2002

NEXT MEETING
THURSDAY, 19th May 2011

THE ASTRONOMICAL SOCIETY OF HARINGEY
VOLUME 39 : ISSUE 7 : MAY 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 this coming year is *still* being finalised, though we still aim to have a number of our regular speakers throughout the rest of the year, and some new ones.

The dates currently scheduled are as follows, though some may have to be changed due to school holidays.

May 19th : Jim Webb : "Setting your Sights - a telescopic evening"

June 16th
July 21st
August - Summer Break
September 15th
October 20th AGM
November 17th
December 8th Christmas Party and Guiz VII

The Committee is however looking at whether it is worth continuing doing the Party, either on the traditional December date, or - as happened this year - in January, (especially as that was not very well attended). Any feedback from the Society would be welcome - either by letter or phone to the Chairman, (details back page), or email to <info@ashastro.org.uk>

COVER

The Society has done practical astronomical viewing on and off! Here members of the Society are seen during a telescope evening in earlier years. This was at Pole Hill on Meridian Day, 24th June 1984!

The object being viewed in the twilight is Mars.

PHOTO (from a 35mm transparency original) : Mat Irvine

(A different view of this Meridian Day outing was on the cover of 2002 in black and white for the Volume 24, Issue 1, November 1995 issue.)

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.

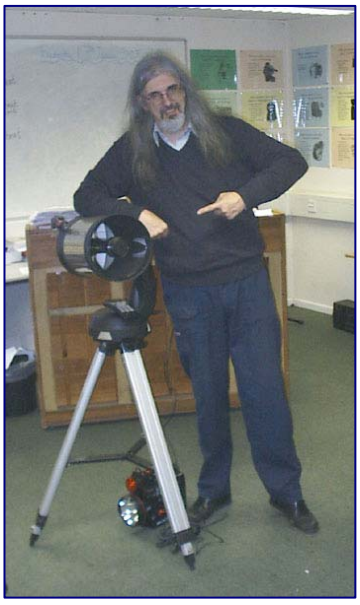
2002 in Electronic Form

The Committee is still continuing its ideal of getting as many onto an electronic version of 2002 as possible as a) it saves printing costs and - especially - b) saves mailing costs! If you have still not done so, and would like to receive your 2002 by email, (it comes as a pdf), please email <info@ashastro.org.uk> However the Committee would also like to emphasise that this is in no way obligatory and of course if you would still prefer to receive a hard copy through the post, (whether you are on email or not), this is perfectly acceptable.

The Committee has also talked about getting a presence on Facebook for the Society, (as it seems to be the 'in thing'…), and also whether to send out text messages, where changes to meetings; speakers or frankly anything 'interesting' can be sent out. Arguably this also could be done by Twitter, but currently we feel a combination of Facebook and texting will suffice at the moment. We assume most these days will have a mobile cell phone, so could you please send the number to <info@ashastro.org.uk>. (Note, if you don't actually have a cell phone, texts can also be received by BT landlines, when they are read out.)

MEETING PREVIEW : May 19th

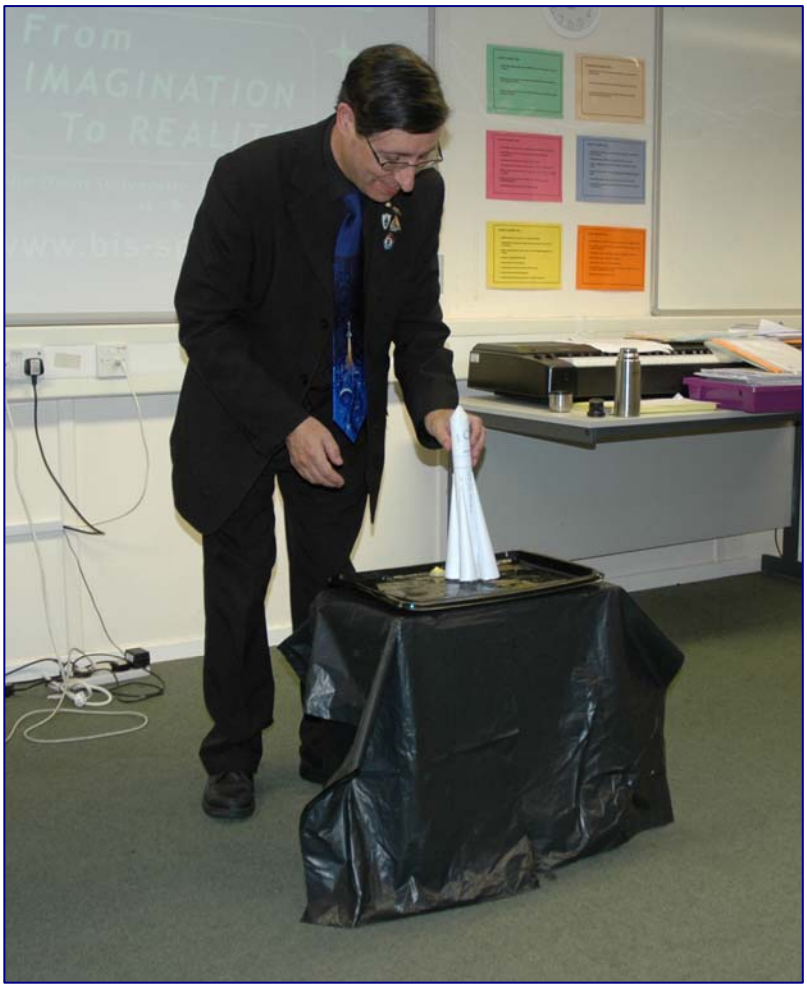
Jim Webb : "Setting your Sights… a telescopic evening"



Although the Society prides itself on having an eclectic mix of interests, we do have 'Astronomical' in our title, so this month's meeting involves that mainstay of any astronomical observation - the telescope. The Committee is probably amiss in assuming everyone immediately knows all there is to know about telescopes; buying them; choosing a type; setting them up and using them, but that likely isn't quite the case. Consequently the aim of this meeting will be to take everyone through the various stages, and of course those that do know more than others, will be encouraged to join in the general discussions. Also if you have your own 'scope (that is portable!), please bring it - or them? - along.

Chairman Jim will oversee this meeting and we hope we can see more of the Society member along than perhaps has been the case for the last few meetings?

MEETING REVIEW : April 21st
Jerry Stone : "The Next Fifty Years in Space"



One of our regular speakers Jerry Stone never scrimps on his subject matter, so when you have The Next Fifty Years in Space, you have at least 50 years worth, and as it turns out, likely a lot more.

Linked to the fact that this year is the 50th Anniversary of the first Man in Space, Jerry initially seems wary of saying what could happen in space as although Project Apollo took us to the Moon, it was abandoned after Apollo 17, and it appears there will be no return until at least the decade of 2020. This, firstly, is half a century after Apollo and secondly the nation that could very well do it is China!

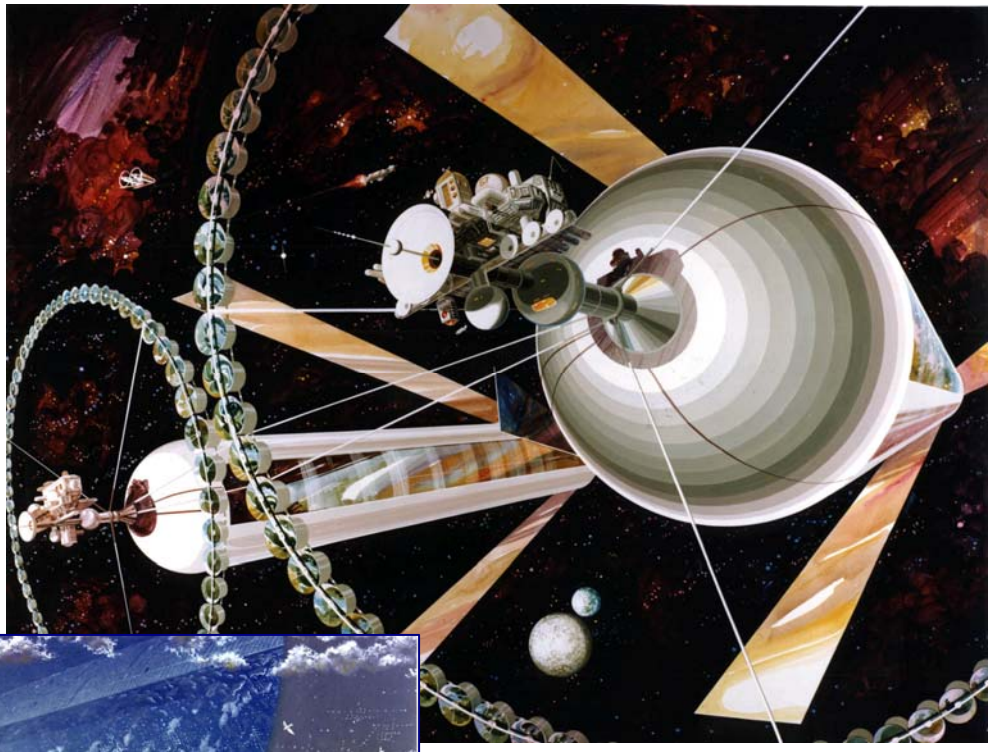
But it need not have been this way. There were very well set plan for Mars flight in the 1970s, though maybe the political will that prompted Apollo had dissipated by then. But Mars is still seriously being looked at. Today *The Mars Society* has Mars Direct that is well planned out, and looks at missions that could be in place by 2037. Yes, a long way after Apollo, but it is feasible. Journey times would be measured in years, although if the plasma engine approach is used, Mars *potentially* could be reached in 39 days!

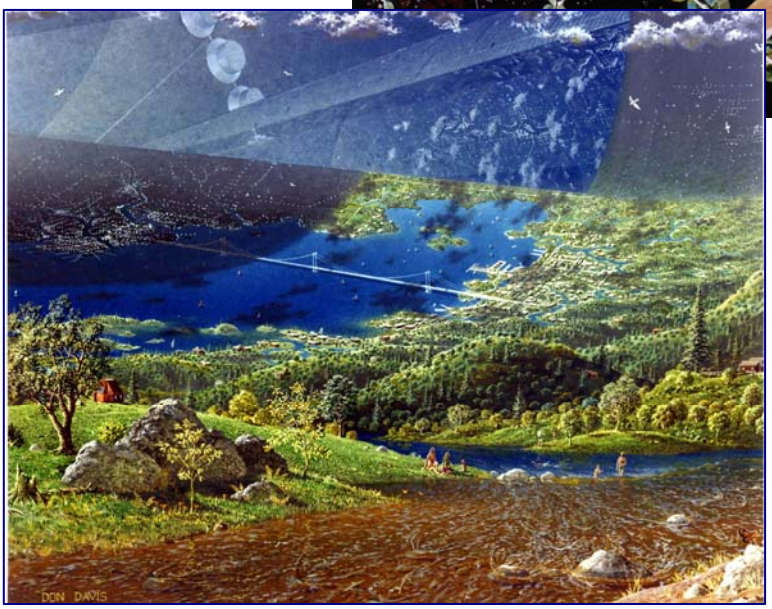
Nearer to home, Jerry looked at a project close to our late Patron's heart, that of the Space Elevator; abandoning chemical rocket engines completely and 'just' dropping a tether from geostationary orbit down to the Earth. Run an electric-powered car up and down and you have orbit achieved in, well quite a number of hours, but it is in effect (one the elevator is built!) free - energy used going up is regained going back down.

As Jerry pointed out NASA already has a competition for 'building you own space elevator' (OK not *quite* to geostationary orbit - yet), and Jerry, with his popular schools talks, has devised a similar, though currently even more modest, challenge. (See his website www.spaceflight-uk.com)

One other space project Jerry threw into the equation is one that has also been around since the 1970s - and that is one of Space Colonies. We think that the International Space Station as large, but it is dwarfed by what was proposed by Gerard K. O'Neill in his book *The High Frontier*.

O'Neill, then a professor at Princeton University, looked at the practicalities of Space Colonies, building and population of, and came to the conclusion that it wasn't so impossible as would first appear. (Indeed such structures had





been proposed as far back as the late 19th Century by the 'Father of Modern Astronautics', Konstantin Tsiolkovsky.) Materials could be harvested from the Moon, using a Mass Driver (another theme used by Arthur C. Clarke) and the Colonies could be build in the L5 position, the fifth Lagrangian Libration point, a stable position, in the same orbit wound the Sun as the Earth, but forward of the Earth's travel, way out to the west. Here any object placed will remain (with certain limitations) indefinitely.

Grandiose plans? Certainly, but in Jerry's view perfectly feasible. Check back in fifty years, to see if he predicted correctly!

Images :

Previous page - Jerry set up his party piece - launching a rocket!

This page - top - An artist impression of the 'Advanced Cylindrical' type of Space Colony.

Centre - a vision of what life could like inside such a Colony, Some idea of the scale can be gathered by the 'Golden Gate' bridge seen in the centre.

Right - Jerry receives the customary bottle of '2002' wine.

CHAIRMAN'S QUARTERS

Recently, a colleague of mine went to see the play *'Little Eagles*', in Hampstead, about the life of Sergei Korolev. He was the Soviet rocket engineer and designer who took the Russians into space. Korolev was among the team of Russians who went into Germany after World War II to collect information about the rocket projects and acquire German personnel working on the V2 project. Interestingly, these Germans were repatriated in the early 50's because Korolev's designs were superior to what they had come up with. This got me thinking about Wernher von Braun who had surrendered to the Americans when Nazi Germany was defeated. Von Braun and his team preferred to go with the Americans because they feared the Russians far more. He got co-opted into the army's rocket program though initially was very frustrated at the lack of interest and co-operation given to him, up to the late 50's.

Unbeknownst to the Americans, Korolev was cracking on with much rocketry development, albeit in total secrecy, but with total co-operation and respect of his teams. When Sputnik 1 went into orbit, von Braun was suddenly seen with different eyes and was thrust into the foreground of rocket development. Admittedly, from 1950 up to then he had put forward many ideas on space exploration, travel and colonization but they were more the focus of popular culture, through *Collier's Magazine* articles and Disney TV programmes than actual development and funding of his ideas. Now "those damn' Ruskies" had to be shown how the Americans do things, so the 'American Germans' had to demonstrate that they were better than the 'Soviet Germans', (who, we now know, had been out of the picture for quite a few years). This led to the successful launch of Explorer 1 and the founding of NASA. Von Braun was transferred to NASA and was given virtual 'carte blanche' to develop the Saturn rockets for heavy duty lifting of payloads into space. This culminated with the Saturn V ands Project Apollo which ultimately took Men to the Moon. He remained a resolute engineer at heart but always promoted the importance of man being at the driving seat. There had been many ideas of automating human crew functions to which von Braun observed: *"Man is the best computer we can put aboard a spacecraft – and the only one that can be mass-produced using unskilled labor".*

Decision making on a mission, despite attempts to completely automate it, has remained the domain of us humans. Manned spacecraft still go the International Space Station and people still control the important functions of deep space probes despite the infuriating time delays that exist (about 2½ hours round trip in the case of Saturn). Of course, without the creativity of those two engineers (Korolev working in virtually total secrecy) none of this technological wonder would have happened. Korolev showed that the 'Soviet's Ukranian' was better than anybody else's and created some very fine rockets, the basis of which are still being used today. Von Braun ultimately made some of his own visions a reality. It raises the interesting question that if the politics of the time were not what they were and von Braun could have worked alongside Korolev, where might we have been today.

As a tailpiece, Wernher von Braun once said: *"You must accept one of two basic premises: Either we are alone in the universe, or we are not alone in the Universe. And either way, the implications are staggering"*. Unfortunately there are few records of the thoughts and sayings of Sergei Korolev.

See you at the meeting, ***JIM***

Chemical Fun!

Jim Webb

This time we'll try names that are just plain fun. There is *Magic acid* - one of the strongest of the inorganic 'superacids'. It is made by mixing *antimony pentafluoride* (SbF_5) with *fluorosulphonic acid* (HSO_3F). This acid is so strong that it is capable of pushing a proton into a saturated organic molecule like methane to produce carbonium ions! In chemistry terms this is almost true magic. On a similar vein there is *Miraculin*, a glycoprotein extracted from the West African 'miracle fruit' shrub. [*Left*] Itself it is not sweet, but once exposed to it, our tastebuds perceive ordinarily sour foods as sweet for anything up to an hour. The miracle fruit itself has no distinct taste but its taste changing ability had been regarded as a miracle - hence its name. Then we have *Megatomic Acid*. This does not go off like a nuclear explosion or is the magic formula that creates a superhero. It is actually named after the black carpet beetle *Attagenus megatoma (Fabricius)*, and is the principal component of its sex attractant (pheromone). Its proper name is *(3E,5Z)-3,5-tetradecadienoic acid*.

There is also *Inflatene* which does not expand in its storage bottle or just spontaneously grow while watching it. It is a hydrocarbon compound that is isolated from the soft coral *(Clavularia inflata)* [*Right*] and is appears to be toxic to fish (maybe it makes them blow up like a puffer fish!).

There is a family of acids called *Bionic acids*. Last time I checked they didn't cost six million dollars each or give one super strength. There are a number of these which are all derived from *cellobiose* - a sugar digestion product of cellulose. The variants include *maltobionic*, *melibionic*, *cellobionic*, *aldobionic* and others. If you are puzzled by some of the names, go no further than *Enigmazole*. If the name is puzzling, it's easily solved as it comes from the fact it is extracted from the sea sponge *Cinachyrella enigmatica*. It is involved in cell reproduction and may also be the cause of some kinds of cell mutation. Less puzzling, but potentially confusing, is *Mandelic acid*. It is not named after Nelson Mandela but maybe his ever youthful appearance could be attributed to it, as Mandelic acid is often used in skin creams to smooth away wrinkles. It is also used as an antiseptic. Mandelic acid was discovered during experiments with *amygdalin*, an extract of bitter almonds, in the early 1900's. The name is actually derived from the German '*Mandel*' for 'almond'.

That's it for now, more next month (really!).

The Night Sky : April - May 2011

THE PLANETS

There is much discussion of the early morning skies this month as - potentially - four planets are visible - but it is "potentially" as most of them are only just above the horizon and this is only very shortly before the Sun rises, so the sky is already fairly bright. Then the altitude is only around 7º - 30 minutes before sunrise - and not only would you be viewing through an oblique section of the atmosphere, but is likely to be hidden by trees or buildings. So overall, yes, potentially, a grand view, but you are unlikely to see it!

MERCURY : The greatest elongation was on 7th May and Mercury remains in the morning skies until beginning of June, moving west as May progresses. As one of the current 'four morning planets' in theory it could be viewed, but it is fainter than Venus or Jupiter, and lower down to the horizon. A pointer will be the crescent Moon on 31st May, when Mercury will be about 3 degrees below. The next best viewing opportunity will not be until its morning appearances in September

VENUS : Bright in the morning skies in Sagittarius at around magnitude -3.8, but low down. Both Venus and Jupiter are the brightest of all the potentially visible planets, and the closest approach of these two was on 11th May. Venus then continued moving west, while Jupiter climbs to the east.

MARS : Currently in the morning skies, with Mercury, Venus and Jupiter, but very faint, and very low down, although it is gaining in altitude as the month progresses. May 30th will have the crescent Moon about 5 degrees directly above Mars. The best viewing will not be until September, and even then the planet will only be five arc-seconds in apparent diameter. It will be last week of 2011 before Mars will present any significant viewing opportunities, but even then the best opportunities will have to wait a year until March 2012.

JUPITER : In the morning skies at around magnitude -1.9 and gaining altitude as the month progresses into June. Just below the Moon on 29th May. As this is the only one of the four to be increasing in altitude as the month progresses, Jupiter is likely the best - or only - chance of observation.

SATURN : The only planet not currently in the morning skies. The planet will spend most of the year in Virgo around magnitude 0.9, in the evening skies and, after conjunction, 13th October, will re-appear in the morning skies. The rings are well placed for viewing this year, even in a small telescope. Moon to the south on 10th June.

URANUS : Was in conjunction with the Sun, 21st March. Moon close on 27th May.
NEPTUNE : In Capricornus, heading towards Aquarius. Moon close on 24th May.

Image - part of a movie sequence, courtesy Sky & Telescope.
See the whole month at : http://media.skyandtelescope.com/video/planet-animation-may2011.mov

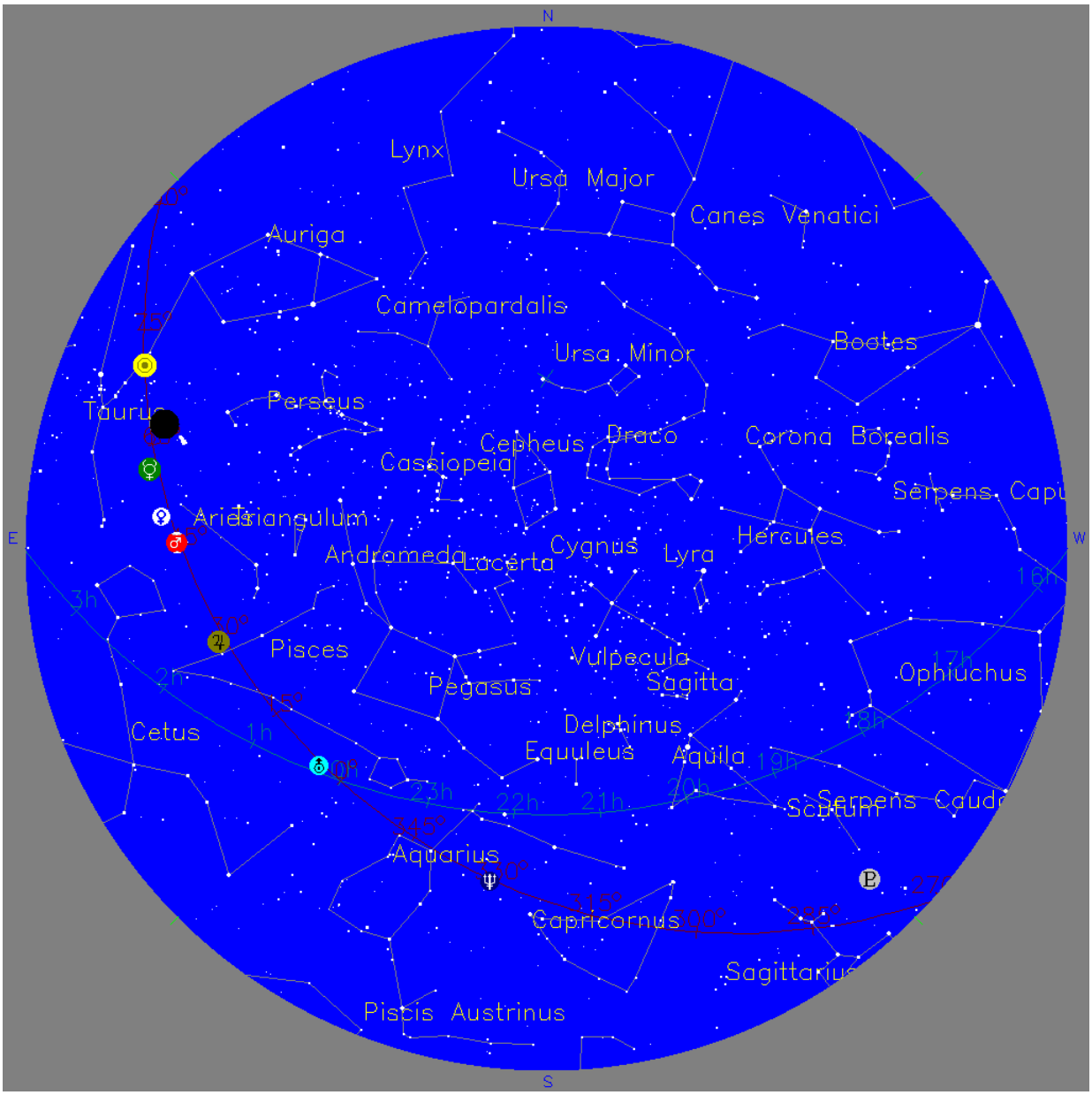
THE MOON

There is a total Lunar eclipse 15th June.

NEW 3rd May	FIRST 10th	FULL 17th	LAST 24th	NEW 1st June
NEW 1st June	FIRST 9th	FULL 15th	LAST 23rd	NEW 1st July

THE NIGHT SKY : APRIL- MAY

As of 1st June 2011, 06:00:00 BST
NOTE this is for a time in the morning as there are so many planets in the sky - though most are difficult to spot!



KEY	
MERCURY	SATURN
VENUS	URANUS
MARS	NEPTUNE
JUPITER	PLUTO

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NEXT MEETING
THURSDAY 19th May 2011

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

Changes and updates are (still) planned for the website - including getting the magazine, with back issues, back on line. This is planned to take place in the reasonably near future - work commitments of those involved, permitting.