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# Journal

of the



## Nottingham Astronomical Society

January 2014

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**Thursday, January 2<sup>nd</sup>**

**British Geological Survey**

**Nicker Hill, Keyworth**

**8 pm (doors open at 7.30pm)**

**Tonight we welcome**

**Paul Money**

**who will be taking us**

**“Rambling Through the Winter Skies”**

### **RECENT NEWS STORIES ON THE WEB**

*Follow these links for interesting current news:*

Why some stars are bigger than others

<http://www.sciencedaily.com/releases/2013/12/131220143524.htm>

The comets of Fomalhaut

<http://www.sciencedaily.com/releases/2013/12/131218095839.htm>

Latest news from China's lunar rover, with pictures

<http://www.universetoday.com/107479/yutu-flexes-robot-arm-then-enters-hibernation-during-lunar-night/>

How many spiral arms does our galaxy have?

<http://www.sciencedaily.com/releases/2013/12/131217085054.htm>

A pink naked-eye nova in Centaurus, visible to southern hemisphere observers

<http://www.universetoday.com/107522/astrophoto-nova-centauri-2013-turns-pink/>

# Sky Notes

## January 2014

Compiled by Roy Gretton



*All times given are UT (Universal Time), equivalent to GMT*

The Earth will be at perihelion, the nearest point on its orbit to the Sun, at one minute to midday on January 4<sup>th</sup>, when the centres of the two bodies will be 147,104,780 km apart.

### PHASES OF THE MOON

New Moon	11:14 am on January 1 <sup>st</sup>
First Quarter	3:39 am on January 8 <sup>th</sup>
Full Moon	4:52 am on January 16 <sup>th</sup>
Last Quarter	5:19 am on January 24 <sup>th</sup>
New Moon	9:39 pm on January 30 <sup>th</sup>

This month the Moon is closest to the Earth on the 30<sup>th</sup>, and furthest on the 16<sup>th</sup>.  
*(Data from the BAA Handbook)*

**Note:** As Full Moon occurs only a couple of hours or so after apogee, this month's Full Moon should be the "smallest" of the year.

### THE PLANETS

**Mercury** begins the month very close to the Sun, but steadily moves eastwards until on January 31<sup>st</sup> it will be at greatest eastern elongation, 18 degrees from the Sun. This is one of two favourable evening apparitions of the planet in 2014, the other one occurring in May. Look toward the WSW horizon after sunset, preferably with binoculars, and you should be able to spot Mercury shining at magnitude  $-0.7$  among the stars of Aquarius.

**Venus** is unobservable in January, as it passes through inferior conjunction on the 11<sup>th</sup>.

**Mars** is gradually becoming a more useful prospect for observers, as the distance between Earth and the planet continues to diminish. At the end of January its angular size will have grown to almost 9 arcseconds, meaning that some surface detail should be discernable through modest-sized telescopes. Unfortunately for UK observers, Mars will spend the whole of 2014 south of the celestial equator, though it will be only a few degrees south this month. With the naked eye, look for an orange "star", brighter than magnitude 1, in the constellation of Virgo.



Looking south at 6:20 am  
on January 21<sup>st</sup>

Observing **Jupiter** from the UK hardly gets any better than it will be this winter. The gas giant, high in the constellation of Gemini, reaches opposition to the Sun on January 5<sup>th</sup>, when it will be shining at magnitude  $-2.6$  and will have an angular diameter of almost 47 arcseconds.

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 100mm 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. (*Data obtained from the BAA Handbook*).

January	Shadow transit of
1 <sup>st</sup>	Europa begins at 21:02
3 <sup>rd</sup>	Callisto begins at 21:04
6 <sup>th</sup>	Io 21:41 to 23:56
8 <sup>th</sup>	Io 16:09 to 18:25
8 <sup>th</sup>	Europa begins at 23:57
13 <sup>th</sup>	Io begins at 23:35
15 <sup>th</sup>	Io 18:04 to 20:19
22 <sup>nd</sup>	Io 19:58 to 22:14
25 <sup>th</sup>	Ganymede 18:09 to 21:21
26 <sup>th</sup>	Europa 18:28 to 21:10
29 <sup>th</sup>	Io begins 21:53

(See also Bryan Lilley’s excellent image showing two simultaneous shadow transits, taken in November, later in this Journal)

**Saturn**, magnitude +0.6, will be rising at about 4 am as January begins, and will slowly move away from the Sun, to be rising rising at about 2 am by the close of the month. See graphic above.

**Uranus**, in the constellation of Pisces, is a magnitude 5.8 evening object close to the border with Cetus. It will be setting soon after 10 pm by the end of January.

**Neptune**, in the constellation of Aquarius, is now disappearing toward the glow of the setting Sun.

## METEORS

The only meteor shower of note in January is the **Quadrantids**, which reach maximum activity on the evening of Friday the 3<sup>rd</sup>. The meteors tend to be blue or yellow, and may be almost as prolific as the August Perseids. This year conditions are *very favourable*, with a 2-day old Moon. The radiant of the shower is close to the handle of the Plough, roughly between Arcturus and the North Pole; and being circumpolar, greatly favours northern hemisphere observers.

# DIARY DATES 2014

## **Monthly Meetings of the Nottingham Astronomical Society**

Our programme for this year is shown below. Don't forget to 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

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

**Thursday 2<sup>nd</sup> January 2014**

**“Rambling Through the Winter Skies”**

**Paul Money**

**Thursday 6<sup>th</sup> February 2014**

**Members' Evening - Telescopes and Astrophotography – A Practical Evening**

**(to which non-members are very welcome)**

**Thursday 6<sup>th</sup> March 2014**

**Stardust, Meteorites and the Early Solar System**

**Prof. Jamie Gilmour**

**Thursday 3<sup>rd</sup> April 2014**

**Basic Astrophotography**

**Paul Money**

**Thursday 1<sup>st</sup> May 2014**

**White Dwarf Stars**

**Dr Sarah Casewell**

**Thursday 5<sup>th</sup> June**

**Practical Radio Astronomy for Amateurs**

**Paul Hyde**

**Thursday 3<sup>rd</sup> July**

**Phoenix from the Ashes – the Origin of the Chemical Elements**

**Prof Mike Edmunds**

<p><b>Thursday 7<sup>th</sup> August</b></p> <p><b>Summer Break - No meeting</b></p>
<p><b>Thursday 4<sup>th</sup> September</b></p> <p><b>Members' Evening – Non-members welcome – Topics to be arranged</b></p>
<p><b>Thursday 2<sup>nd</sup> October</b></p> <p><b>The Latest on the Sun</b></p> <p><b>Dr Lucie Green</b></p>
<p><b>Thursday 6<sup>th</sup> November</b></p> <p><b>2014 Annual General Meeting</b></p>
<p><b>Thursday 4<sup>th</sup> December</b></p> <p><b>Into the Cosmic Ocean – the Dream of Travel to the Stars</b></p> <p><b>Andrew Lound</b></p>

### **The Geminids 2013 – A Brief Note**

The maximum activity for this meteor shower was predicted to be at 1 am on December 14<sup>th</sup>. In the hours preceding this, the weather was far from favourable, with overcast skies throughout the afternoon of the 13<sup>th</sup>. As the evening wore on, the lower cloud layers dispersed, revealing areas of high ice cloud through which some stars, and of course the Moon, could be seen. Conditions were far better after midnight, when large breaks in the high cloud appeared. A few members of the Society have reported their observations of the shower.

I observed from Langar, on and off between midnight and 2:20 am. At maximum, the meteors seemed to be appearing at an average rate of one every two to three minutes. Comparing them with the Perseids, the Geminids were slower moving and didn't leave visible trails (unless these were faint and swamped by the moonlight). They were generally bright, but visible for fairly short distances.

Richard Myrie, observing from Woodthorpe, saw 4 meteors between midnight and 1:30 am from the east, clearly radiating from Gemini. They were fairly bright but of quite short duration, perhaps 0.5 second or less. He observed a further very bright meteor at 5:05 am, again in the east but of longer duration and very low down, ending a few degrees above the horizon. By 5:30 am, the clouds were coming in.

Barrie Chacksfield, observing from Tollerton (after the street lights were turned off) from about 2.30 am to 4.00 am, saw about 14 meteors of which some were very short, almost a flash of light. Most were of medium length, across about 20-50 degrees of sky, but there were 3 or 4 very bright ones covering about 90 degrees of sky and leaving long trails visible for about one second, around 3.30 am.

Brian Carrington, also based at Langar, observed for about 10 minutes from 5:30 am, and saw four meteors through patchy light cloud. Three of them were very short, sharp & bright with one longer, slower and dimmer. By then the Moon had set, making viewing easier in spite of the cloud.

Thanks to all who sent in observations.

*Roy Gretton*

## Recent astronomical images taken by NAS member, Bryan Lilley



Jupiter with Great Red Spot,  
shadow of Ganymede and  
Callisto in transit.  
15.11.13 0320UT.  
8in.SCT,2x barlow,webcam-  
773 frames stacked using  
Registax 5.



Comet C/2013 R1 Lovejoy, m4.8 at 44deg.elev.ENE 30.11.13 0538UT. Nucleus 3deg.10' from gamma Bootis.  
Elongation approx.70deg from Sun. Stack of 13x5sec.exposures with Pentax K30,135mm lens f4 ISO 3200 on  
fixed tripod. Processed in DeepSky Stacker and Photoshop CS3

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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.

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## ADVERTISEMENT

### FOR SALE

10 x 50 Helios binoculars with soft case (with strap)	£20
Moon filter, 25% transmission, 1¼ inch fitting (boxed)	£10
Celestron lens pen	£1
Micro-fibre cleaning cloth	£1

For any of the above, please contact Sam Boote at [s.boote@bcs.org](mailto:s.boote@bcs.org) or at Society meetings.

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# 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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## **ORDINARY COMMITTEE MEMBERS:**

**Kevin Greally**

**David Anderson**

**Phil Heesom**

**Jackie Sutton**

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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 2014**

Full	£25
Concessions	£12.50
Joint rate for partners living at the same address	£37.50

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  
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## ***Membership application and Gift Aid declaration***

**Title:**

**Full name:**

**Full home address:**

**Postcode:**

**Telephone:**

**e-mail address:**

<b>Subscription rate:</b>	Full	£25.00	(year)	£12.50	(half year)
	Concession	£12.50		£6.25	
	Partnership	£37.50		£18.75	

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:**

**Date:**