

2002



NEXT MEETING
THURSDAY, 19th May 2016
THE ASTRONOMICAL SOCIETY OF HARINGEY
VOLUME 44 : ISSUE 7 : May 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 page:
www.ashastro.co.uk. Last minute changes will be on the Facebook page



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 also be used.

2016

May 19th : Mat Irvine : "The Underground Corn Circle"
a visit to Fermilab, Illinois : *plus a round up of the Transit of Mercury*

June 16th : Michael Franks : "SpaceX and the way to Mars" : note change of month

July : no meeting this month

August : no meeting this month

September 15th : Jerry Stone : "Nell, Esther and Aunt Effie"

- the explanation as to the title nearer the time!!

October – 20th : AGM

November -17th : Observing Evening

December : no meeting this month

COVER

THE TRANSIT OF MERCURY 2016

A projected image of the progress of the innermost planet, Mercury, as it transited the Sun on 9th May. Taken at 15.05hrs.

Mercury is the small 'dot' lower left. The larger 'blob', centre right, is a sunspot group. There is another smaller sunspot, near the top at the 11 o'clock position

Photo : Mat Irvine

SOCIETY NEWS



Find us on
Facebook

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 convenient lift. If anyone feels they will have difficulty, please let the Chairman know. Contact details on back page.

MEETING PREVIEW

19th May 2016 : Mat Irvine : "The Underground Corn Circle"

The world's largest particle accelerator, until the Large Hadron Collider at CERN came on-line, Fermilab was built about 30 miles west of Chicago in the corn-state of Illinois. The vast majority however is invisible as it is below ground, though the skyline is dominated by the impressive structure of the administration building, Wilson Hall. Ironically, with the opening of the LHC, much of Fermilab's work has become redundant, and instead it has turning attention to the search of those most elusive particles in the Universe – neutrinos. Recently I had the opportunity of a private tour of the new facilities at Fermilab, including a trip 1000 feet underground to see the new detectors. Join me underground at the next meeting!



MEEING REVIEW

21st April 2016 : "Observing Evening"

Kyri Voskou reports that the meeting was unfortunately clouded out, so some of the Society retreated to the local hostelry for some virtual viewing and light refreshment.

A SMALL DOT ON A LARGE DISC...

...VIEWING THE 2016 TRANSIT OF MERCURY

Mat Irvine

It was about halfway through the seven or so hours of the Transit that I thought, "This isn't really of interest to anyone who isn't really interested in it...". After all it's not like a Solar Eclipse - Total or otherwise - which is apparently to all, even if it is purely to the sky darkening somewhat. To view the Transit you had to a) know it was happening in the first place and b) have the right equipment for viewing. Admittedly the news channels had been publicising the event perhaps more than one might have thought, and of course these



day on-line sites can broadcast live images. A whole swath of the Earth would get the complete seven hours, from east coast of the Americas, Atlantic Ocean and Europe, Africa and western Asia. But it all depends on the fickle weather, which in the UK has been extremely fickle to say the least. Saturday wasn't brilliant, though Sunday was, so Monday? As it turned out most, from my location which is after all 50 north of London, was good, and although it started and ended cloudy, the large chunk of the middle was clear, with few clouds. I had the choice of two projection systems, and correct filters over camera lenses, and in the end the best images came from the 4" refractor, which could after all get in four times the amount of light than my older 2" refractor I've

invariably used for such as Solar eclipses.

Meanwhile 'down south' in London, Dave Starling was also imaging the Transit and managed to get some images directly through a Sun-filtered camera lens. Here – left – is one image taken at 13.37 (BST).

Shot with a Canon SX700HS at 1:250 second at f6.9. (Image slightly tweaked.)

Mercury in this image is around the 9 o'clock position. A large sunspot group initially confusing things as it appears larger in the upper central position.



Your Editor's projection set-up, 2" refractor and 4" reflector



One more from the refractor. All shot with a Nikon D7000.

CHAIRMAN'S QUARTERS



When writing an address to send a letter, we use a number or name to locate a house on a street, which is in a village, town or city (which often includes a district) and finally, if it is to go international, a country. Now, strictly speaking, we should include more specifics to locate us in the Universe such as - Earth, Solar System, Orion Spiral Arm, Milky Way Galaxy, Local Group, Virgo Supercluster, but, this we take for granted as the postal system has not gone beyond Earth. (Unless you are Adrian Mole, *Ed*)

But let's recap a bit. The address locations, mentioned above, are obvious enough up to the Solar System. The Sun is located in what astronomers call the Orion Arm in our spiral-armed Milky Way Galaxy, which itself is part of a collection of a few dozen galaxies called the Local Group (we're the biggest, along with the Andromeda Galaxy). This ragtag group is on the outskirts of a much bigger cluster of galaxies, called the Virgo Cluster, which has more than 1,000 galaxies in it and is several million light years across.

That in turn is part of an even more huge structure called the Virgo Supercluster, which contains several clusters (including, perhaps confusingly, the Virgo Cluster; these get their names from their locations in the sky). Superclusters are among the largest scale structures in the Universe, spanning over a hundred million light years. Mapping our local supercluster is rather difficult. First, it doesn't really have a defined edge like a solid planet; it just fades out with distance, until the next supercluster comes along. Also, you need to get the three dimensional location of the galaxies around us, which also presents difficulties.

It looks like we can now add another locality: Laniakea (pronounce it as you feel like it), a galactic supercluster. This is the result of work done by a team of astronomers who used radio telescopes to observe thousands of galaxies in the local Universe. The theory goes that as the Universe itself expands, it carries these galaxies away from us, and their radio waves (as well as all light they emit) loses energy - this is very similar to the more familiar Doppler Shift. Astronomers call this loss of energy 'redshift', and the farther away a galaxy is, the higher the redshift is.

But, if galaxies are clumped together closely in space they'll orbit each other, or at least their mutual gravity will affect their motion. This in turn affects the redshift for each galaxy on top of the cosmic expansion. We know pretty well how the Universe is expanding on local scales, so if you subtract that part away, what's left is the local motion of the galaxies. That can be used to map how the gravity of other nearby galaxies is affecting them. This let the astronomers make a 3D map of the density and movement of galaxies in space.

That, finally, means they could map where all these galaxies are in the Universe. They found that the Virgo Supercluster, our old home, is actually part of a bigger structure they named Laniakea, which apparently is Hawaiian for "*immense or immeasurable heaven*". Laniakea is about a staggering 500 million light years across and contains the mass of 100 quadrillion Suns – that is a lot of mass. Its border isn't well-defined, but the astronomers decided how to get a sense of it: its gravity. Put a galaxy near Laniakea; if it falls toward the supercluster, then it's inside the border; if it falls away toward some other supercluster, then it's outside. As definitions go it's not so bad but it's not the be-all-end-all; as other astronomers point out, it doesn't tell us what the eventual fate of the supercluster is (which depends on its mass and size). Like most definitions, it depends on the question you're trying to answer. In this case, it's more of a guideline than a definition. Astronomy is both ennobling and humbling. It tells us our place in the Universe, which can make you feel small - but don't forget that we are a part of that Universe, and the fact that we can figure this out at all makes us very privileged indeed.

See you in May

JIM

[NEWS - compiled by Kyri Voskow](#)

DWARF STAR PLANETS DISCOVERED FOR THE FIRST TIME

Belgian astronomers have found three Earth-sized planets orbiting a nearby dwarf star. It's the first time such a discovery has been made because searches have so far been looking at larger, brighter stars.

Although such stars are more like ours and therefore make good targets in the search for extraterrestrial life, their brightness can overwhelm the clues we are looking for.

The team decided to avoid this problem by building the Trappist Telescope in Chile specially for looking at cooler dwarf stars. Their goal was to examine the closest sixty, and one of these, at just forty light years away and in the constellation of Aquarius, came up trumps.

The University of Liege outfit are now using the Hubble and Spitzer space telescopes to analyse the atmospheres of the three planets. The star, named Trappist-1 after the telescope that found it, is only the size of Jupiter. Because of this, and both its faintness and closeness to us, there's a very realistic chance that accurate atmospheric data can be obtained.

Image shows an artist impression of the possible view from the surface one of the three planets



LHC GOES POP, THANKS TO A WEASEL

The Large Hadron Collider was been taken off-line thanks to the unwanted attentions of a weasel. The charred remains of the *fouine* (the French word for both the weasel and one of its cousins, the marten) were found next to the gnawed cable which caused a power cut.

This isn't the first time that nature has tweaked the nose of scientists. A family of raccoons once invaded Fermilab's old Tevatron accelerator in the USA, and CERN itself is no stranger to animal encounters. In 2009 a power outage on the world's largest particle accelerator was attributed to a bird carrying a baguette onto a substation, although at the time CERN said it



couldn't be sure what caused the problem, but it was "true that feathers and bread were found at the site."

No equipment was damaged to any great extent although it did mean the collider was out of commission for several days.

CERN spokesperson Arnaud Marsollier pointed out, "We're in the countryside - you have to expect wild animals."

THE COMET NAMED AFTER A CAT

You may have heard of a Manx cat, but now we have the Manx comet – and just like its feline namesake, this comet has no tail.

Comet C/2014S3 looked unusual, right from the beginning, said Karen Meech of the University of Hawaii. "We wondered, what are we going to call this? '*Potentially Dead Comet*' is a bit of a mouthful."

The comet has an orbit which suggests it came from the Oort Cloud, the shell of icy objects far beyond the orbit of Pluto. It should therefore be much icier like its far-off brothers, but instead is rocky and more like an asteroid.

A traditional comet would be about 100,000 times more active – meaning that as it approaches the Sun there should be far more ice melting, resulting in a much bigger tail. Even its barely noticeable 'stub' of a tail is comprised mostly of dust.

It is thought that the comet must have started off as an inner-Solar System object but was thrown outward and into the depths of the Solar System, continuing on its highly elliptical journey ever since. As such, it could provide clues about the early formation of the solar system.



The (virtually) tailless Manx comet

There's a neat addendum to this story in that astronomer David Levy has commented that, "Comets are like cats - both have tails - and both do precisely what they want!"*
(or not in this case...) Ed*

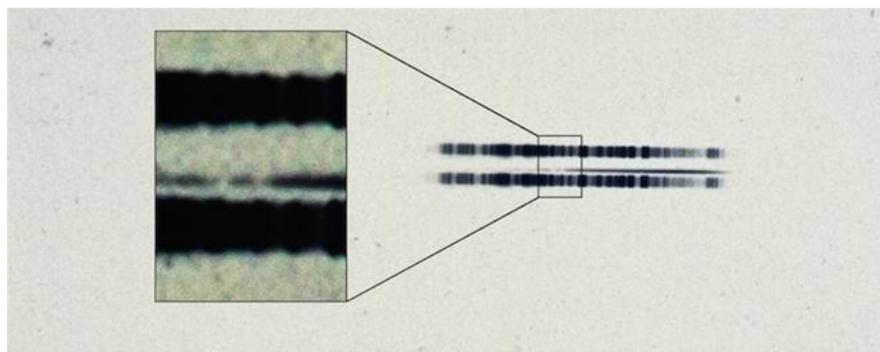
WATCH OUT FOR THIS PLANET

A researcher from University College London has predicted the existence of planets around a white dwarf star - using 100 year old data.

Whilst studying a 1917 glass photographic plate Dr Jay Farihi saw evidence that the captured light had passed through some sort of debris – a good sign that exo-planets may be orbiting the star. At a distance of under 14 light years Van Maanen 2 is the third closest star to the Sun.

The plate was in the Carnegie Observatories collection, having been made by Walter Adams at the Mount Wilson Observatory. Director of the Carnegie Observatories John Mulchaey was delighted with the find, stating "We have a ton of history sitting in our basement and who knows what other finds we might unearth in the future?"

Stars like Van Maanen2 are called Polluted White Dwarfs. This is an excellent example of a star where the orbiting disc of debris can only form thanks to the gravitational influence of nearby planets, so even though we might not have seen a planet, the existence of the orbiting disc of debris is a very promising sign. Such stellar discs often contain calcium, iron and a host of other substances.



The spectrographic analysis in the 1917 plate, contained strong calcium lines

[NEWS EXTRA – Mat Irvine](#)

NASA reports that the Kepler space observatory has verified 1,284 new planets – the single largest finding of planets to date.

Analysis was performed on Kepler's July 2015 planet candidate catalogue, which identified 4,302 'potential planets'. For 1,284 of the candidates, the probability of being a planet is greater than 99 percent – the minimum required to earn the status of 'planet'. "Before the Kepler space telescope launched, we did not know whether exo-planets were rare or common in the Galaxy. Thanks to Kepler and the research community, we now know there could be more planets than stars," said Paul Hertz, Astrophysics Division director at NASA Headquarters. "This knowledge informs the future missions that are needed to take us ever-closer to finding out whether we are alone in the Universe."



THE NIGHT SKY : THE PLANETS : May - June 2016

MERCURY : Having starred at the beginning of May with its transit across the Solar disc, the planet has retreated from the limelight and is too dim and low above the horizon to be seen for the rest of May. Stationary 21st May. At greatest elongation west 5th June, when, in theory, it could make a good appearance in the morning skies, though it is not that well placed for viewing.

VENUS : At superior conjunction (far side of the Sun) 6th June. After which moving into the evening skies. But the planet will be low down for months and not really well placed for viewing until November. There will however be a close encounter with Mercury on 16th July and Jupiter on 27th August.

MARS : reaches opposition, when the Earth lies between it and the Sun on 22nd May. The planet will be approximately due south at 01.00hrs BST (midnight UTC) on the 22nd of May, visible for most of the hours of darkness. The Moon will also be to the north. Mars will be closest to the Earth, and so have the greatest angular size of 18.6 arc seconds eight days later on the 30th. At closest approach in 2003, Mars reached an angular size of 25.1 arc seconds, its largest angular diameter for 60,000 years. Moon to the north 21st May and 17th June

JUPITER : In Leo, still bright in the south. This brightness falls slightly from magnitude -2.3 to -2.1 whilst its angular size drops from 41 to 37 arc seconds. Setting earlier as the month progresses, at around 02.00hrs by the end of May. A small telescope should show the equatorial bands in the atmosphere, maybe the Great Red Spot and a selection of the Galilean moons. Moon to the south 11th June.

SATURN : rising in the late evening. The brightness increases slightly from +0.2 to 0.0 magnitudes during the month, and the angular size grows to 18.4 arc seconds. Saturn's rings are tilted by 26 degrees from the line of sight – almost as open as they ever get – and span 42 arc seconds. Saturn forms a triangle with Mars and Antares throughout the month, separated from Mars by 8 degrees as May begins and by 15 degrees at month's end. Moon to the north, 22nd May and 18th-19th June. At opposition 3rd June

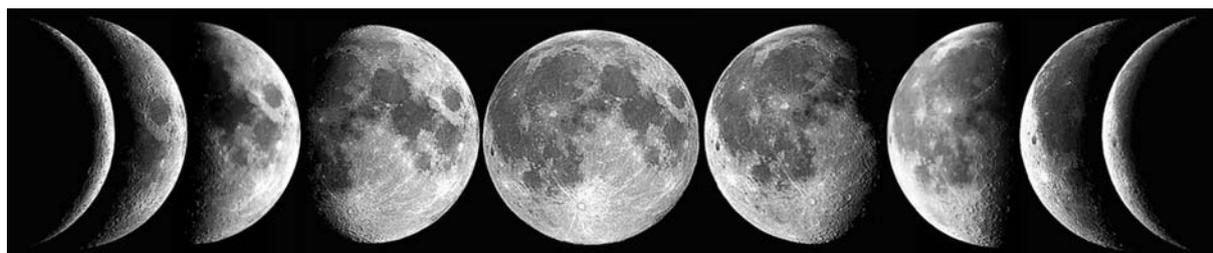
URANUS : Not visible during May or June.

NEPTUNE : Not visible during May or June.

METEORS

Lyrids reach their peak on 15th – 16th June

THE MOON



New 6th May

First 13th

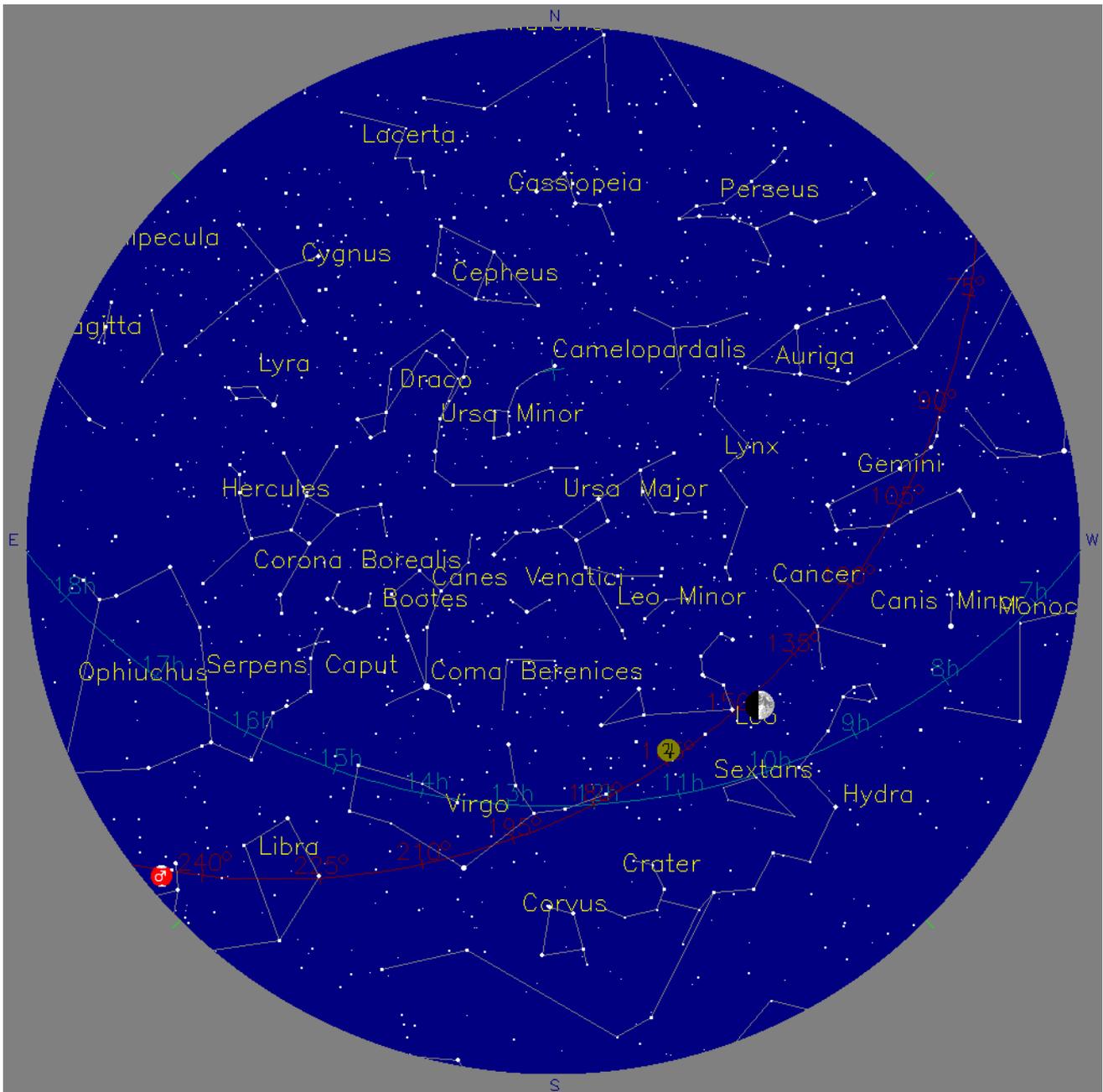
Full 21st

Last 29th

New 5th June

THE NIGHT SKY : MAP

1st June 2016, 22.00hrs GMT / 21.00hrs UTC



KEY	
 MERCURY	 SATURN
 VENUS	 URANUS
 MARS	 NEPTUNE
 JUPITER	 PLUTO



Astronomical Society of Haringey

Patron: *Sir Arthur C. Clarke, C.B.E., B.Sc., F.R.A.S., F.B.I.S.*
President : *Frederick W. Clarke, F.Ph.S.(Eng), F.B.I.S.*
Vice President : *Walter T. Baker*

www.ashastro.co.uk

ASH COMMITTEE MEMBERS : 2015 – 2016

CHAIRMAN : Jim Webb : email chairman@ashastro.co.uk [www.glservices.org]

SECRETARY: Charles Towler : email secretary@ashastro.co.uk

TREASURER : Kyriakos Voskou : email treasurer@ashastro.co.uk

MEMBERSHIP SECRETARY: Alister Innes : email memsec@ashastro.co.uk

EDITOR, P.R.O. VICE-CHAIRMAN and WEBMASTER : Mat Irvine
: email editor@ashastro.co.uk [www.matirvine.com]

GENERAL MEMBER : Mitchell Sandler

GENERAL MEMBER : Nicholas Lucas

GENERAL MEMBER AT LARGE : Gary Marriott

GENERAL INFORMATION : info@ashastro.co.uk

OBSERVING INFORMATION : observing@ashastro.co.uk



Astronomical Society of Haringey