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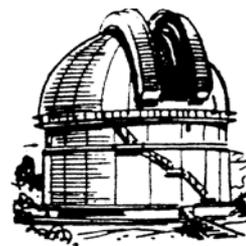
# Journal

of the

## Nottingham Astronomical Society

March 2015

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**Thursday, 5<sup>th</sup> March**

British Geological Survey  
Nicker Hill, Keyworth  
8 pm (doors open at 7.30pm)

Tonight we welcome  
**Dr John Bridges**  
of the University of Leicester  
who will be speaking on

**“Curiosity and Co –  
the Latest from Mars”**

### **A Spring Spectacular: The Solar Eclipse of March 20<sup>th</sup>, 2015**

A total eclipse of the Sun will occur on the morning of Friday, March 20<sup>th</sup>, which also happens to be the date of the vernal equinox. The eclipse will begin in the Atlantic Ocean south of Greenland, pass over the Faroe Islands and Svalbard, and end exactly at the North Pole. With the line of totality running to the north of the British Isles, everyone in the UK will experience a partial eclipse, which should be a remarkable spectacle, with between 85% and 97% of the Sun's disk obscured by the Moon. From Nottinghamshire the eclipse will reach its maximum extent (almost 89%) shortly after 9:30 am. First contact will be at 8:25 am, and the eclipse will finish at 10:40 am.

This will be the first major solar eclipse visible from the British Isles since the annular eclipse on 2003 (which occurred at sunrise) and the total eclipse of 1999 (which occurred late morning). It will not be until the year 2026 that we shall have another solar eclipse with a magnitude greater than 90% when viewed from southern Britain.

With this month's eclipse occurring mid-morning on a school day, there should be considerable public interest, enhanced by the fact that the BBC are this year moving the *Stargazing Live* event from January to March. People will need to be aware of the need to view the eclipse safely, protecting their eyes from direct solar radiation. One source of safe solar viewers is the British Astronomical Association's website, [www.britastro.org/solarviewers](http://www.britastro.org/solarviewers).

# Sky Notes

## March 2015

Compiled by Roy Gretton



*All times given below are in Universal Time (UT), effectively equal to GMT, unless otherwise stated*

The **northward equinox**, when the Sun crosses the celestial equator in the constellation of Pisces, occurs at 10:45pm on March 20<sup>th</sup>.

**British Summer Time** begins on 29<sup>th</sup> March. Clocks should be advanced by one hour at 1 am GMT on that date.

### PHASES OF THE MOON

Full Moon	6:05pm on March 5 <sup>th</sup>
Last Quarter	5:48pm on the 13 <sup>th</sup>
New Moon	9:36am on the 20 <sup>th</sup>
First Quarter	7:43am on the 27 <sup>th</sup>

This month the Moon is closest to the Earth on the 19<sup>th</sup> (the day before the total eclipse) and furthest on the 5<sup>th</sup>.

### Total eclipse of the Sun (visible as a partial eclipse from Nottingham), March 20<sup>th</sup>



The Sun at 9:32 am  
on March 20<sup>th</sup>  
as viewed from north  
Nottinghamshire

Details of the circumstances in Nottinghamshire are given in the panel on the front page. If you happen to be in another part of the country, the following details may be useful.

City	Time of maximum eclipse	Magnitude
Edinburgh	9:35	94%
Newcastle	9:35	92%
Liverpool	9:31	91%
York	9:34	90%
Birmingham	9:31	89%
Cambridge	9:32	88%
Bristol	9:28	88%
London	9:31	87%
Cardiff	9:28	89%

**Reminder: Use appropriate eye protection when viewing the Sun**

## THE PLANETS

**Mercury** is a morning object throughout March, but virtually unobservable from the UK.

**Venus**, shining at magnitude  $-4$ , adorns the western sky after sunset throughout March. By the end of the month it will be setting more than three hours after the Sun, and will be 27 degrees above the western horizon at the end of civil twilight. Jupiter, less bright, will be high in the east at the same time, giving us an opportunity to compare the two brightest planets.

**Mars** is an inconspicuous object low in the evening sky after sunset. By the close of March it will be only 19 degrees from the Sun, and a mere 4 arcseconds in diameter.

**Jupiter** continues to be very well placed for observation in the evening sky. It will be undergoing retrograde motion in the constellation of Cancer throughout the month. Shining at magnitude  $-2.5$ , it is rivalled only by the Moon and Venus in the night sky. The apparent diameter of the planet will continue to be greater than 40 arcseconds, making it a compelling object for owners of telescopes.

The constant movements of the four brightest satellites are fascinating to observe. Interesting phenomena include: **eclipses** (when a satellite disappears as it enters Jupiter's shadow), **occultations** (when a satellite passes behind the body of the planet), **transits** (when a satellite passes in front of the planet) and **shadow transits** (when a satellite casts its shadow on to the visible surface of Jupiter). Of these, shadow transits are probably easiest to observe with a modest-sized telescope (say 90mm aperture or greater). Look for a dark spot crossing Jupiter's disk. A list of shadow transits visible in the *evenings* this month is given below.

March	Shadow transit of
5 <sup>th</sup>	Io 21:30 to 23:48
7 <sup>th</sup>	Europa begins 22:08
12 <sup>th</sup>	Io begins 23:25
14 <sup>th</sup>	Io ends 20:11
21 <sup>st</sup>	Io 19:48 to 22:05
28 <sup>th</sup>	Io 21:43 to midnight
31 <sup>st</sup>	Ganymede ends 21:40 <b>BST</b>

**Saturn** is a morning object, rising before midnight by the end of March, and shining at magnitude  $+0.3$ . It will however be quite low in our sky, lying to the north and slightly to the west of the star Antares in the constellation of Scorpius. Saturn's north pole is tilted toward Earth, giving a good view of the ring system. Saturn's largest satellite, Titan, is due north of the planet on March 1<sup>st</sup>, and again on the 17<sup>th</sup>.



Looking south at 4 am  
on March 25<sup>th</sup>

**Uranus** and **Neptune** are unobservable this month.

## **METEORS**

The **Virginids** begin to show weak activity in the second half of March.

## **COMET C/2014 Q2 Lovejoy**

The brightness of this comet has held up quite well, with Heavens-Above reporting a magnitude of +5 in mid-February. It is now circumpolar, and will pass very close to Ruchbah, the second star from the left in the Cassiopeia 'W', on March 16<sup>th</sup>.



The Editor's latest image of Comet Lovejoy, taken on 21<sup>st</sup> February through a 30-cm f/5.3 reflecting telescope

30 seconds exposure at ISO1600

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## **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 Journal e-mailing list**

To register for your monthly e-mailed copy of the NAS Journal, 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.

## DIARY DATES 2014-2015

### Monthly Meetings of the Nottingham Astronomical Society

Our programme for this year is shown below. Check our website: [www.nottinghamastro.org.uk](http://www.nottinghamastro.org.uk) for the latest information about the Society's meetings and for further information about the talks and speakers.

Our meetings are held on the **FIRST THURSDAY** of the month, at the British Geological Survey, Keyworth, Notts, NG12 5GG

(except **August**, when we meet at our observatory site, between Cotgrave and Cropwell Bishop)

Doors open at 7:30pm for 8pm start.

<u>Date</u>	<u>Topic</u>	<u>Speaker</u>
March 5 <sup>th</sup>	"Curiosity and Co – The latest from Mars"	Dr John Bridges <i>University Of Leicester</i>
April 2 <sup>nd</sup>	"Images of the Universe"	Paul Money
May 7 <sup>th</sup>	"Proving Einstein Right"	Prof. Ian Morison, <i>University of Manchester</i>
June 4 <sup>th</sup>	"The Microwave Universe"	Dr Clive Dickinson <i>Jodrell Bank Centre for Astrophysics</i>
July 2 <sup>nd</sup>	"Rosetta - close ups of a comet"	<i>A scientist from the Open University</i>
August 6 <sup>th</sup>	Society BBQ at the observatory, plus solar, radio and night time observing	
September 3 <sup>rd</sup>	Open Evening	<i>Organised by John Hurst</i>
October 1 <sup>st</sup>	"How our Galaxy came to be"	Dr Chris Lintott, University of Oxford, and <i>BBC Sky at Night</i>
November 5 <sup>th</sup>	Annual General Meeting	
December 3 <sup>rd</sup>	"New Horizons : Pluto and the Kuiper Belt Objects"	Dr Chris Arridge, <i>University of Lancaster</i>

## NAS Monthly Helpdesk

Following the very successful 'telescope surgery' at the February meeting, it has become clear that we have lots of members and visitors who have questions about practical astronomy, in particular about setting up equipment and with help in deciding what equipment to potentially buy.

We are going to trial a 'helpdesk' at the monthly meetings, which will run from 19:30 until the meeting starts at 20:00. This will be a dedicated place you can ask questions or bring in your equipment to seek help or advice, or just to chat. If there are specific bits of kit you want to look at, contact us beforehand through [Facebook](#) or email us at [NASHELPDESK@hotmail.com](mailto:NASHELPDESK@hotmail.com) and we will try and locate examples to bring along to show you.

If you have a Skywatcher SynScan handset and want the firmware on it updating to the latest version (irons out some bugs and installs a new object database), then bring it along to the March meeting and we should be able to do this for you for free; depending on your mount there may be a “motor controller” update available too but we need the mount as well as the handset for this; info about these updates can be found on the Skywatcher website should you want to do these yourself

[http://ca.skywatcher.com/upfiles/en\\_download\\_caty01312941979.pdf](http://ca.skywatcher.com/upfiles/en_download_caty01312941979.pdf) We are hoping also to be able to help owners of Celestron handsets update their firmware in the future. Contact us if you want to know more about this.

We also want the helpdesk to function as a place that newcomers can come and chat and find out more about the society. We know it can be daunting attending a meeting and potentially not knowing anyone, so feel free to use the helpdesk as a point of contact.

As always, the committee and the other society members will no doubt be happy to chat and answer questions, even if they are not on the helpdesk.

If any members are happy to help out with the helpdesk, please do get in touch.

**James Dawson and Bob Richardson**

[NASHELPDESK@hotmail.com](mailto:NASHELPDESK@hotmail.com)

## A Visit to the Largest Optical Telescope in the World

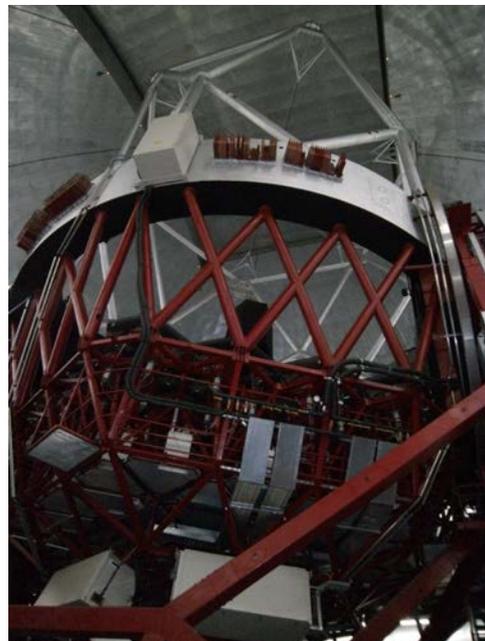
On 25th January I had an opportunity to visit the world's largest single aperture optical telescope, the Gran Telescopio de Canarias (GTC), 7438 feet high on the island of La Palma in the Canary Islands. I spent nearly an hour inside the dome, and watched the massive telescope being moved in both azimuth and altitude, as well as the dome itself being rotated.



The GTC's primary mirror is made up of 36 hexagonal segments, which when put together have a light-collecting surface area of 75.7 square metres, equivalent in size to a single circular mirror with a diameter of 10.4 metres. Six “extra” mirror segments were also made, so that any individual segment can be removed for re-aluminising and replaced immediately, without loss of a single night's observing. The re-aluminising plant is on-site, below the floor of the observatory.



The primary mirror is visible in the background



Looking up: the telescope now pointing toward the zenith

The Gran Telescopio de Canarias was formally opened on 24<sup>th</sup> July 2009 by King Juan Carlos of Spain. There are numerous other observatories belonging to various European countries around the rim of the volcanic caldera at the top of the island, including the Isaac Newton and William Herschel telescopes.

*Roy Gretton*

# 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 **Campaign for Dark Skies**  
**Registered Charity No: 1066645**

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**John Hurst**

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

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

## **ORDINARY COMMITTEE MEMBERS:**

**Kevin Greally**

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### **Meetings**

Our meetings, often with an illustrated talk by a guest speaker, are held on the first Thursday of each month (except in August) at:

**The British Geological Survey  
Nicker Hill  
Keyworth  
Nottingham NG12 5GG**

Doors open            7.30pm  
**Meetings start        8.00pm**  
Meetings end         10.00pm

Meetings are open to the public, and visitors are always welcome to attend.

### **Annual subscriptions 2015**

Full	£30
Concessions	£15
Joint rate for partners living at the same address	£45

Subscriptions become due on 1<sup>st</sup> January. Half-price subscription is charged if joining after 1<sup>st</sup> July. Please make cheques payable to: Nottingham Astronomical Society.

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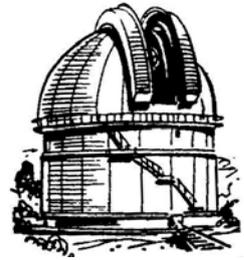
If you would like more information about the **Nottingham Astronomical Society**, or would like to become a member, please contact the Secretary [secretary@nottinghamastro.org.uk](mailto:secretary@nottinghamastro.org.uk) or speak to any NAS committee member at one of the regular monthly meetings. A membership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

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### **The Nottingham Astronomical Society**

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# NOTTINGHAM ASTRONOMICAL SOCIETY



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Affiliated to the British Astronomical Association  
Member of the Federation of Astronomical Societies

Registered Charity No. 1066645  
Member of the Society for Popular Astronomy  
Supporter of the Campaign for Dark Skies

## Membership application and Gift Aid declaration

**Title:**

**Full name:**

**Full home address:**

**Postcode:**

**Telephone:**

**e-mail address:**

<b>Subscription rate:</b>	Full	£30.00	(year)	£15.00	(half year)
	Concession	£15.00		£7.50	
	Partnership	£45.00		£22.50	

Concession = under-18 / full-time student / unemployed and receiving benefits

Partnership = two members living together as a couple at the same address

I wish my subscriptions to be eligible for Gift Aid

**Yes / No**

## Gift Aid declaration

**(HMRC reference XR32048)**

I want Nottingham Astronomical Society to treat all subscriptions and donations that I make from the date of this declaration as Gift Aid donations, until I notify you otherwise.

I pay an amount of UK Income Tax and/or Capital Gains Tax at least equal to the tax that Nottingham Astronomical Society reclaims on my donations in the appropriate tax year.

**Signature:**