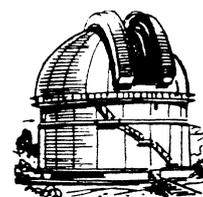

Journal

of the

Nottingham Astronomical Society

May 2018



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Thursday, May 3rd

Gotham Memorial Hall
Gotham, NG11 0HE

8 pm (doors open at 7 pm)

Tonight we welcome

Prof David Waltham



of the University of London

who will be speaking on

“Lucky Planet:

*why Earth is exceptional
and what it means for life in the
Universe”*

SUMMER IS ALMOST UPON US...

From about May 17th, at the latitude of Nottingham, Astronomical Twilight lasts the whole night through, which means that the sky never gets completely dark, from then until late July. **Astronomical Twilight** is defined as that period after sunset, and before sunrise, when the Sun is less than **18 degrees** below the horizon. Under such conditions, the sky isn’t completely dark, even overhead, so that magnitude 6 stars cannot be seen with the naked eye. Astronomical Twilight differs from **Civil Twilight**, during which the Sun is less than **6 degrees** below the horizon, and it is considered light enough to work outside without the aid of artificial lighting. And there is a third category of twilight, **Nautical Twilight**, during which the Sun is less than **12 degrees** below the horizon, meaning that the horizon can be distinguished at sea. Of course, all three definitions assume ideal conditions. Actual conditions may vary, as for example, thick cloud may make it too dark for outdoor work even when the Sun is less than six degrees below the horizon; and fog might obscure the marine horizon, even in broad daylight. However, from the astronomical point of view, if your interest is in observing faint nebulae and galaxies from the UK, you have only about two or three weeks left before the “summer” sets in.

Sky Notes

May 2018



Compiled by Roy Gretton

All times given below are in British Summer Time (BST)

PHASES OF THE MOON

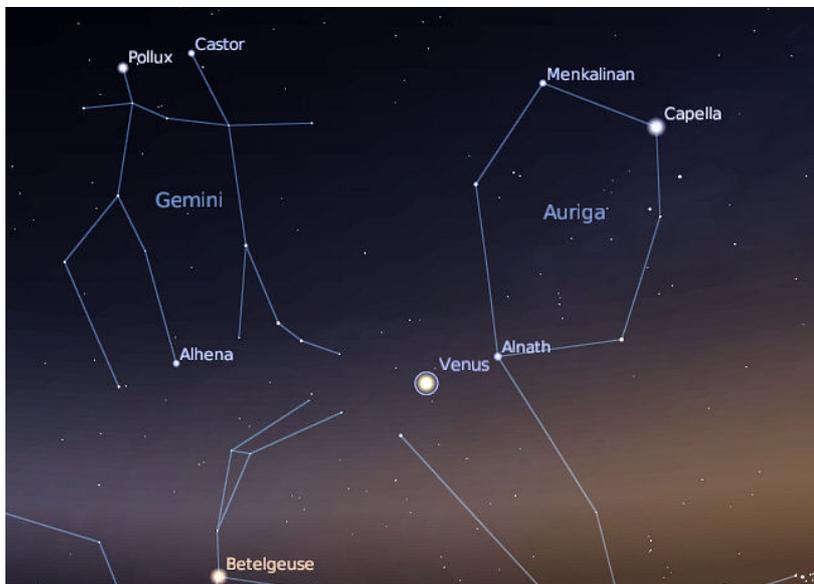
<i>Phase</i>	<i>Date and time</i>
Last Quarter	3:10 am on May 8 th
New Moon	12:49 pm on the 15 th
First Quarter	4:50 am on the 22 nd
Full Moon	2:21 pm on the 29 th

This month the Moon is closest to the Earth on the 17th, and furthest on the 6th.

THE PLANETS

Mercury is a morning object throughout May, but badly placed for observation from the UK.

Venus is a brilliant object in the west-northwest after sunset, though never particularly high as the sky darkens. By the end of May it will be shining at magnitude -4.0 at an elongation of 34 degrees.



**Looking WNW
at 10 pm
on May 15th**

Mars continues to be a morning object throughout the month, becoming brighter than magnitude -1.0 , and growing in angular diameter to 15 arcseconds.. Unfortunately throughout the period it will remain around 22 degrees south of the equator, far from ideal for UK observers. But don't give up on Mars if your telescope fails to reveal much clear surface detail. Naked-eye observation is also rewarding, because as Mars nears opposition, its brightness increases rapidly, more than doubling in the space of a few weeks. In fact by the end of July it will be about **six times** as bright as it will be in mid-May...worth watching out for!

May is the best month of 2018 for observing **Jupiter**, as the giant planet reaches opposition to the Sun on the 9th. By then it will be shining at magnitude -2.5 and will have an equatorial diameter of almost 45 arcseconds. Lying in the constellation of Libra, it will be rising before 9 pm and will remain above the horizon until dawn. Although Jupiter will never be more than 23 degrees above the southern horizon this year, make the best of it, because it won't be any better-placed until 2021!



Looking south at 3 am on May 16th

Saturn, in the constellation of Sagittarius, will be rising soon after midnight in early May. Being more than 22 degrees south of the celestial equator throughout the month, it is far from ideally-placed for northern hemisphere observers. It will be slowly brightening, reaching magnitude 0.2 in mid-month, with the ring system appearing more than 40 arcseconds across its major axis.

Uranus must now be regarded as unobservable as it is very close to the Sun.

Neptune, in the constellation of Aquarius, is now a morning object. By the close of May, it will be rising at about 2 am.

METEORS

May isn't a great month for meteor showers. Some weak activity (up to 5 events per hour under ideal conditions) may be observed from southern radiants: the **Scorpiids** peaking on May 12th, and a few **Ophiuchids** putting in an appearance late in the month.

DIARY DATES 2018

Monthly Meetings of the Nottingham Astronomical Society

1) Meetings at Gotham Memorial Hall

Nottingham Road, Gotham, NG11 0HE

Held on the **FIRST Thursday** of each month except **August**

Doors open at 7pm for 8pm start.

*These events are normally centred around a talk by a visiting speaker, except Open Evenings, when NAS members provide the activities. Normally we have a **Library** and a **Helpdesk** open at each meeting.*

Date	Topic	Speaker
May 3 rd	Lucky Planet – why Earth is exceptional <i>and what it means for life</i>	Prof David Waltham <i>Royal Holloway, University of London</i>
June 7 th	Diamonds in the Sky <i>White Dwarfs in Modern Astrophysics</i>	Professor Martin Barstow <i>University of Leicester</i>
July 5 th	Cassini's Final Science	Dr Phil Sutton <i>University of Lincoln</i>
August 4 th (Saturday)	Annual Society BBQ at the Observatory	
September 6 th	The Adventures of Curiosity on Mars	Prof Sanjeev Gupta <i>Imperial College, London</i>
October 4 th	Juno – the Answers	Prof Emma Bunce <i>University of Leicester</i>
November 1 st	Annual General Meeting	
December 6 th	Transient Events in Astronomy or <i>things that go bump in the night</i>	Prof Dame Jocelyn Bell Burnell DBE, FRS, FRSE, FRAS

2) Social and Practical Astronomy Meetings at the Burnside Memorial Hall, Plumtree

Church Hill, Plumtree, Nottingham, NG12 5ND

Held on the **THIRD Thursday** of each month from **7:30pm**

These meetings are of a more informal nature, providing opportunity for members and guests to share their hobby over a cup of tea or coffee, as well as listening to a short talk.

The next meeting will be on May 17th (see further details below)

**Check our website: www.nottinghamastro.org.uk
for the latest information about the Society's meetings
and for further information about the talks and speakers**

Events in the coming months open to everyone

(follow hyperlinks for more information and how to book)

5 th May	BAA One Day Spring Meeting , Newcastle
17 th May	Slavery From Space : Searching Satellite Images to End Modern Slavery. University of Nottingham Public Lectures
24 th May	Flat Earth Rising , Open Dome Event, Clifton
26 th May	BAA Historical Section Meeting , Stirling
2 nd June	Webb Deep Sky Society Annual Meeting , Cambridge
7-8 July	BAA Summer Meeting , Coventry
28 th July	The planet Mercury and the BepiColombo mission . Society for Popular Astronomy, London
7-9 September	BAA Weekend Meeting , Christchurch
29 th September	BAA Variable Stars, Photometry and Spectroscopy Workshop , London
6 th October	BAA Back To Basics Workshop , Bexleyheath
12-13 October	International Astronomy Show , Stoneleigh, Warwickshire
27 th October	Society for the History of Astronomy, Autumn Conference , Birmingham

Social and Practical Astronomy, Plumtree

The **April** meeting at Plumtree saw David Lukehurst give a talk on the principles of the astronomical eyepiece, from the very basic eyepieces used in the early days of the telescope to the multiple-element ultra-wide field of view ones used today. David gave useful advice for observers who wear glasses and on how Barlow lenses can be used to both retain eye relief and also extend the range of magnifications one can achieve with any given set of eyepieces.

For anyone who missed the talk, there is a useful article on the British Astronomical Association's website on the basics of the astronomic eyepiece:

<https://britastro.org/node/10878>

The topic of the **May** meeting is yet to be confirmed, and in **June**, Alan Heath will talk to us about observing the planets.

James Dawson

NAS Helpdesk

helpdesk@nottinghamastro.org.uk

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 copy of the NAS Journal, just e-mail secretary@nottinghamastro.org.uk

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

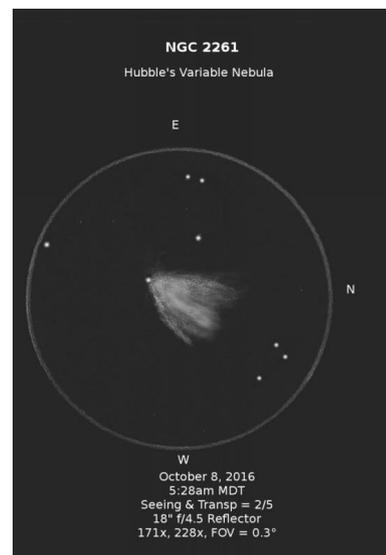
If you happen to change your email address, please remember to inform the Society by emailing us at treasurer@nottinghamastro.org.uk

British Astronomical Association's Deep Sky Section Annual Meeting, held at Bedford School on Sunday 22nd April



The [BAA](#) has 16 different sections, most of which have dedicated meetings. The [Deep Sky Section](#) of the BAA concentrates on star clusters, nebulae, galaxies and double stars. The recent annual meeting of the Deep Sky Section in Bedford saw about 110 BAA members and non-members enjoy a number of talks on deep sky topics from both amateur and professional astronomers.

Nick Hewitt gave the first talk and spoke about variable nebula, nebulosity which appears to change in brightness due to the fluctuations in a stars brightness which is illuminating the nebula. Hubble's Variable Nebula (NGC 2261) in the constellation Monoceros, is probably the best known example of these, and one of the larger, and over the course of several months significant changes can be observed in the details shown and the brightness of the nebula. We were shown a time-lapse video of the changes in a variable nebula with frames taken over a period of months. An [old article](#) from the BAA Journal talks more about these rare but fascinating deep sky structures. [Image to the right taken from the [Cloudy Nights](#) website.]



Lee Macdonald from the [Museum of the History of Science](#) in Oxford gave a fascinating talk on the Victorian origins of deep-sky photography. The very first photograph was taken in



1826 or 1827 and it wasn't long before the newly discovered technique of photography was employed in astronomy. One of the first photographs of the full Moon was taken by Dr J W Draper in about 1840 and in 1845 Louis Fizeau, a French physicist took the first image of the Sun, on which it is possible to see Sun spots [left, taken from [here](#)]. As telescopes got bigger and with changing techniques in photography fainter and fainter objects in the sky could be imaged. The advent of electronic imaging sensors in the late 1960s and early 1970s began a revolution in

astrophotography with electronic sensors being vastly more efficient at capturing photons and allowing even fainter objects to be detected and recorded; these were first employed in professional observatories but soon amateur astronomers were experimenting with them. We take it granted now that most amateur astronomers can image relatively faint targets even with modest equipment.

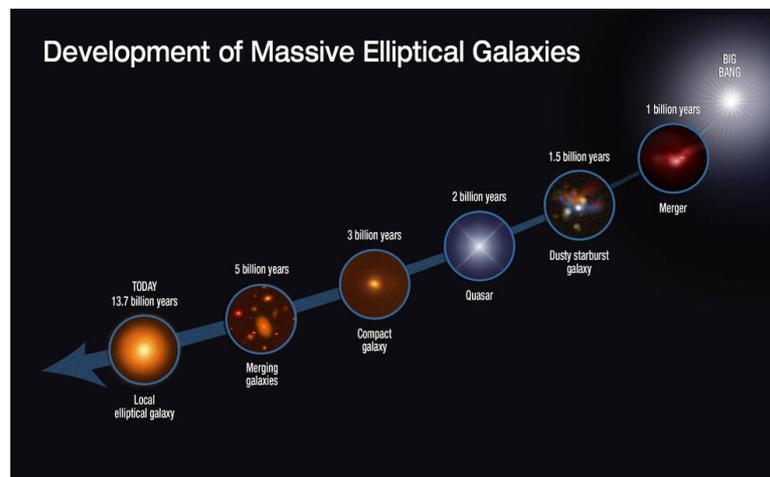
Alan Snook from Kent talked about his visual observations and sketches of the targets in the Arp Catalogue. [Halton Arp](#) was an American Astronomer who compiled a list of over 300 so-called peculiar galaxies. Alan described [his project](#) to observe all the galaxies in the catalogue, and outlined how he goes about making a sketch of each of them at his 20" Newtonian. A truly significant project requiring absolute commitment and stamina.

[Paul Downing](#) then talked about his passion for astrophotography. The talk really fell into two parts. One was to show his home in Spain and his observatory and equipment out there, and the other was to go over the basics of deep sky astrophotography, though the two

components were delivered simultaneously. The observatory in Spain had been built from scratch and we were shown how this had been constructed and the planning which had gone into the design and build. Paul talked about his choice of telescope (a 12.5” Planewave) and camera (QSI 683 CCD) and about the kind of targets he images, as well as the limitations of having an observatory halfway up a mountain with no main electricity supply, internet or water. He gave an overview of the principles of astrophotography and showed various images he had taken. [One of Paul’s images, here of the [Iris Nebula](#), NGC 7023].



The final talk of the day was by professional astronomer, Dr [Matt Bothwell](#) of the University of Cambridge, titled “Monsters in the Dark: hunting for the Universe’s most extreme galaxies”. I don’t pretend to have understood all of Matt’s talk, but he and the team his is working with are looking at signals in the submillimeter range of the electromagnetic spectrum, between infra-red and radio wave lengths. Looking at the patch of sky which the Hubble Space Telescope used to capture the famous [Hubble Ultra-Deep Field](#) image, they found strong signals in the submillimeter range, but these signals did not overlap with the brighter optical galaxies visible. This has led the team to theorise that very old, very massive and very distant galaxies are so heavily red-shifted that they are appearing to emit in the submillimeter wavelength. These galaxies (likely massive elliptical galaxies) are of great interest to professional astronomers to understand about early star formation, the distribution of stars and of the evolution of galaxies. [Image taken from [NASA](#)].



An absolutely fascinating day out, with superb talks and various stands and interesting people to talk to; the roast beef dinner lunch was amazing too!

James Dawson

Nottingham Astronomical Society

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

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Meetings

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 2018

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.

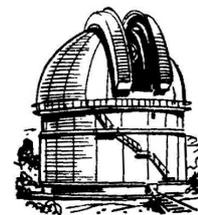
The Nottingham Astronomical Society

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Founded in 1946 for all interested in astronomy
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Member of the Federation of Astronomical Societies

Registered Charity No. 1174745
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Supporter of the Commission for Dark Skies



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