2002

NEXT MEETING
THURSDAY, 21st June 2012

THE ASTRONOMICAL SOCIETY OF HARINGEY
VOLUME 40 : ISSUE 8 : JUNE 2012
www.ashastro.co.uk

SOCIETY NEWS

MEETING VENUE :
Ashmole School, Southgate, London N14 5RJ.

The day for all meetings is usually the third Thursday of each month. The exceptions are August, when currently we do not hold a meeting, and December, when the Christmas Meet has always traditionally been held during the second week. However, in case of changes – and there have been a few over the last year or so – it is always advisable to double-check the dates below.

NOTE - as below - the Meeting information is also on the *NEW* website: www.ashastro.co.uk – updated from May

Doors open - 7.30pm : Main speaker - 8.00pm : Finish - 10.00pm sharp!
New or updated information is in *italics*

2012

June 21st : Jerry Stone : The Day They Launched a Woodpecker – Part 2

July 19th : Nik Szymanek : "Photographing the Night Sky"
August – Summer Break
September 20th *:* Bo Maxwell : "The Latest on Mars"
October 18th : AGM and Small Talk
November 15th - TBA
December 13th – Christmas Meet and Guiz VIII

WEB SITE - UPDATES

Currently we still have TWO ASH websites running, in some form or another. The original is still under www.ashastro.org (*not* .org.uk), but this is now *not* being updated. The new version is under www.ashastro.co.uk. Note three of the links - to Meetings, Magazine and About - are now active. The Meetings link is now updated with the majority of 2012's calendar, and dates for 2013, while the Magazine link has some back issues there, including previous months. These will be added to when time allows!

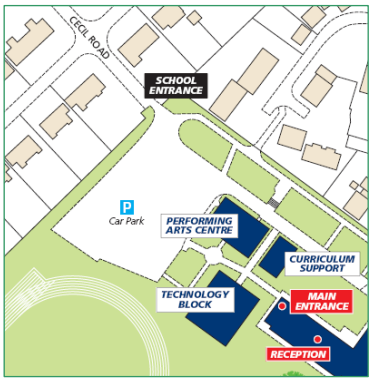
We may eventually decide to move back to the URL, <.org.uk>, (which is still available), or may stay with <.co.uk.> However whichever is decided, what you put into your web browser, will 'point' to whatever is correct.

Note that the original direct ASH emails are now working *Ed*

COVER:
The two major, and rare, astronomical events over the last month. Left, the annular solar eclipse of 21st May (UT) and, right, the second of this century's pair of Transits of Venus, on the morning of 6th June. Venus is just discernable at 1o'clock near the Sun's limb.
The background photograph is the sky after the Sun had set on 20th (local MDT), after the eclipse over Arizona.

Photos - Mat

SOCIETY NEWS



We meet in the Drama Room at Ashmole School, (previously the Curriculum Support Building - still noted as such in the map). This is the low building, (right), just past the Performing Arts Centre.

MEETING PREVIEW :

June 21st : Jerry Stone : "The Day They Launched a Woodpecker – Part 2"

Welcome back to Jerry Stone with Part 2 of his talk with the strange name… For those who didn't hear Part 1, amongst Jerry's wide range of interests is collecting odd facts about the space race – and the 'odder' the better.

Come along to the next meeting to find out what he's dug up this time in his catalogue of cosmic curiosities…!

MEETING REVIEW :

May 17th : Roger O'Brien : "All Bodes Well"

Roger gave the Society his second talk this year – and for this time he decided to take that mystery of the Solar System – Bode's Law. For a start it shouldn't really be 'Bode's Law', it should be 'Titius' Law' as it was first suggested by Johann Titius in a footnote he'd added in his

1766 translation of another book. But Johann Bode (right) expanded on it, and hence it tends to be generally be known by his name.

Basically it boils down to take the standard increment of numbers 1, 2, 4, 8, 16, 32. Multiply each by three and add four – simples - and you end up a progressive series of numbers that seem to fit the positions of the planets on the Solar System – well, nearly. Using this system you get the numbers 4, 7, 10, 16, 28, 52, 100. Taking Earth as 10 'Bodes', Mercury is 3.9, Venus, 7.2, Mars 15.2, Jupiter 52, and Saturn 100. Then Uranus was discovered at '192 Bodes', which is pretty close to the actual Bode number of 196. So it was fitting in rather nicely. Admittedly '28' was still missing, but, hey, you can't have everything… Eventually of course Ceres and the Asteroid Belt were found that did fill the '28 gap', though it didn't quite fit, mass-wise, but better not to ask too many questions. But then Neptune came along – well discovered, it was already there – and that didn't fit at all!

Actually the discovery of Neptune turned into a bit of a farce. Both Urbain le Verrier and John Couch Adams calculated where this 'new planet' would be – and asked around for someone to look for it. No-one was interested, they obviously had far better things to do; although when someone finally got around to it, it took less an hour to identify this new planet. In more recent years when Pluto was discovered in 1930- it was found Pluto fits Bode's Law where Neptune 'should' be – so maybe Bode Law's doesn't quite work as was hoped? Overall it appears more of a mathematical curiosity than anything. Maybe Titius (above) knew something all that time ago – and opted out...

CHAIRMAN'S QUARTERS

Much of what we do today appears to be based on an abstract world of equations. The ancient Babylonians and Greeks knew about equations, however, they wrote them using words and pictures. The pictures, particularly, were "real things" that they could directly relate to - pictograms. These could also be used to represent an understanding of a concept as opposed to just an evaluation of a quantity. "Ourobouros" is an interesting example. It is the image of a snake doing something most extraordinary – biting its tail thus forming a circle! I'll return to this later. Classical Greek mathematicians used drawings to represent geometrical properties. One such example is Pythagoras's representation of a specific right triangle with the sides represented by squares 3, 4 and 5 units in length. There are, of course, limitations to the ability to enumerate easily with pictograms but it did show a grasp of the underlying concepts where "proof" was not a prerequisite. This limitation was especially prevalent with Ptolemy who took ideas of "perfection" to the point where the underlying knowledge was ultimately overlooked (the heliocentric Solar System was actually quite a prevalent idea at the time!) and his models were (reluctantly?) taken as truth.

500 or 600 years ago mathematicians started to use more abstract symbols but there was a crucial one missing: this was the equals sign. It was actually invented by one Robert Recorde, who in 1557 wrote in his treatise *The Whetstone of Witte*: "*To avoide the tediouse repetition of these woordes: is equalle to: I will sette as I doe often in woorke use, a paire of paralleles, or gemowe lines of one lengthe: bicause noe .2. thynges, can be moare equalle.*" That was the start of the equation as we know it today. We could now put symbols on the left of the = sign and propose them as being equal to symbols on the right.

Some equations present logical relations between mathematical quantities, and the task of mathematicians is to prove they are valid. These are equations in pure mathematics that reveal patterns and regularities in mathematics itself. Others provide information about an unknown quantity whereupon the task is to solve the equation and make the unknown known ie problem solving. In the previously mentioned Pythagoras's example, the pictogram could now be expressed in the language of geometry as $a^2 + b^2 = c^2$. If a = 3 and b = 4 then c = 5 as he 'graphically' illustrated. Given Euclid's basic geometric assumptions of planes being flat, Pythagoras's theorem is shown to be true.

Equations in applied mathematics and physics are usually of the problem solving kind. For example, Newton's law of gravity uses abstract symbols to help us calculate the attractive force between two bodies. Solving the resulting equations tells us how planets orbit the Sun or how to plot a trajectory for a space probe. But Newton's law isn't a mathematical theorem - Einstein's general relativity is required to refine Newton's work. However, Einstein did something profound with his simple $E = mc^2$ equation. He showed with mathematical symbols the relationship between matter and energy and gave us the ability to enumerate it. It is interesting to note that there are suggestions that Ourobouros was a means of ancient people to illustrate their understanding of this matter / energy relationship – the serpent moving in a wavelike motion (light / energy) biting its tail to form a circle with a fixed position in space (matter). Today complex and often abstract equations are used to describe an enormous range of things and activities that we indulge in and attempt to explain the world around us. Hopefully these equations will not start falling into the same trap that Ptolemy fell into.

See you at the next meeting *Jim*

SKY VIEWS

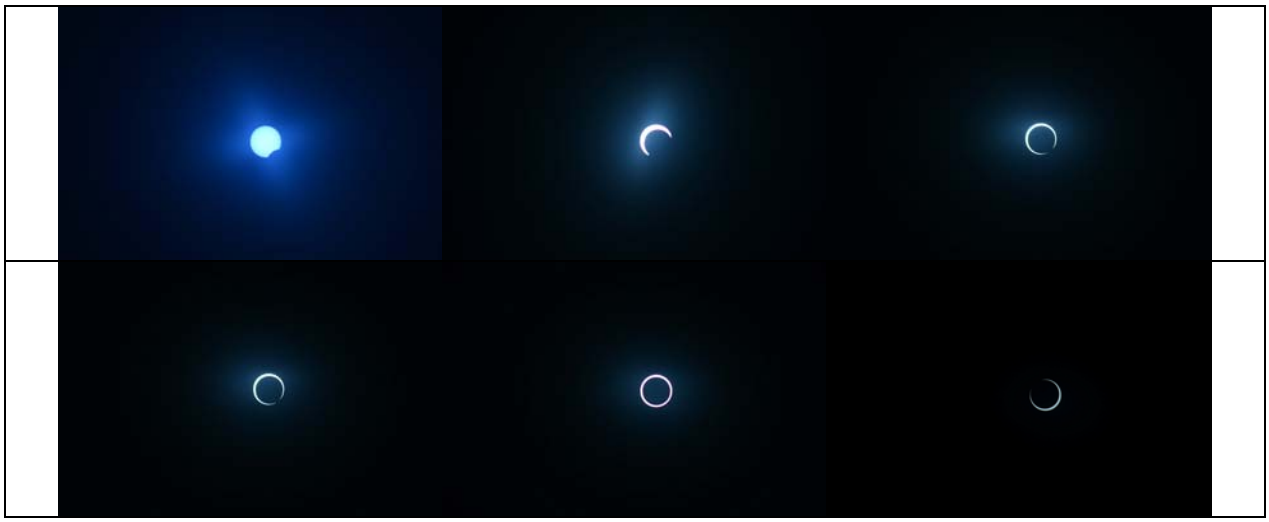
Featuring an ECLIPSE and a TRANSIT

As reported in the last issue, and reasonably widely in the general press, there were two important, and rare, astronomical events associated with the Sun over the last month – and your Editor managed to view them both. (Though to be totally accurate, the transit – only just…)

In order, the annular eclipse of the Sun came first, on Monday 21st May UT, although where I was, it was still Sunday 20th as I was in Arizona! This eclipse had started over Hong Kong, travelled over parts of Japan, the Pacific, and will end, (as by then the Sun has set, over western Texas. Before this it was passing over south Oregon, north California; Nevada and into Arizona – and as we have relatives in Phoenix, it seemed a good place to base ourselves. We actually arrived on the 17th so to get ourselves acclimatised (it was about 105F), and sort out where to travel to? Admittedly as long as you are on the eclipse path, anywhere will do, but for the sake of travelling actually *to* somewhere, given that a lot of other people were likely to as well, we decided on the

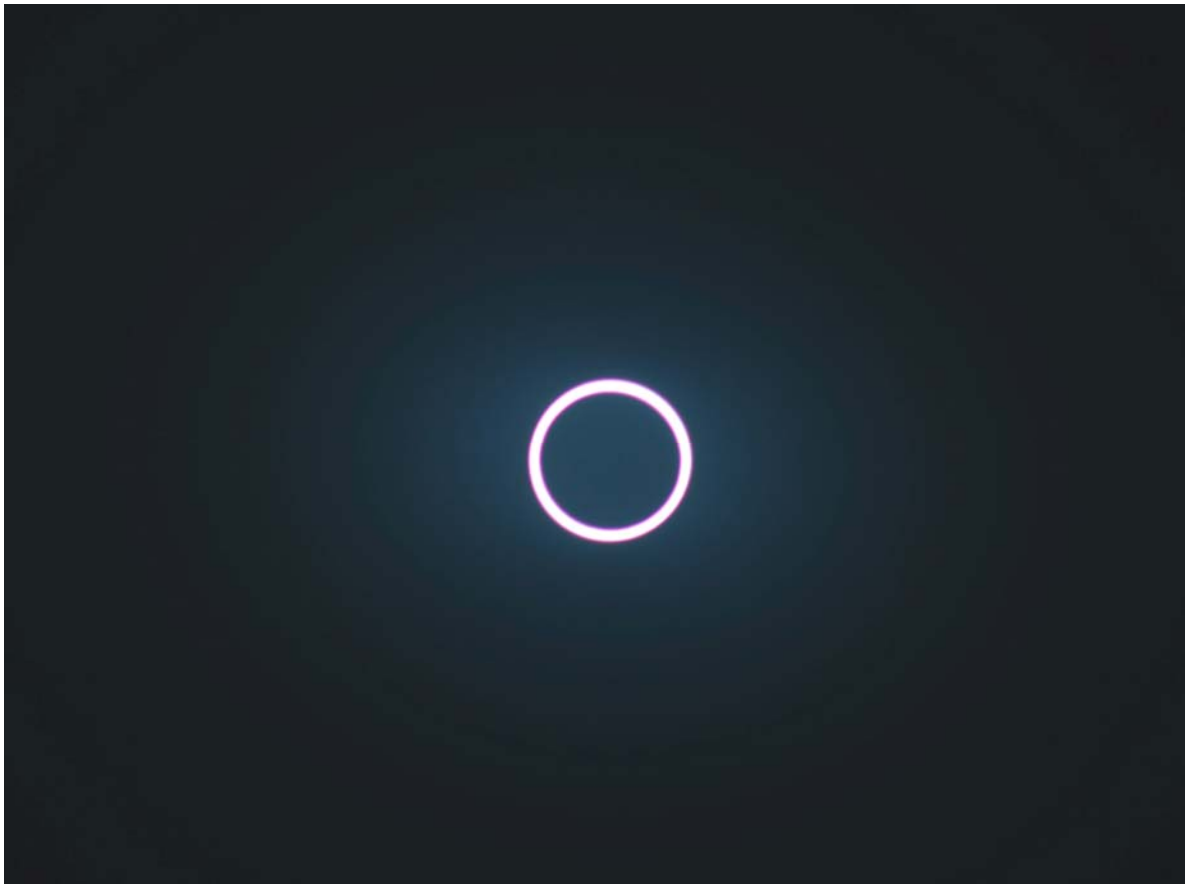
Town of Page, which is virtually on the border with Utah, and bang on the centre-line of the eclipse. A web search had revealed that the local astronomical society were setting up a viewing site on a mesa overlooking the local dam, and lake, but with the warning that the site, “would fill up rapidly” Still we headed for that, and although yes it was indeed ‘full’, we were allowed a quick look at the general view. But again it doesn’t really matter where you are, as long as there is a clear view of the horizon – or at least

where the Sun will be when the Moon passes in front, it didn't matter exactly where you were standing. So we headed into the town itself, primarily to get something to eat, and on the way passed a small car-park occupied at that moment by one car, one man and one dog. I assume the man was waiting for the event – a nod in the direct of the Sun confirmed this - though I can't say for the dog? So we went and ate, and came back about an hour later and with still well over an hour to go before the start. By that time the small car park and surround area of desert were packed, but not so much that a convenient parking place couldn't be found, where I could park and set up the somewhat meagre equipment I had bought, (given it all has to fly!). This included my small 2" refractor with its home-made projection table that I'd originally built for the total in Turkey in 2006. Add a small miniDV video camera and my two "35mm" digital Nikons, and we were set.



Though the skies in Arizona – and anywhere in the southwest - are almost certainly going to be cloud-free, it's not an absolute – but fortunately it did stay clear and as we approached the time for C1, about 17.25 local, there came a general hubbub from surrounding observers, so someone had spotted First Contact. Then it was another

hour or so for the 'main event – C2 to C3, which overall lasted – by consulting the time code in the camera - about 4 minutes 30. Then of course there would be another hour until C4. Most didn't stay, and although I had for the total in Turkey, I didn't this time. However just in front of where I'd set up were three guys, and being at an event we all obviously had something in common – the event - one gets talking. This was aided as at one point one of them went to his RV and came back with a betacam video camera. Given you can shoot video on your phone these days, this guy had to be professional,



so I commented as such, mentioning I was – used to be – BBC, and it turned out he was a stringer (freelance) cameraman from LA. So when we were packing up – and they were remaining for C4, we said our goodbyes, “Nice to meet you, though we’ll never meet again…” sort of thing, when one of the other guys asked what I used to do at the BBC? I said (as I invariably do) “special effects” (as it usually means more than “visual effects”, which was the actual title), However the guy said, “You mean visual effects?”, so he’d obviously heard of us. He then said – and remember I had travelled about 3500 miles, he’d travelled several hundred from LA to one small spot on the North American continent - “Do you know a guy called Ron Thornton?” to which I replied “Yes, he used to be an assistant of mine..” to which he replied, “And I used to work for him…” A small world….

Back in the UK, the up-and-coming Transit of Venus did not bode well. After a period of warmth and sunshine at the end of May, the weather had turned into what is becoming the norm for the British Summer – cold and wet, with accompanying overcast skies, (er, as above). Given that the Transit was also only visible for the last

hour or so, and that was at sunrise, none of this seemed as if it was going to work for anyone. But – as one does – I got up at the un-godly hour of 04.00 or so – the Sun rose about 04.45 from my latitude – put on some warm clothes, grabbed a cup of coffee and wandered outside to gaze in the direction of the rising Sun. Its position was given away slightly by a vague glow in the sky through a thick bank of clouds, but any sign of a disc – nope. After wondering if it was really worth staying up, thinking of going back to bed, and occasionally glancing through my camera, with appropriate solar filter of course, suddenly a vague sign of a disc appeared. Then it was press the shutter when I could – you never know. And it was worth it as about three of the images did show the tiny dot that was Venus as it was approaching the limb of the Sun.

This was nothing like as good as the first of this pair – the one in 2004, when the Sun was high in the sky and the sky was clear and we got the whole transit. But I did – admittedly just - see this one, so it counts, so I can say I have seen both – particularly as I'm unlikely (very) to see the next pair!

And Finally :

Actually of course these were the same type of astronomical event. Although we always term the Moon passing in front of the Sun as 'eclipse' because of the pure coincidence that in the sky it appears almost the same size; it too is also a 'transit'- albeit somewhat 'larger' than that exhibited by Venus.

Photo info – Page 6 – top left: the mesa from the road near Page, where the local astronomical society had set up base. Right: just some of the many telescopes available to the general public. Page 6 bottom – left: the site where your Editor set up, just outside the main Town of Page. His rental car is the Chevy Captiva nearest to camera; right: your Editor having a well-earned sit down.
Page 7 top: a sequence of the actual eclipse; bottom: left, the TV guys from LA; right, the 2" refractor used as a projection 'scope.
Page 8 : the centre of the eclipse – perhaps not quite as impressive as a total, but still spectacular.
This page : the transit - Venus is just about visible at around 1 o'clock.

The Night Sky : June – July 2012

THE PLANETS

MERCURY : Was at superior conjunction on 27th May. At greatest elongation east, 1st July. Moon close on 21st and 22nd June, low down in the west after sunset.

VENUS : After the transit of the Sun on 6th June, Venus is in the morning skies. On 15th July Venus bright at magnitude -4.5, and will be in Taurus, near to the Hyades star cluster. The Moon and Jupiter (mag -2.1) will also be close by, as will Aldebaran (mag 0.8) that should also be identifiable by its red colour. Unfortunately all this will be relatively low down in the skies, around 14 degrees elevation. And **WARNINGS** should be given to be very well aware of the rising Sun and to avoid any possible viewing - especially with an optical instrument. See also JUPITER

Right: both 'transit' objects in between their starring roles – the two day old crescent Moon and Venus. This was two days after the annular eclipse, ie 22nd May,(local time), taken from northern Phoenix, AZ.

EARTH : Summer Solstice – 21st June

MARS : In Virgo around magnitude -1.2, Not that bright but the reddish colour is apparent.

JUPITER : Was in conjunction with the Sun on 13th May, and now in the morning skies. There will be an occultation by the young crescent Moon on 15th July, early in the morning – starting at 02.55 and emerging again at 03.06. The Galileans also are occulted, so anyone with even a small telescope should get some interesting views. This event however is only visible from the south and southeast of the UK, which means the London area will be OK – assuming you want to get up (or stay up) that early (late). The 15th morning is also good for the conjunction with Venus – See also VENUS.

SATURN : In the evening skies and with Mars, in Virgo, magnitude 0.4. The rings are still opened up. Moon close on 28th June.

URANUS : Moon close on 10th July.

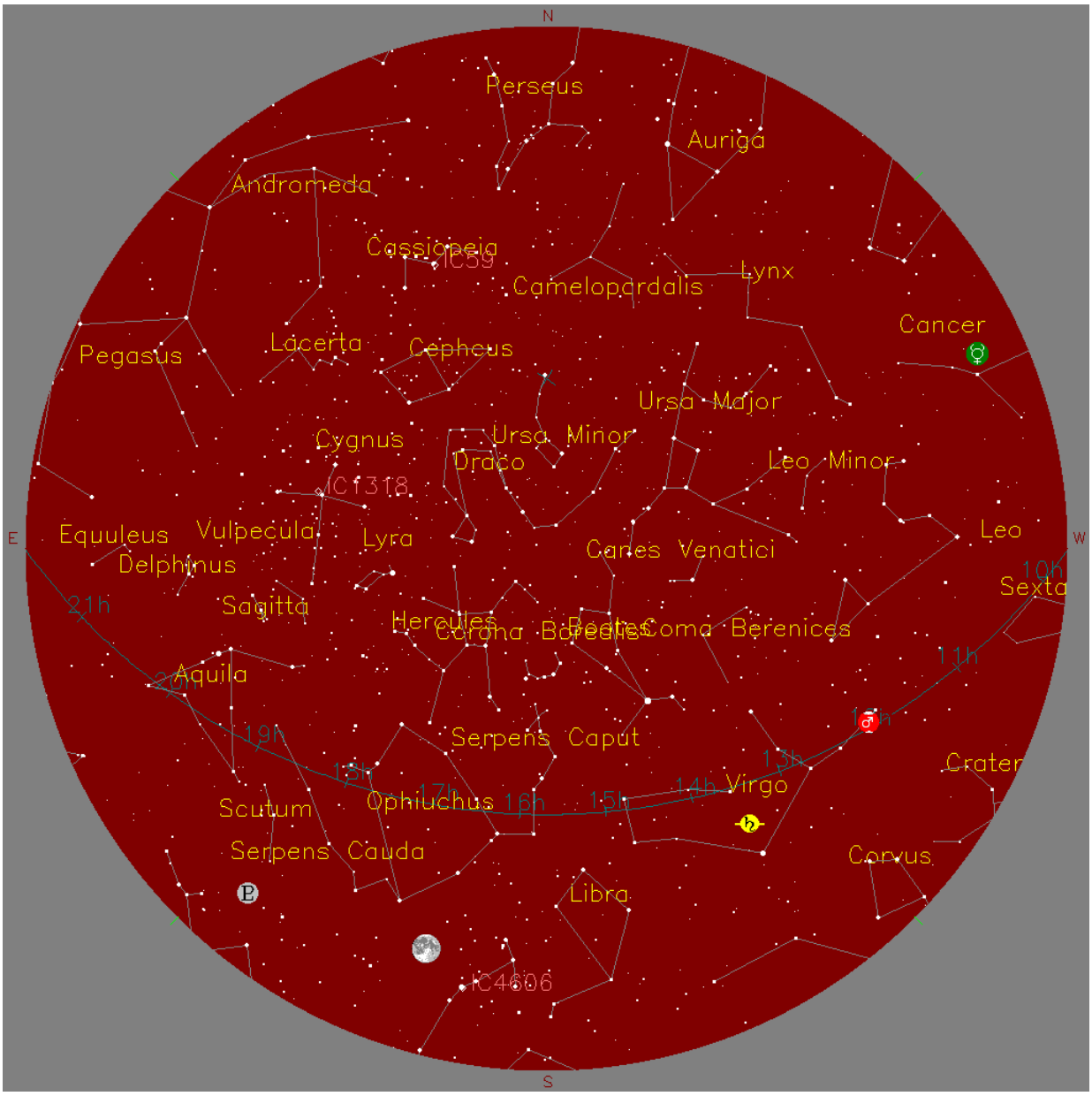
NEPTUNE : Moon close on 7th July

THE MOON

NEW 19th June FIRST 27th FULL 3rd July LAST 11th NEW 26th

THE NIGHT SKY : June – July 2012

As of 1st July 2012, 21:00:00 BST



KEY	
MERCURY	SATURN
VENUS	URANUS
MARS	NEPTUNE
JUPITER	PLUTO

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NEXT MEETING
THURSDAY 21st June 2012

THE NEW 'SITE - UNDER BETA TEST : www.ashastro.co.uk
***Note* there are now 'ASH' email addresses – as above**
General queries to <info@ashastro.co.uk>
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