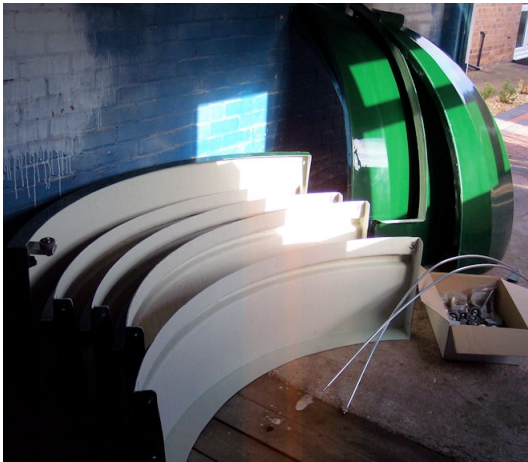
YouTube @NottinghamAstro nas.org.uk nottinghamastro.org.uk

Advertisement

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

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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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.

Annual subscriptions 2021

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

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

Please make cheques payable to:
Nottingham Astronomical Society.

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 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.

The Nottingham Astronomical Society

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