

# 2002



**NEXT MEETING**  
**THURSDAY, 17<sup>th</sup> April 2014**  
**THE ASTRONOMICAL SOCIETY OF HARINGEY**  
**VOLUME 42 : ISSUE 6 : April 2014**  
[www.ashastro.co.uk](http://www.ashastro.co.uk)

# SOCIETY NEWS

## MEETING VENUE

**Music Block, Ashmole School, Southgate, London N14 5RJ.**

The day for meetings is usually the third Thursday of each month. The exceptions are August, when we do not hold a meeting, and this now currently applies to the December Christmas Meet, though that may change back in the future?

However, in case of changes, it is always advisable to double-check the dates below.

## **IMPORTANT**

**Remember the change of meeting room.**

**See the next page**

For more on this, and general meeting information, also check the website:  
[www.ashastro.co.uk](http://www.ashastro.co.uk). Latest update March 2014

**Doors open - 7.30pm : Main speaker - 8.00pm : Finish - 10.00pm sharp!**

New or updated information is in *italics*

## **2014**

**Below are the currently scheduled dates for this year.**

**Confirmation as to which meetings will be held are due to be announced after the next Committee Meeting.**

April 17<sup>th</sup> : Jerry Stone : "Is Pluto A Planet?"

May 15<sup>th</sup> : *Mat Irvine : "Mat's Astro Tours – 2014"*

June 19<sup>th</sup> : TBA

July 17<sup>th</sup> : TBA

August : Summer Break

September : 18<sup>th</sup> : TBA

October 16<sup>th</sup> : AGM

November 20<sup>th</sup> : TBA

December : Probably no meeting this month

### **COVER:**

*How do you like your Solar System? 8 planets, 9 planets, any other number of planets? How about dwarf planets??*

*Regular ASH speaker, Jerry Stone will explain in this, the first time he had made this presentation, so we are getting a premiere, that you can probably have any number you like! Come along and decide for yourself.*

IMAGE : NASA-

## **SOCIETY NEWS** **MEETING ROOM**



We currently meet in the Main Music Block. This is the two-storey building, next to our original room, the now-demolished Music Room (marked with the X - see the photo on left.) The route in red is shown from the main gate of the School. We hope a first floor will be suitable for all, as there isn't a lift. If anyone feels they will have difficulty, please let the Chairman know. Contact details on back page.

### **MEETING PREVIEW : 17<sup>th</sup> April 2014** **Jerry Stone : "Is Pluto A Planet?"**

In 2006, following the discovery of various objects beyond Pluto - including one that was bigger than Pluto itself - there was much discussion as to which of these objects should be classed as planets and which were definitely not. The issue came to a head at the 2006 conference of the International Astronomical Union, who drew up a definition of a planet for the first time, and it appeared that Pluto no longer made the grade ...

*"Pluto Is No Longer A Planet!"* screamed the newspaper headlines, causing outcry around the world.

But were they right? "Is Pluto A Planet" looks in detail at this thorny question, covering the IAU definition of a planet and its unintended consequences.



Jerry can make a case for 13, 14 or even 21 planets in our Solar System, and also show why there are actually only 3... and that number does not include the Earth!!!

This is his most controversial presentation, and includes things that one astronomer has told him he should not be saying! Hear the case, and make your choice ...

### **MEETING REVIEW : 20<sup>th</sup> March 2014** **Observing Evening : Old Elizabethans Memorial Playing Fields**

This meeting was an unfortunate wash-out, though Jim has more to say on the subject in his Chairman's Quarters on the next page.

# CHAIRMAN'S QUARTERS



It was almost predictable, but the last observing meeting was a washout! Being British weather, it rained when you least needed it, but at least we had a backup plan of a 'virtual observing session' at the local pub.

Our weather does that, of course. It even happened to Patrick Moore on a classic live episode of The Sky at Night when it clouded over and made viewing impossible. It may come as a surprise to some that, in the English language, the word to determine our future actions is **whether**, which is not only a homophone of **weather**, but is reckoned to have a common origin. To my knowledge no other language carries this meteorological connection with the word?

Mediterranean countries have quite predictable weather – around summer there are almost always clear skies and wintertime is generally rough. Northern Europe also has a certain 'predictable variability'. Asian countries have 'strange' weather, but at fairly predictable times. The British Isles are in such a position that this level of 'predictability' is just not possible, hence our term 'whether'. Most other countries use a term akin to 'if'.

Weather is, among many things, a consequence of the fact that our planet is tilted just over 23° to the plane of its orbit around the Sun. This causes seasonal variations in the amount of sunlight the waters of the Earth receive and thus how much evaporates. These variations give rise to the winds and variability of rainfall amounts. The winds over the sea give rise to the waves in the seas and oceans. My friend, who hails from northern Greece, recently, asked me to take her to see the Ocean! Where she lives is near the edge of the Aegean Sea which is barely 500 miles across and doesn't pick up as much solar energy as an ocean does. I have been fortunate to have seen the Pacific Ocean close up from California and had felt the underlying power of the water crashing onto the shore but never really thought much about it until the request for 'the Ocean' arose. As I had been to Cornwall already, in the past, I decided we go to Wales – Aberystwyth (a bit closer too). Having seen the Mediterranean and Aegean Seas, as well, the contrast of the Atlantic Ocean was spectacular. Admittedly, just above Aberystwyth is the Irish Sea, but having 3 or 4 thousand miles of water behind the waves reaching the shore is breathtaking and exciting. The Mediterranean can have quite big waves but one does not feel the same power behind the water as it crashes onto the shore line.

Apart from just the waves, there are the tides. Watching the change from hour to hour is a reminder of the enormous volume of water affected by the gravitational pull of the Moon (and Sun)! With the lunar eclipse, on Monday, the tides will be higher than usual (Spring Tide) as the Sun and Moon are in line with each other thus adding their overall gravitational pull on the water. The same applies for New Moon. At quarter moon the gravitational fields of the Moon and Sun are at perpendicular to one another so the tides are lower than usual (Neap Tide). All this and the currents of water and air that flow all around the British Isles reminds us of why our weather is so remarkably unpredictable despite the fact that we have reasonably 'well defined' seasons. Having said that, British weather is generally quite tame (in terms of intensity, as opposed to quantity) compared to our neighbouring European countries. Some of the most intense weather conditions I have seen have been on the Continent – storms with unbelievable wind and rain often accompanied with extraordinary thunder and lightning, major snowfalls that lasted weeks and, of course, long heat-waves that have been debilitating. Despite the variability of our weather, this will not stop us from organising future planned or even 'off the cuff' observing sessions.

See you at the next meeting

*JIM*

# NEWS FROM SPACE

## THE BIG BANG



There has been extraordinary new evidence that supports the Big Bang Theory for the origin of the Universe.

Researchers using a telescope at the South Pole believe they have found the signal left in the sky by the super-rapid expansion of space that must have occurred just fractions of a second after everything came into being.

It takes the form of a distinctive twist in the oldest light detectable with telescope and has come from an American team working on the BICEP2 project. The aim has been to try to find a residual marker for 'inflation', the idea that the cosmos experienced an exponential growth spurt in its first trillionth, of a trillionth of a trillionth of a second.



## A DANGEROUS PAIR

Asteroid hits are well known on Earth, what is perhaps less well known is sometimes they come in twos.



Researchers have outlined some of the best evidence yet for a double space impact, where an asteroid and a smaller companion apparently struck Earth together.

Using tiny, plankton-like fossils, scientists have established that neighbouring craters in Sweden are the same age - 458 million years old, so created at the same time by separate objects

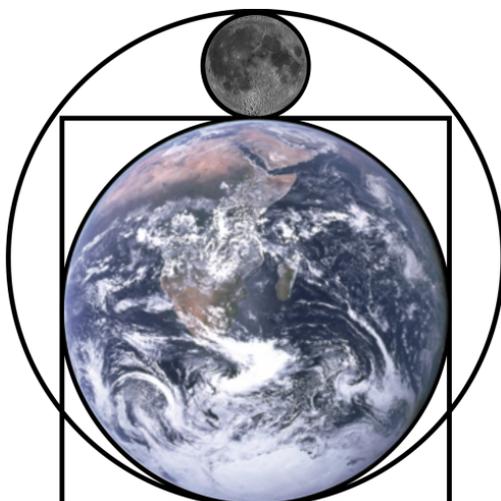
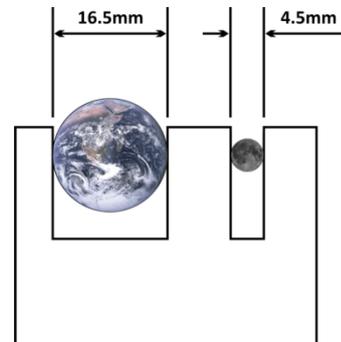
# A Matter of Scale

Dave Starling

*Some notes and diagrams to help novice astronomers to visualise scale; relative distances and motions of the Earth, Moon and Sun.*

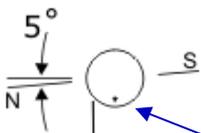
Most astronomy books do not have diagrams to scale. This is because the pages of the books are too small to contain them. This month I shall concentrate on the Earth - Moon system. The opposite page has two diagrams – the one on the left of the page should be viewed from the side. It shows the Earth on the right (top of the page) as 7.928mm in diameter to represent 7928 miles (12756km) and the Moon on the left (bottom of the page) as 2.16mm in diameter to represent 2160 miles (3476km). The distance between them is shown as 239mm, centre to centre, to represent 238905miles (384399km). The Moon is about 3/11 of the size of the Earth and its orbit is tilted at about 5° to the Earth's equator which itself is tilted by 23.5° to its orbit around the Sun. This is why the Moon is much higher in the sky in mid winter than it is in mid-summer. The other diagram shows the curve of the Earth's orbit (in orange) and the path the Moon takes as it follows the Earth, weaving in and out of its orbit over 1 lunar month. Note that the Moon's path is always concave towards the Sun so it effectively orbits the Sun!

If you cut a piece of card with two slots, as shown on the right, and hold it 516mm from the eye, the Moon will fit into the smaller slot. If you were to stand on the Moon, the Earth would fit in the larger slot. The template in this picture should be actual size.



As a point of interest, in the diagram on the left, the circumference of the larger circle is the same length as the perimeter of the square. The diameter of the circle within the square represents the diameter of the Earth relative to the diameter of the Moon which fits in the gap between the square and the larger circle. The proportions of these two circles match the actual diameters to within 99.9%!

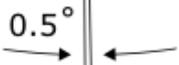
*The basic diagram is taken from 'Sacred Geometry' by Miranda Lundy.*



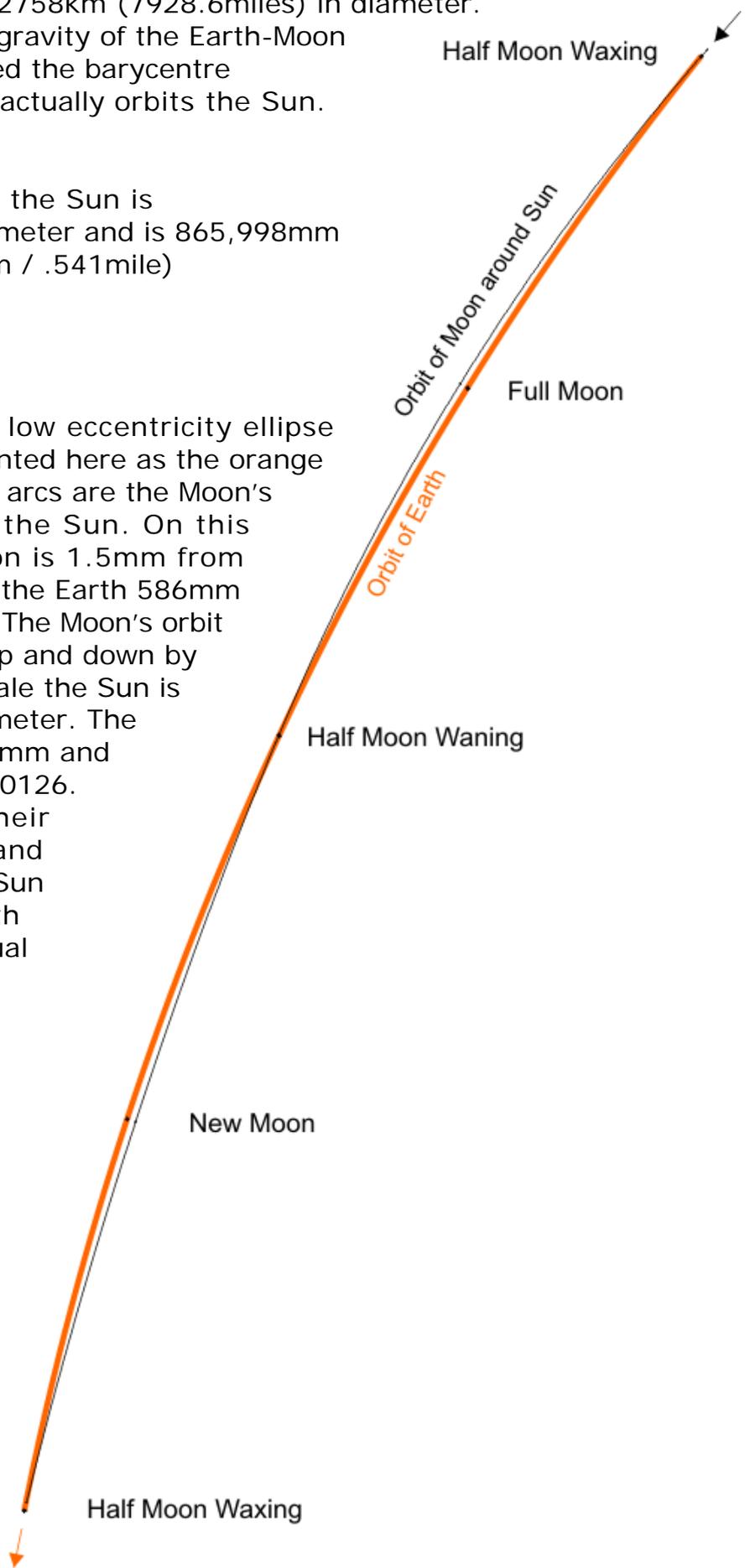
The Earth is 12758km (7928.6miles) in diameter.  
 The centre of gravity of the Earth-Moon system is called the barycentre which is what actually orbits the Sun.

On this scale, the Sun is 812mm in diameter and is 865,998mm away. (.866km / .541mile)

The orbit is a low eccentricity ellipse which represented here as the orange arc. The black arcs are the Moon's orbit around the Sun. On this scale the Moon is 1.5mm from the Earth and the Earth 586mm from the Sun. The Moon's orbit also weaves up and down by 5°. On this scale the Sun is 5.1mm in diameter. The Earth is 0.046mm and the Moon is 0.0126. Because of their relative size and distance, the Sun and Moon both subtend a visual angle of 0.5° i.e. 30' of arc.



Moon is 3,480km diameter



# THE NIGHT SKY : THE PLANETS

## April – May 2014

**MERCURY** : Will at superior conjunction on 26<sup>th</sup> April, and not visible for most of this period.

**VENUS** : Rising just before the onset of twilight, fairly low down in the skies. During this month Venus is lower in altitude, and has reduced slightly in magnitude, from -4.7 to -4.4, but that is still bright, so you would be hard pressed to miss it with a clear eastern horizon. During the month the planet is moving closer to the Sun and the magnitude will slightly drop to -4.2 whilst its angular diameter shrinks from 22 to 17 arc seconds. On the morning of the 26<sup>th</sup> April, Venus, at magnitude -4.1 will be around six degrees (12 Moon widths) to the right of a thin crescent waning Moon. The usual reminder has to be given if you are viewing at dawn, be very aware of the rising Sun, and especially avoid using any optical device.

**MARS** : Reached opposition on April 8<sup>th</sup> when the magnitude was -1.5 and its angular diameter 15.1 arc seconds. Rises around mid-evening in Virgo, near to the bright star Spica and increasing in magnitude, as the month progresses, from about +0.2 to -0.5. With modest magnification and good seeing it is possible to see markings on its reddish surface, such as the Syrtis Major and the polar regions. The North Pole is currently tilted towards us. On the 21<sup>st</sup> April, (Easter Monday) Mars will be at its closest to the Earth, and very thin crescent Moon will be 3 degrees to the south. On 11<sup>th</sup> May, Moon to the south.

**JUPITER** : The giant planet has dimmed slightly, but not by much. Magnitude reduces to around -2.0 during the month, but that is still bright. Jupiter is lying in the constellation Gemini and is now moving west, away from the star Mebsuta / Epsilon Geminorum. As we've discussed over the previous months, a small telescope will pick out the four Galilean moons and also the Great Red Spot visible as an indentation of the South Equatorial belt. Moon to the south on 6<sup>th</sup> April and 4<sup>th</sup> May.

**SATURN** : Rising at about 22:30 (BST), moving earlier as the month progresses. Moving slowly westwards in Libra, at around magnitude +0.1. Its disk has a diameter of 18.2, increasing to 18.6, arc seconds. For those in the northern hemisphere, Saturn is now lying in the more southerly part of the ecliptic so, even when due south, does not get that high in the sky. This situation will not improve for the next few years. Moon to the south on 17<sup>th</sup> April. Saturn is at opposition on 10<sup>th</sup> May.

**URANUS** : Was in conjunction with the Sun on 2<sup>nd</sup> April. Moon to the north on 27<sup>th</sup> April. Venus to the south on 15<sup>th</sup> May.

**NEPTUNE** : Moon to the north on 24<sup>th</sup> April.

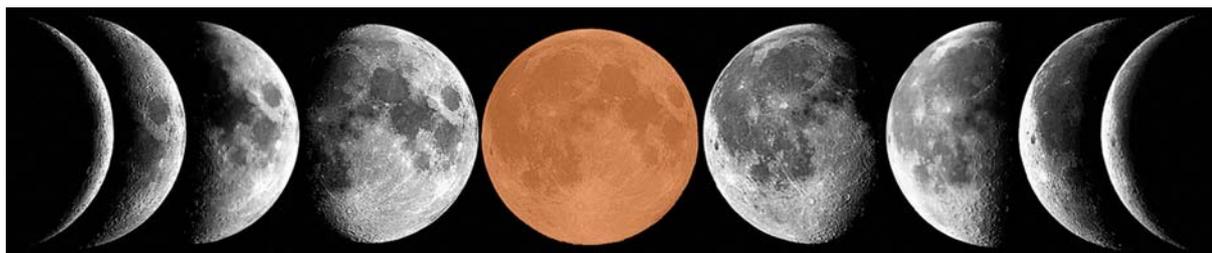
## METEORS

Lyrids meteor shower maximum on 22<sup>nd</sup> April. Eta Aquarids maximum over 5<sup>th</sup> – 6<sup>th</sup> May

## THE MOON

15<sup>th</sup> April : Total Lunar Eclipse – though only partially visible in the UK.

29<sup>th</sup> April : Annular Solar Eclipse, visible in Southern Hemisphere



New 30<sup>th</sup>  
New 29<sup>th</sup>

First 7<sup>th</sup> April  
First 7<sup>th</sup> May

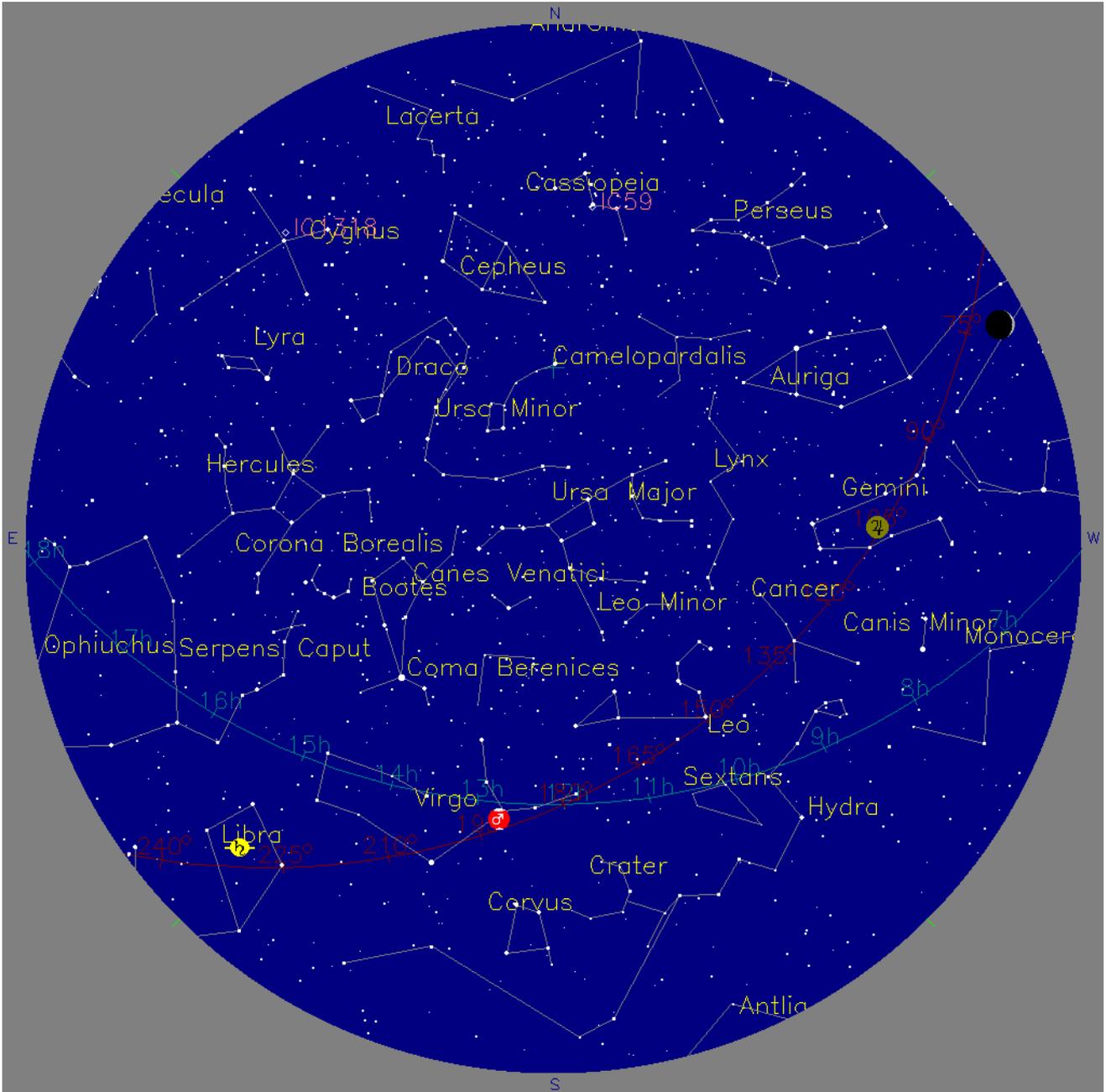
Full 15<sup>th</sup>  
Full 14<sup>th</sup>

Last 22<sup>nd</sup>  
Last 21<sup>st</sup>

New 29<sup>th</sup>  
New 28<sup>th</sup>

# THE NIGHT SKY : MAP

1<sup>st</sup> May 2014 : 22.00hrs BST / 21.000hrs GMT/ UTC



KEY	
 <b>MERCURY</b>	 <b>SATURN</b>
 <b>VENUS</b>	 <b>URANUS</b>
 <b>MARS</b>	 <b>NEPTUNE</b>
 <b>JUPITER</b>	 <b>PLUTO</b>



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