2002

NEXT MEETING
THURSDAY, 20th October 2011

THE ASTRONOMICAL SOCIETY OF HARINGEY
VOLUME 39 : ISSUE 12 : OCTOBER 2011

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.

Doors open - 7.30pm : Main speaker - 8.00pm. Finish - 10.00pm

2011

OK, the programme for most (all…) of this year has been a bit haphazard, and the remainder is still being worked on.

We aim to have a number of our regular speakers for 2012 and some new ones are being explored.

October 20th AGM and *Jim Webb : "Fun Things From Outer Space - And Beyond"*
November 17th : *Roy Goldsmith : "The Mediaeval Arab Astronomers"*
December 8th Christmas Party and Guiz VII

2012

Preliminary dates for the first half of 2012

January 19th
February 16th
March 15th
April 19th
May 17th
June 21st
July 19th

COVER

NASA's UARS - Upper Atmosphere Research Satellite - that returned to Earth early morning of Saturday 24th September (GMT) somewhere in the Pacific Ocean. Weighing six tons, URAS was launched by the Shuttle Discovery during STS-48 in 1991 and worked until 2005. Since decommission it has been known it would re-entry the Earth's atmosphere and burn up, although exactly where and when is notoriously difficult to calculate. There are so many variables especially knowing the density, and therefore drag effect, of the upper atmosphere, to be precise about the exact point of re-entry and whether it would be over a populated area. Similar situations happened with earlier very large orbiting objects, especially Skylab and Mir. However it was thought there could be around 26 'massive objects' that would have survived the journey through the atmosphere, though there is no indication of any photographic evidence of the re-entry to confirm this.

Image - NASA

SOCIETY NEWS

We meet in what is now the Music Room at Ashmole School. (This was the Curriculum Support Building - and still noted as such in the map.) This is the low building, (in the centre of the photo), just past the Performing Arts Centre and opposite the main entrance to the technology block.

MEETING PREVIEW : October 20th

AGM and Jim Webb : "Fun Things From Outer Space - And Beyond"

At this point I have no real idea what Jim is intending for the October meeting. All I do know is that I recommended he view a video of the "location of the landing of the NASA satellite UARS…", from a week or so ago, which isn't quite what it might appear, but which apparently gave him the idea for the title of this talk - you have been warned…

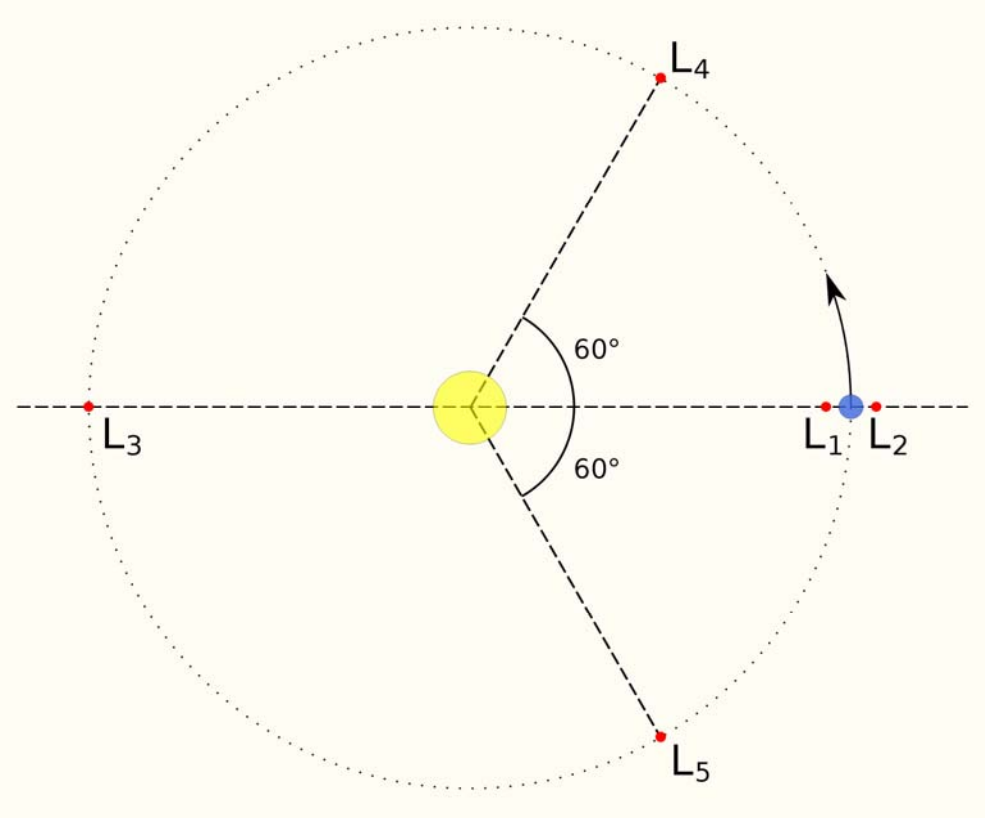
As is usual for me at the time of year, I won't be able to attend the meeting, though I'm, still willing to stand for Committee

Mat Irvine

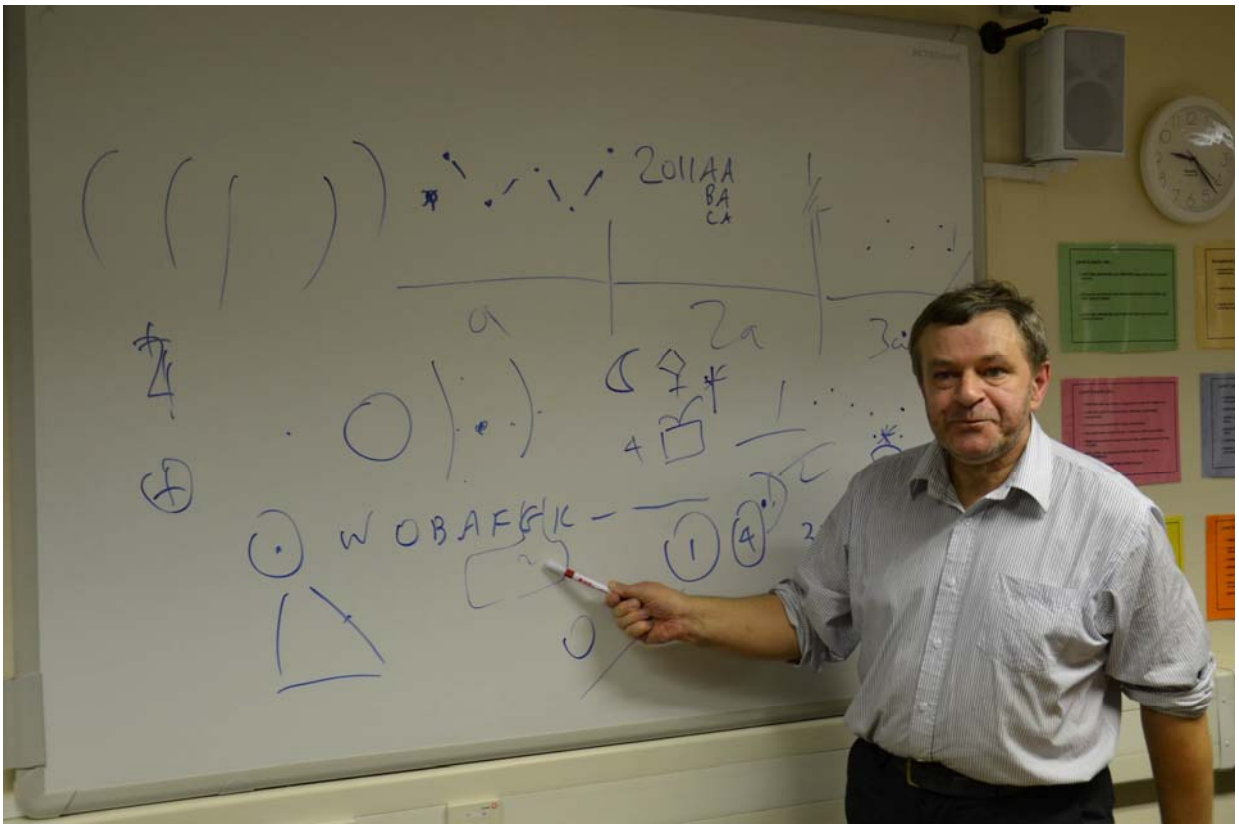
MEETING REVIEW : September 15th Dave Lally:

"An Astronomical Miscellany - Some Odd Solar System Items"

It's been 20 years since Dave Lally last visited the ASH. Then we met at Alexandra Palace, now two decades later, it's Ashmole School although Dave's unswerving enthusiasm hasn't changed. Although perhaps mostly known for his work in the science fiction community, he is a FRAS - in fact at the time he joined, the youngest member - and for this meeting took a tangential look at our Solar System and some of the odder objects found within. He looked at the Inverse Square Law, which states that the further you move away from the Sun, the light reaching any object drops of increasing rapidity. This led tangentially onto Langrage Points which although maybe invariably associated with the Earth, are actually present for all orbiting Solar System objects. Possibly the most interesting from Dave's point of view are the L4 and L5 position as these are the ones that are positioned 60 degrees either side of an object's orbit, so 60º ahead and 60º behind. In this way they also form an equilateral triangle with, in the case of the Earth's orbit, the positions of the Earth and the Sun. These are stable points into that anything placed in that orbit, will stay there. And even if it does wander away slightly, eventually it will return. So the Earth has L4 and L5 points, though there probably isn't much there, maybe dust particles. But Jupiter has well defined L4 and L5 positions as here are the Trojans - asteroids that are outside the main Asteroid Belt and travel in Jupiter's orbit.



Although primarily dealing with astronomy, Dave did venture into the realms of SF, and in Jupiter's case, it bought up the mention of our late Patron and his work on 2001 : A Space Odyssey, and perhaps more especially with the sequel 2010, also made as a movie. Here Europa was supposedly found to have the beginnings of life, and to this end Jupiter was turned into a star - in reality the planet only needs to be about 10 times more massive than it actually is, to become a star anyway - thus making our Solar System binary.



Images - top - the Lagrangian Points for an orbiting object around a star.
Above - Dave - unusual for recent speakers - used the white board - which was fortunate as we discovered the video projector was missing!

CHAIRMAN'S QUARTERS

Neutrinos faster than light? The Large Hadron Collider certainly delivers! First the Higgs Boson has a high probability of not existing and now c+. It's enough to get one thinking about constants and even certainty. Ok, so according to particle physicists, we either don't exist of or are some kind of illusion that appears to have understanding of itself (*heavy!*). At this point, I suppose, I should stop because this article does not exist either, however, if you're happy to not go along with this notion I will keep rambling.

In a previous article, I covered the notion of c not being the constant in the equation $e=mc^2$ but that it is actually e. Maybe this neutrino observation suggests this after all. That aside, we still have the issue of what constitutes constants and certainty (or maybe, even reality). Even in our language there are but a few 'constants'. For example, 'down' is something which can take as absolute when we use it to refer to the direction an object travels when we release above the ground. 'Up' then becomes the opposite of 'down'. Similarly 'above' and below' are absolutes by using the previous logic. Again 'forward', 'front' or 'ahead' become absolutes as the direction in which our eyes are pointing, and subsequently 'behind' and 'back' are the opposites. Beyond that pretty well everything else in our language is a learned convention. For example, the terms 'left' and 'right' are just conventions which we adhere to for the purpose of making decisions about direction.

Even more intriguing is the notion that 'absolutes' can themselves be relative. 'Up' and 'down' are only absolute on Earth. In orbit around the planet these two terms become irrelevant because there is no frame of reference for 'down'. You let something go and (assuming it hasn't been pushed) – oh dear – it stays where it is. In fact the only 'absolutes' left are 'front' and 'back' and their opposites!

So what about the world around us? We have light which is energy translating through space at c and matter which can be considered condensed energy transfixed around a centre. How absolute are these then? Energy (by loose interpretation of the Second Law of Thermodynamics) is probably a finite quantity and has been around since the 'Big Bang'. Light (as electromagnetic radiation) is the free form of energy and, as far as we know, is 'indestructible'. Matter is another matter (oops!). It has basic particles – protons and electrons. Neutrons, on their own, are unstable and break down into a proton and an electron in something like 16 minutes. Whether protons and electrons have a finite life has not been established. These 'basic' particles are generally accepted to consist of more fundamental entities called quarks. The evidence suggests their existence but the mathematics associated with them (conveniently?) does not allow them to exist on their own and therefore cannot be directly observed! No wonder physicists are starting to be convinced that we actually do not exist!

So what are the consequences of neutrinos (or anything else, for that matter) being able to travel faster than light? For a start, the pillar of scientific understanding – Einstein's Theories – could be wrong. That would be a major upset, but then again, isn't science the history of exploded hypotheses? His essential concept still holds though, namely the relationship of matter and energy. Whether **c** is a constant or not does not detract for the enormity of $\mathbf{e=mc^2}$. The other factor $\mathbf{\sqrt{(1/c^2 - 1/v^2)}}$ is the basis of nothing can travel faster than **c**. When the velocity (**v**) of a particle exceeds **c**, the equation becomes the square root of a negative number which is mathematically 'imaginary'. This has given rise to the concept of the tachyon (favourite of science fiction of course) a particle that **has** to travel faster than light! In fact its minimum velocity is **c** and its maximum is infinity. Even more bizarre, by taking energy out of this system, you travel faster! We now have to wait and see how the neutrino paradox pans out.

See you in October

JIM

The Night Sky : October - November 2011

THE PLANETS

MERCURY : Moving back into the evening skies by the end of the month, with conjunction on 28th. In November the greatest eastern elongation, 23º, will be on 14th November.

VENUS : In the morning skies, low down, the best views being towards the end of October.

MARS : Currently still fairly faint in the evening skies, but the red colour will make it stand out from surrounding stars. However the magnitude will increase throughout October as the apparent diameter grows. By the beginning of November the Red Planet will be around six arc-seconds in diameter and when we get to December, it will be seven arc-seconds, which is the best appearance for 2011. Better opportunities will still have to wait until March 2012. Moon close on 20th October.

JUPITER : reaches opposition on 29th October. At magnitude -2.8 it is the brightest object in the night sky, (needless to say, bar the Moon!), helped by the fact that the giant planet passed perihelion - closest point to the Sun - in March, so is at its brightest. Rising in the early evening in the south east, it is visible throughout the night and frankly you would be hard pressed to mistake it for anything else. (Though this can be done, as Chairman Jim reported, someone he knew of said he "was going outside to see the nova", which Jim though odd as the only current nova - in Ursa Major - is hardly as spectacular as the press had made out. However it transpired the guy had been looking at Jupiter thinking it was the nova!) At maximum altitude it will be at 52º, at magnitude -2.7, which makes the seeing far better than if it was close to the horizon. This is the highest for observers in the UK since 2003. Moon is close 13th October and 9th November.

SATURN : Approaching conjunction with the Sun 13th October. Then the ringed planet will re-appear in the morning skies. The rings have been well placed for viewing this year, even in a small telescope.

URANUS : Moon close on 10th October and 7th November. Reached opposition on 26th September.

NEPTUNE : In Aquarius, around magnitude 7.8. The Moon is close on 8th October and 4th November. Worth repeating that as Neptune was discovered 165 years ago and the planets takes about 164.8 Earth years to make an orbit; this year the planet has just made one orbit since its discovery!

METEORS

Dracoids peak 8th October; Orionids peak 20th October, Taurids peak 5th November

COMETS

Comet Garradd continues its leisurely journey, currently between the constellations of Ophiuchus and Hercules.

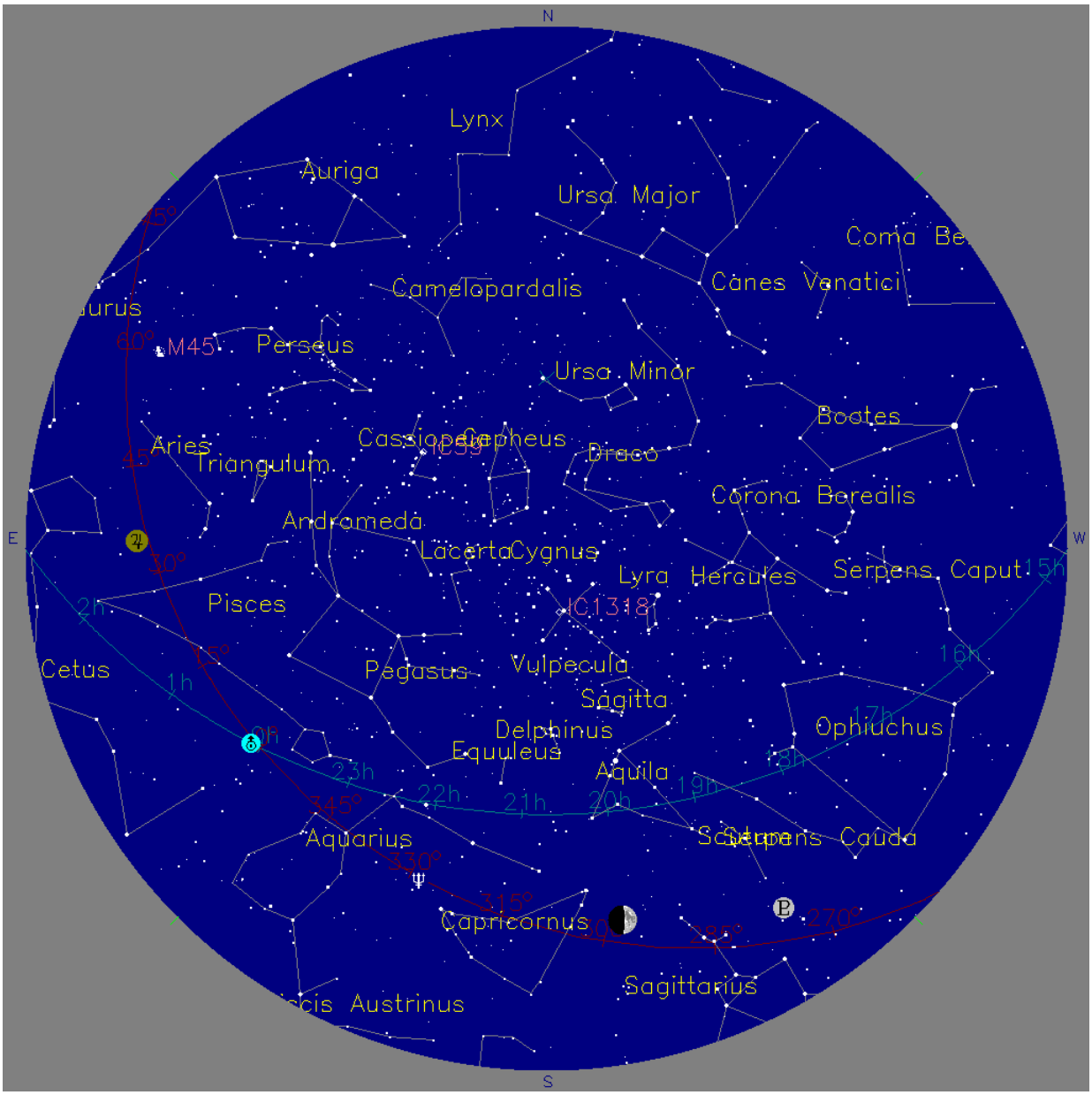
THE MOON

NEW 27th	FIRST 4th October	FULL 12th	LAST 20th	NEW 26th
NEW 26th	FIRST 2nd November	FULL 10th	LAST 18th	NEW 25th

THE NIGHT SKY : October - November 2011

As of 1st November 2011, 18:00:00 GMT/UT

There appears to be plans afoot to abandon the use of 'GMT' as most timekeeping is done via atomic clocks. But this seems to ignore the fact that generally it is termed 'UT' (Universal Time) anyway and even if the atomic clocks are more accurate, the Earth continues to rotates at its own pace, and that's what we live on!



KEY	
MERCURY	SATURN
VENUS	URANUS
MARS	NEPTUNE
JUPITER	PLUTO

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NEXT MEETING
THURSDAY 20th October 2011

THE SOCIETY'S WEB SITE : www.ashastro.org.uk

Yes, changes and *serious* updates are still planned for the website - including getting the magazine back on line. This is planned to take place in the reasonably near future - work commitments of those involved, permitting.