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NEXT MEETING

THURSDAY, 21st January 2016

THE ASTRONOMICAL SOCIETY OF HARINGEY

VOLUME 44 : ISSUE 2-3 : December 2015 - January 2016

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 July and December meetings, though that may alter in the future.

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

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

For more on this, and general meeting information, also check the website:
www.ashastro.co.uk. Latest update: January 2016.



OBSERVING EVENINGS

Regarding any changes to Observing Evening meetings, this is a continuing message to let Observing Officers Jim Webb, Alister Innes or Kyri Voskou know your mobile phone number. And, if not already on the list, your email address - emailed to observing@ashastro.co.uk - reaches all three. The Facebook page will now also be used.

2016

January 21st : Mat Irvine : “Britain in Space – at last”

February 18th : TBA

March 17th : Mike Goldsmith : “New Horizons to Pluto”

April 21st :

May 19th :

June 16th :

July : no meeting this month

August : no meeting this month

September 15th :

October – 20th : AGM

November -17th :

December : no meeting this month

COVER

Britain's first 'official ESA astronaut', launched on December 15th at 11.03 UTC (GMT) from the Baikonur Cosmodrome on board Soyuz TMA-19M. One month later he performed the first 'official spacewalk' by a British citizen, with American colleague, Tim Kopra. This all went basically to plan, but was curtailed due to a malfunction in the water system in Tim Kopra's suit.

And if you are still wondering about all those 'official' labels – come to the meeting to have it all explained!

Photo - ESA

SOCIETY NEWS



For up-to-date information, we are using that 'necessary evil' - Facebook. Note as this is an Open Group you do not have to be a member of Facebook to read posts and messages, you just need some form of Internet access.

Go to : www.facebook.com/groups/ASHastro/

However if you want to 'interact' (ie post messages), you have firstly to join Facebook, then, on the ASH Facebook page, ask to join our Group, and you will get 'signed up'.

The more the merrier!

MEETING ROOM



We currently meet on the first floor of the Main Music Block at the School. This is the two-storey building, next to our original room, the original Music Room. This is marked with the X in the photo on left, (and although it is demolished, and the site has been redeveloped with a new structure). 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

21st January 2016 : Mat Irvine : "Britain in Space - at last"

Sorry, you have your Editor again for this month's meeting, this time on "Britain in Space – at last". This of course isn't quite correct, the UK was the third nation to have a satellite launched, and was sixth to launch its own satellite with its own rocket. Since then we've built satellites a plenty and contributed vastly in astronomical and space research. But UK Governments (of both colours) never thought it important to have our own astronaut corps. It reminded me somewhat of the comment supposedly made when the telephone was invented (by let us not forget by a Scotsman) that a government spokesman said "*We have no need for such a device – we have plenty of telegraph boys...*"!! Here it was likened to "*We have no need for a home-grown astronaut, it can all be done by remote observations...*" And presumably all those foreign astronauts and cosmonauts already up there!

But thankfully views changed six years ago and although we still don't have an Astronaut Corp per se - as I'm not sure a 'Corps' can be formed from just one? – but we do have that 'one' in the form of Major Tim Peake.

On the assumption everyone will have followed the story in the media, you will know that the spacewalk performed by 'the two Tims' last week was in one way a resounding success, but was ended early due to a fault in Tim Kopra's spacesuit. Both astronauts re-entered the ISS safely, but it does leave solving exactly what occurred with the spacesuit, as it has happened before. More on the story at the meeting, and how it was covered during Stargazing Live

But back to the top '- at last' Tim is certainly the first 'official British ESA astronaut' in space – but just how many can be termed 'British' who have flown in space? Questions – and answers - at the meeting!

Mat Irvine

CHAIRMAN'S QUARTERS



With the Force Awakening, things have gone very extra-terrestrial again. The original Star Wars film, (retro-named 'A New Hope'), was a defining moment in SF movies. Until then, the general theme of this genre was Earth vs aliens or alien forces. There were notable exceptions, like *2001 – A Space Odyssey* and *Silent Running*, but essentially all the films were Earth-based. Star Wars broke that mould – it was set in a galaxy far-far away where Earth wasn't even worth mentioning (or even known about) and we had to accept technologies, settings and mind-sets that had little to do with anything of which we are generally used to. This, coupled with excellent visual effects and music with not a bad plot or acting, has set Star Wars and its sequels in a place of their own. Intriguingly, subsequent SF movies have still remained Earth-based or referenced! So, assuming you have enough midichlorians inside and the Force is with you, aliens are the norm.

But what about 'proper aliens', the ones we are constantly seeking out in our neck of the woods? We are told they have visited, abducted us, have been living among us or even just hanging around waiting to pounce on us. The SETI (Search for Extra-Terrestrial Intelligence) program is constantly sending out, "Is there anybody there?" messages and listening for replies or other incoming 'intelligently created' signals. It has been said that they could be better employed seeking intelligence on this planet but that's another story! What would happen if we had a true 'Close Encounter of the Third Kind' – actual physical contact?

There are some scientists and experts who insist that humans are so ignorant about the Cosmos that any encounter with aliens would be a disaster. Can we ever be ready for change? What does it take to be fully prepared for leaving home, marriage, a baby, or a job? Does intelligence really have anything to do with it? It is claimed that a lot of clever people are seriously dippy loons when confronted with many of life's essential basics. The concern is that projects such as SETI might spell doom for all of us. It has been said, "Who are these people to be doing this on behalf of all humanity, don't they realize how stupid we are?" The primary fear is the motives of Beings that must, by definition, be substantially more technologically advanced than us to be able to get here from whatever vast distance they may have travelled. To us, such a being would be no different from a god. Given our recent history (even over a mere 4,000 years), we have done a lot of pillaging and conquering in the name of whatever cause. By the same token an alien visitor may very well have exactly the same motives and be just here to conquer. However, if we assume more intellectually advanced beings, whose motives are benevolent, we then introduce another dilemma.

How will a suspicion riddled and nationalistically driven bunch of 'world leaders' welcome such a visitation? There would be endless squabbles as to who has the 'rights' to any alien advanced technology that would automatically give its possessor a military (and any other) advantage over its neighbours - and enemies. A truly advanced alien would, no doubt, understand this (possibly through having evolved out of a similar quagmire that we are in today) and merely send either undetectable probes here or just watch from a 'safe distance' to see what kind of species we are. Based on whatever information they might collect, they would then decide whether their visiting us would have any detrimental effects on us. Imagine the observation, "These people eat out of paper bags? Ugh!"

Our actual knowledge of what might be out there is so truly minimal as to be laughable. We never stop to think deeply enough about what sort of consciousness other beings might have. What if, in fact, they're all even less intelligent than us? It's hard to imagine, but surely possible? Technological advancement doesn't necessarily mean higher intelligence. And how, honestly, can we prepare for either eventuality? If they are far smarter, though, how can we ever truly catch up when our fascinations are gripped more by stories of who's kissing whom and who's dissing whom, rather than more global concerns?

See you at the next meeting

JIM

A Man who had been to the Moon

Michael Morris Franks

When Neil Armstrong died, I realised that though I had visited the Kennedy Space Center twice and met an astronaut who had flown on the Space Shuttle, I had never met in the flesh an astronaut who had flown to another celestial body and seen the Moon close up with his own eyes.

As soon as I heard that Al Worden, the Apollo 15 Command Module pilot, would be speaking one evening in Oxford, I knew I had to make the effort to hear him.



The ballroom at the Randolph Hotel was full and there was an amazing large scale model of an Apollo Command and Service Module (CSM) docked to a Lunar Module (LM) with its legs extended and locked for landing. Then Al Worden walked into the room. He was a tall white-haired gentleman with a warm American voice, and you could see he was former Air Force from the way he carried himself. He explained he was delighted to be in England as he had good memories of the time when he was a test pilot at Farnborough. He said that in those days there was no instrumentation automatically recording the test flights. Every measurement had to be made by the pilot with hand-held instruments. The pilots had to really understand what they were doing and Al felt this experience had helped the success of the Apollo 15 flight all those years later.

Al gave us a brief history of the US space program. He showed us a picture of the first US primate in space: Ham the chimpanzee, who had been able to operate a machine which fed him banana pellets thereby proving that you could work and eat in space. There followed a shot of Alan Shepard, who made the first sub-orbital hop; and then one showing John Glenn who made the first orbital flight. Al observed that as John Glenn had become a US Senator he had been able to call in some political favours to obtain a second flight aboard into space the Space Shuttle at the age of 77.

Al took us through the rest of the Mercury and Gemini programmes and talked about the near disaster of Gemini 8 when Neil Armstrong's piloting skills prevented the loss of the spacecraft. With an astronaut's eye he pointed out the differences between the Mercury and Gemini capsules. The Mercury capsule had an escape rocket on top so if there was a problem on the launch pad the astronaut could be blasted clear in the capsule. The Gemini capsule had no Launch Escape System tower; the astronauts would have to rely on ejector seats which everyone thought would probably work!

He moved on to describe the Apollo programme and the Apollo 1 fire. He said that NASA had not realised that the atmosphere in the Apollo spacecraft which was pure oxygen at 16 pounds per square inch would be so flammable. NASA had not

appreciated that as the hatch door was inward opening, it would be impossible to open the door and to evacuate the crew before they were burnt to death.

There was a two year hiatus in the Apollo Program and Al worked on the modifications to the Command Module ensuring that the hatch door was outward opening and that the atmosphere was no longer pure oxygen.

Al explained how Apollo 8 was probably the most risky flight NASA ever flew as there was no LM on board and if the CSM malfunctioned there would be no ordinance to power the astronauts back to Earth. After the dress rehearsal of Apollo 10, Apollo 11 was a success although the landing was a little hairy as Neil Armstrong had to fly the LM to a manual landing with only the minimum fuel left. Charlie Duke, a future Apollo 16 astronaut, was Capcom in Mission Control talking to the astronauts while the Eagle was landing and expressed his relief by saying to Neil, *"We copy you on the ground. You got a bunch of guys about to turn blue. We're breathing again. Thanks a lot."*

Al was assigned to Apollo 15 extended J missions with a the landing site of fellow astronauts David Irwin he had to As they were pilots 'Falcon' and selected their mission patch. pastel colours was Pucci, an Italian had not been allowed on the mission patch craters which looked those on the centre right 'XV' on it. NASA did not approved the badge.



which was the first of the Lunar Rover to drive round Hadley Rille. With his R. Scott and James B. choose a mission logo. they called their LM three bird shapes for The final design in produced by Emilio clothing designer. They to use Roman numerals so they chose images of like an X and a V and put of the patch so there was a spot this (*can you? Ed*) and

As the CSM had a packed instrument bay and would be observing the Moon from orbit Al felt it was appropriate to named it Endeavour after Captain Cooke's ship, Endeavour, which was of the first scientific voyages of discovery. Al received special geological training to assist him in his mission. Working with the Egyptian-born NASA geologist, Farouk El-Baz he flew over areas in an airplane simulating the speed at which terrain would pass below him when he was in the CSM in Lunar orbit. He became quite adept at making geologic observations as objects passed below

Each astronaut had two spacesuits. One they wore for training and the mission and the second was kept clean for photo shoots. Each suit cost \$750,000 and they were produced by a manufacturer of women's undergarments, (*in fact a division of Playtex! – Ed*), as their seamstresses were the only people skilled enough to sew the suits

They approached the Moon backwards as they needed to fire their main engine to slow their craft down enough to be captured by the Moon's gravity so to put them in Lunar orbit.

Once they were in Lunar orbit they rested. They were due to make the landing at a longitude of 26 degrees north which was a higher altitude than the previous landings. All these had been in the equatorial region where the Moon is gravity field was well-known from spaceprobes orbiting the Moon. But this was a region where spacecraft had not flown before and there were uncertainties about the gravitational field.



They were meant to be orbiting at about 50,000 feet above the Lunar surface. Mount Hadley is approximately 16,000 feet high. When Al awoke he noticed that they appeared to be rather close to the Lunar surface. They then received an urgent message from Mission Control that they were probably at an altitude of 33,000 feet with a plus or minus of 9000 Hadley and a crash landing. As a result the preparations to separate the LM from the CSM were speeded up as it appeared the orbit was declining. By chance Apollo 15 happened to be orbiting over two of the most intense gravitational anomalies on the Moon.

Once the LM with its two man crew had separated from the CSM, Al was left alone. He didn't mind this. He had a full programme of observations to make. He was happy on his own as there was lots more room He felt that the

two astronauts on the Lunar surface were playing around in the dirt with a jeep which was an infantry role whereas he was a true pilot observing the Moon from close orbit. He worked a 20 hour day but was not tired because of the low gravity environment.

Once his fellow crew members had returned Al had his moment of glory when he got into his spacesuit and exited the Command Module to carry out a spacewalk to retrieve film canisters from the Service Module instrument bay. Unfortunately the camera filming him jammed and he felt this might have been due to a conspiracy on the part of his crew members!

During the flight when the astronauts had excreted, their faeces were stored in labelled plastic bags. Al felt this was undignified so he took the bags with him on his spacewalk and discarded them. The result was the bags followed the Apollo capsule back to the Earth and formed a temporary Van Allen belt of faeces before they burnt up in the Earth's atmosphere...

Al explained that there were only the two more Apollo J missions Apollo 16 and 17 as Apollo 18, 19 and 20 were cancelled so as to provide funds to develop the Space Shuttle. (*Apollo 18 did eventually fly, as part of Apollo-Soyuz – Ed*) He said he had never been happy with the Space Shuttle and two Shuttles together with 14 crew members had been lost. He observed that before the Columbia was due to re-enter the atmosphere, NASA was aware that that might be a problem and had the ethical dilemma of whether to tell the crew. The decision had been *not* to tell the crew, which Al was not happy with.



The evening did not end on this down beat note as there was a surprise. A man appeared from Guinness World Records to award Al with a certificate as the man who had carried out the first deep space walk!

The evening therefore ended on a high note and is one I will always remember as I finally heard a talk from a man who had been to the Moon.

Photos : Vix Southgate and Michael Franks

[NEWS - compiled by Kyri Voskow](#)

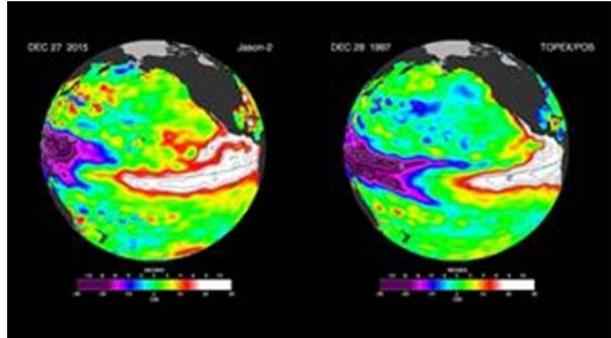
'Menacingly Familiar' El Nino is on the Way

2016 may well see a repeat of the 1997-98 El Nino weather system which resulted in chaos and tens of thousands of deaths worldwide. Temperatures went mad; there were fires, storms, floods and droughts with few people not experiencing the effects El Nino in one way or another.

Further to satellite images taken at the end of December 2015, the Smithsonian has warned that a 'menacingly familiar' system is developing. Analysis of the satellite data showed that the current development of the weather phenomenon is rather more familiar than we'd like it to be, looking very much like its predecessor.

Oxfam have already asked for early action to be taken with the possibility that this event will be even worse than the one we saw nearly two decades ago. If the weather experts are right then a major humanitarian crisis could well be on the way.

Image : Pacific Ocean temperatures of the 1997-97 El Nino (left) are worryingly similar to current temperatures (right)



Jade Rabbit still Alive and Undertaking Valuable Research

When China announced that the Chang'e 3 Lunar lander, and its Lunar rover 'Jade Rabbit' had failed, there was both suspicion and sympathy, but not a great deal of surprise.

China is having the last laugh now though, announcing that Jade Rabbit, although immobile, is still getting through a decent workload.

Thanks to landing in a Mare Imbrium impact crater there has been a wealth of ejecta to analyse – material which is not readily available on the relatively undamaged sites that other landers have reached. Jade Rabbit has therefore been able to find a type of Moon rock as yet undiscovered. The basalt in question contains an unusual level of titanium. Previous examples contained either high levels of the metal or very little, whereas the sample analysed by the Jade Rabbit on-board laboratory sits in between the two extremes.



By studying the age and chemistry of rock samples it's possible to map the history of the Moon's volcanism, and this latest discovery tells geologists that the Moon has an upper mantle with greater variations in uniformity than that of Earth.

Orbital Space around our Planet is becoming as Polluted as the Planet itself

Dr Stuart Grey from University College London has produced the most up-to-date representation yet of space-junk orbiting the Earth.

His video, starting with the launch of Sputnik in 1957, shows the accumulation of the (more than) half a million objects which are now known to orbit the planet. He highlights some twenty thousand items which are, according to NASA, "at least as big as a softball".

Although collisions in space are rare there have been two that are responsible for putting 5,000 pieces of debris into orbit. One was a 2007 Chinese missile test and the other was the collision of two satellites in 2009.

The danger of further collisions is very real and both the US Department of Defense and NASA monitor the movement of the space junk in order to lessen the possibility of any further accidents.

Various ideas have been mooted on how to clear up the junk. These have ranged from large nets sweeping the heavens to satellites that collect debris and return it to Earth, but to date no realistic, cost-effective idea has come to light and for the near-to-mid-term future, the volumes of debris are set to continue rising.

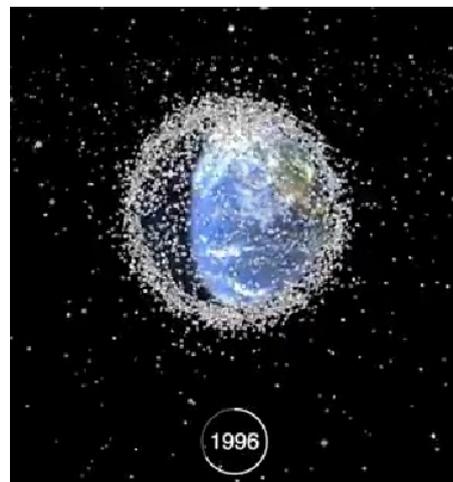


Image - a still taken from Dr Grey's video

UFOs Are Real - and I have Proof!

Has retired Montana resident, Dr Richard O'Connor, taken too much of the gas he used to mete out during his career as an anaesthetist?

He's suggesting that a series of photos he took during a two year sky-monitoring project show 'real UFOs'? (We assume by this he means 'alien', as clearly they *are* UFOs, because they are flying objects that he can't identify.)



Inspired by a friend who claims to have seen a UFO as a child, O'Connor set up two powerful motion-capture cameras. 280,000 photos later, he's presented a set which were taken in November 2015. They appear to show at least one object with a smooth, reflective surface. The objects are gone in the last of the series, taken just one second later.

"In my opinion," says O'Connor, "even a hardened sceptic would say '*Wow, that is what I expect a UFO would look like*'."

He claims never to have used image-editing software and his claims that the photos are real are backed by a photo analyst appointed by the National UFO Reporting Center, in Davenport, Washington.

However he also said, "The images... remain a mystery. I suspect the lights in the first and last photos are sun reflections off of something rather than any propulsion system." As if to add to the controversy, another analyst claims the photos are, "100% fake".

O'Connor now expects to take a polygraph (lie-detector) test before meeting with other photo analysts...

THE NIGHT SKY : THE PLANETS : January - February 2016

MERCURY : Reached inferior conjunction with the Sun (between Earth and the Sun) on January 14th moving into the morning skies. It might be just possible to spot in the east before dawn at the end of the month at magnitude 0. The next inferior conjunction on May 9th it will be seen to transit across the face of the Sun, the first such transit for 10 years.

VENUS : The planet has been rising three hours before the Sun at the start of January, that will drop to two hours at the month's end. The planet moved into Sagittarius, and will passing close to the Trifid Nebulae (M20) on the 24th. The angular size reduces from 14.3 to 12.4 arc seconds during the month but the percentage of the disk which is illuminated increases from 77 to 85% and the brightness hardly changes, staying at magnitude -4.

MARS : Moving eastwards relative to the stars, moving into Libra by mid-month. The brightness increasing slightly from magnitude +1.3 to +0.8 during the month, as the angular size of its disk increases from 5.6 to 6.8 arc seconds. With good seeing, some details on the surface such as Syrtis Major and the polar caps may be visible with a telescope, but there should be better opportunities in May when the planet is at opposition in May, when it will appear around three times 'larger'. Moon to the north on 1st February

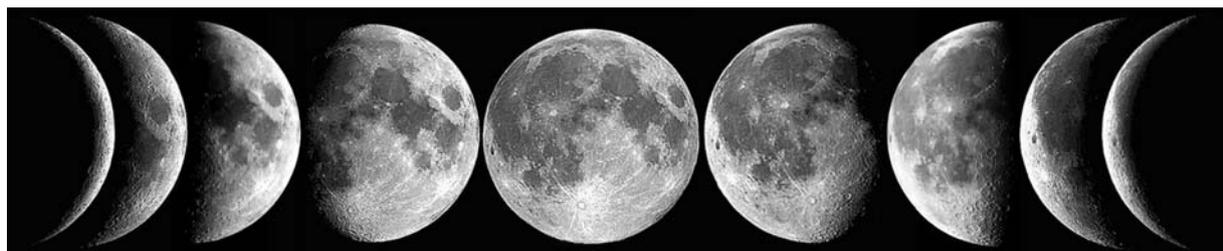
JUPITER : Lying low in south-eastern Leo at magnitude -2.2, rises at around 20:30 UTC/GMT at the beginning of the month. By the end of January it rises at around 19:30 UTC with a slight increase in magnitude to -2.4. It will then be due south and so highest in the sky at an elevation of 45 degrees around 01:30 UTC. As the Earth and Jupiter move closer, the size of the Gas Giant's disk increases slightly from 39 to 42.4 arc seconds so one should be easily able to see the equatorial bands in the atmosphere, sometimes the Great Red Spot and Gallilean moons as they weave their way around. Moon to the south on 28th January.

SATURN : Now a morning object, rising at 06:15 UTC at the beginning of January, falling back to around 04:30 UTC as we move into February. The planet lies in the southern part of Ophiuchus some 7 degrees up and to the left Antares and close to the stars that mark the head of Scorpius. Magnitude around +0.5 and be high enough in the south-east before dawn to make out the beautiful ring system which has now opened out to 25 degrees. Moon close on 13th November

URANUS : Moon to the south 12th February

NEPTUNE : Moon to the north on 10th February.

THE MOON



New 11th January

First 16th

Full 24th

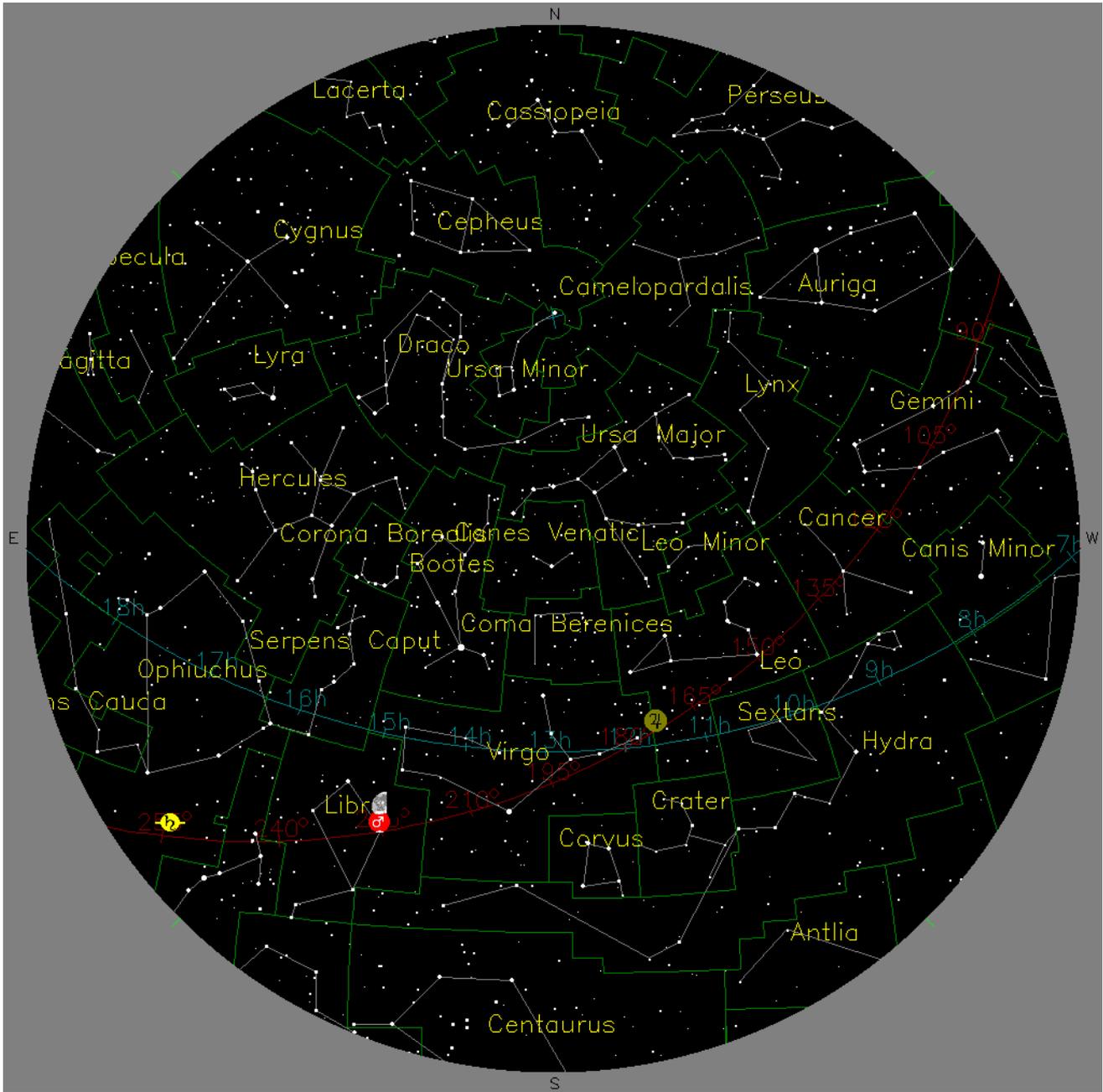
Last 1st February

New 8th

THE NIGHT SKY : MAP

1st February 2015 07.00hr GMT- UTC

Note this is the morning of 1st February as it shows three planets and the Moon



KEY	
 MERCURY	 SATURN
 VENUS	 URANUS
 MARS	 NEPTUNE
 JUPITER	 PLUTO



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