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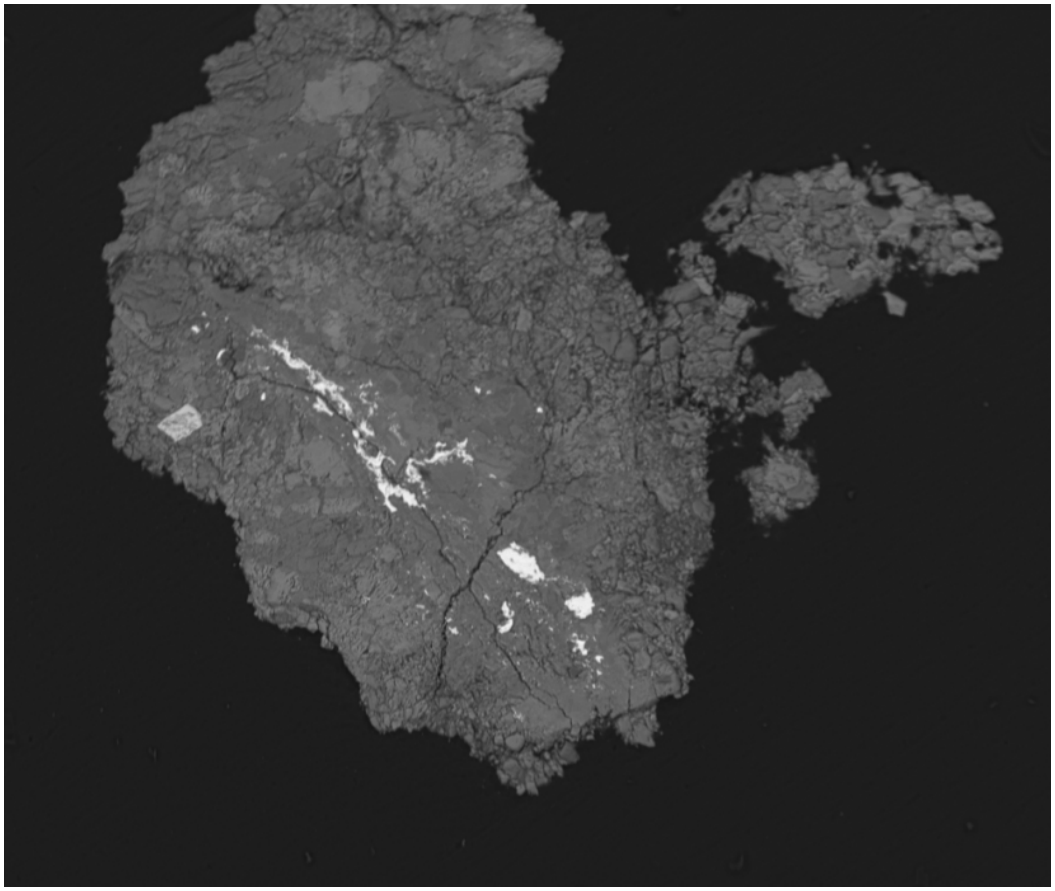


NEXT MEETING

WEDNESDAY, 17th January 2018

NOTE THIS IS A DAY EARLIER THAN USUAL

THE ASTRONOMICAL SOCIETY OF HARINGEY
VOLUME 46 : ISSUE 02 & 03 : January 2018
www.ashastro.co.uk

SOCIETY NEWS

MEETING VENUE
Music and Drama Block, Ashmole Academy, Cecil Road, 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

Find us on Facebook

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. Last minute changes can then be notified via text messaging. The Facebook page will also be used, but we realise not all have (or want!) Facebook access, so it will be secondary to texting. And if you do not have a computer or cell phone, you can be phoned on your landline.

2018

January 17th : Dr Simon Drake & Dr Andrew Beard : The Skye Meteorite

IMPORTANT – PLEASE TAKE NOTE

This date has moved to the day before the usual Thursday, ie to WEDNESDAY 17th due to our speakers' availability

February 15th : Dale Baker : "Ray Harryhausen - The Monster Movie Maker"
March 15th : Mat Irvine :
"The View from Serendip - The 100 Years of Arthur C. Clarke"
April 19th, May 17th, June 21st, July & August no meetings, September 20th, October 18th
November 15th : Jerry Stone : "The Build-Up to the Apollo 50th", December -no meeting

COVER
Looking for all like an island group from space, this is actually an electron microscope image of a fragment *of* outer space. The whole image is actually around 1300 micrometers across (just over a millimetre). It is from one of the samples Drs Simon Drake and Andy Beard collected from the Isle of Skye - when they were actually looking for something else!
We get the first Society talk from the two leaders of the team of geologists from Birkbeck College about how they found this Scottish island is the site of one of the biggest meteorite hits.

Photo : via Andy Beard

SOCIETY NEWS

For up-to-date information, we are using that 'necessary evil' - Facebook. Go to : www.facebook.com/groups/ASHastro/
However although originally you could view 'Public' Facebook pages (which ASHastro is), and read posts, without being a member, it now seems you have to be a member of FB to even read them. So, sorry, you'll have to join - *BUT* this does not mean you need to give away information you don't want to give. Although Facebook doesn't go out of its way to tell you, any individual's home page can be blank (as your Editor's is) it does not have to have any information. Even your birth date need not be correct.
However, once a member, if you want to 'interact' - ie post messages – on the ASH Group you will need to ask to join, and you will get 'signed up' by your Chairman or Editor. The more the merrier!

MEETING ROOM

We currently meet at Ashmole School, Cecil Road, Southgate N14 5RJ, on the first floor of the Music and Drama Block. This is the two-storey building, (left) with the entrance marked with the red arrow. We hope the 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 the back page.

For historical reference the X in the photo was our original meeting room, the original Music Studio. This is now demolished, and the site now has a new building.

MEETING PREVIEW
WEDNESDAY : 17th January 2018 :
Dr Simon Drake & Dr Andrew Beard : The Skye Meteorite

Given that our late Patron was fond of 'serendipidy - things happening by chance - it is appropriate that the first talk for 2018 comes from what could be termed a 'serendipidous occurance'. Drs Simon Drake and Andy Beard were leading a team of geologist from Birkbeck College on the Isle of Skye in the Inner Hebrides, actually looking for evidence of vulcanism.

Simon Drake says, *"One of the things that is really interesting is that the volcanological evolution of the Isle of Skye has always been considered to have started with what's called a volcanic plume, an enormously large bulk of magma which has come up under what then was the crust that Skye was on - we are now suggesting that this may well have been assisted by a meteorite impact."*

The Birkbeck geologists, who published their discovery in *Geology* magazine, were looking for ancient volcanic rock when their attention was drawn to something unexpected.

They thought they were looking at an ignimbrite, a volcanic flow deposit. However, analysis of the rock revealed that it contained rare minerals from outer space.

You can find out a lot more - plus see the evidence! - at the January talk

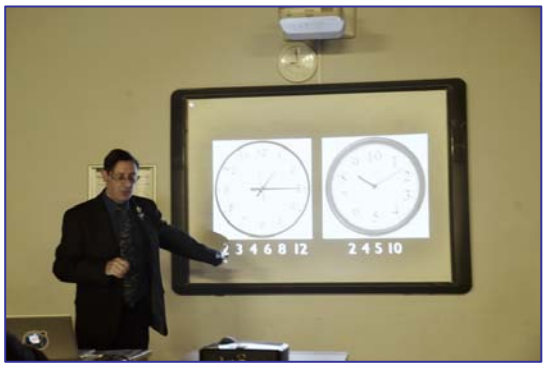
BUT REMEMBER IT IS WEDNESDAY OF THAT WEEK

MEETING REVIEW
16th November : Jerry Stone : "Time and Space"

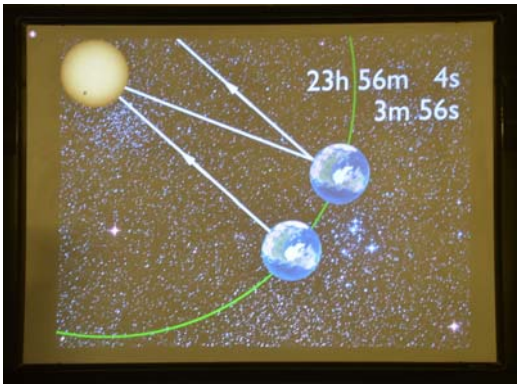
Jerry Stone was our guest speaker and was as entertaining and informative as ever.The subject was Time and Space and looked at how space is central to how we measure and consider time.

From the days when mankind developed the earliest calendars, through navigation of the oceans and right up to the present day, the way we have developed and used time and timepieces have always had an astronomical basis.

Even our units of time - be they hours, years or leap centuries, can thank the stars for their existence. It was the positions of the stars and our Sun which led us to knowing what a year was and understanding how the seasons changed.



And of course a day or year on Earth is completely different to a day or year on another planet. Even if we stick to our own planet it's amazing how accurately our ancestors were able to measure the length of a day and the movement of Earth.



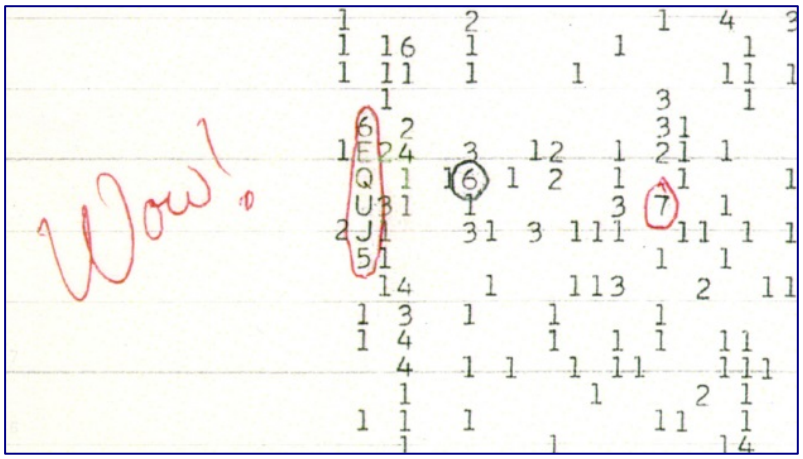
Our elliptical orbit around the sun means that we travel at varying speeds depending on how close we are to our star at any given time. This, coupled with the tilt in our axis of spin (and the myriad of other variables in our orbit and spin) means that our days are of varying lengths and the sun is not always overhead at twelve midday. Changes of calendar and time strategy have resulted in leap seconds, leap years and leap centuries.

We have also had the evolution of local time and time zones. No longer does each town have its own time just a little different from that of a town nearby. The development of railways meant that accurate timetables were needed so a single agreed 'Railway Time' was settled upon and eventually became the standard time used across the entire nation.

Kyri Voskou

SPACE NEWS - *compiled by Kyri Voskou*

THE 'WOW' SIGNAL FINALLY SOLVED



The famous 1977 'WOW' signal, thought by some to be evidence of intelligent life beyond our planet, has been explained - and it wasn't aliens! It was in fact a completely natural phenomenon.

The WOW signal was thus called because the astronomer reviewing the printout of the data wrote Wow! next to it.

Spanning 72 seconds and coming from the direction of Sagittarius, the signal was picked up by Ohio State University's 'Big Ear' at a wavelength of 1420 MHz - the wavelength associated with hydrogen and often considered to be the sensible frequency at which to broadcast a message to aliens.

A signal of such intensity and frequency could only be explained as an artificial one and despite nearly 40 years of searching no other explanation could be provided. That changed in 2016 when Antonio Paris of St. Petersburg College proposed that such a signal could have come from hydrogen gas surrounding a comet.

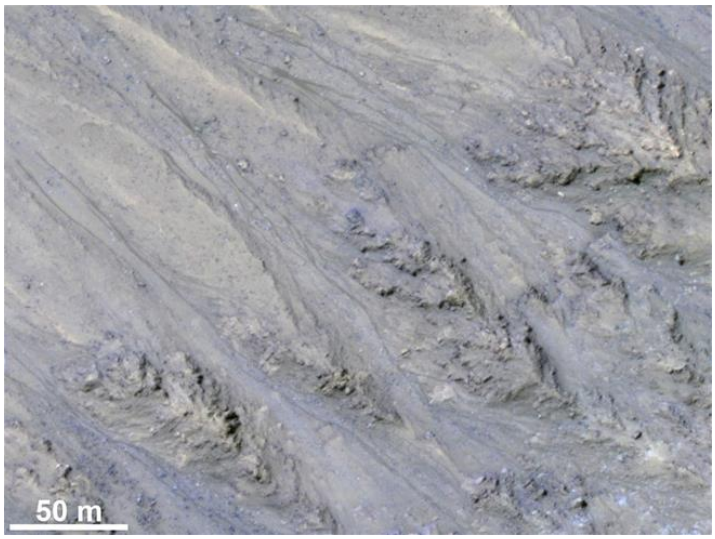
When the WOW signal was first spotted it was unknown that there were two comets in that area at the time. It was some 30 years later that the two comets - 266P Christensen and P 2008 Y2 - were found. Armed with this knowledge Paris set about proving his theory and when 266P Christensen passed Earth again in 2017, the radio signal picked up was at a frequency of 1420.25MHz. Three more comets were focussed on during the year and all produced the same signal.

It was a wonderful fairy-tale while it lasted but it had to come to an end.

WATER STREAKS ON MARS NOT WATER AFTER ALL

Scientists in the USA have poured cold water on the possibility that recurrent slope lineae (RSL) are caused by water flowing on, or just below, the surface of Mars.

Countless RSL have been seen both around the Martian equator and spread half way up towards each pole. A study in 2015 suggested that these were the result of recent water flows. The latest studies suggest that the flows are actually granular. This is backed up by measurements that show most of the affected slopes have gradients of 28-35 degrees - making them consistent with the slopes of sand dunes on Earth.



This doesn't mean water is absent but does suggest there's less of it than previously hoped.

There are currently no rovers or similar vehicles able to scale slopes like these so researching them will be difficult. Drones designed to work in the thin atmosphere of the red planet might provide an answer but it's likely to be some time before we know the facts for sure.

QUESTION TIME...

ALPHA-QUIZ

The answers begin with consecutive letters of the alphabet

Thousand prefix _____

A year with an extra day _____

Little Green Man _____

An especially low tide _____

The Fairy King orbits Uranus _____

Jean-Luc - an enterprising space traveller _____

Mysterious radio-wave emitter _____

Ernest, who discovered the atomic nucleus _____

Last month's answers:

Rings, **S**wan, **T**elescope, **U**ranus, **V**oltage, **W**ater, **X**-ray, **Y**ield.

CHAIRMAN'S QUARTERS

"Loads'a Planets!" Well, if we had an astronomer version of Harry Enfield's 'loadsamoney' character, that's what he would be saying about the recent discoveries. True enough, there is a glut of exoplanets found. To date, most have been found to be at distances of less than 100 million miles (ie within, or just over, Earth's distance from the Sun) from their parent star. These planetary systems are radically different to our Solar System which is quite spread out, by comparison. To be fair, it is more difficult to detect planets much further out than Earth distances due to their much longer orbital period, hence detection time. However, a lot of these systems consist of quite large planets near their star which is quite at variance with our system.

A few centuries ago, Johann Bode established a mathematical 'law' which conveniently showed the relative distances of our planets, as far as Uranus. With Neptune the 'law' breaks down. There does not seem to be any current attempt to establish a similar 'law' in any of the multiple planet systems observed so far. Despite the 'Titius–Bode Law', the Newtonian gravity square law does apply to all these planets. This is exactly what we would expect from any stellar systems like these. When we try to expand our Newtonian view point to larger 'systems', like galaxies, things get a bit weird. If one accepts the premise that the stars in the rotating galaxy are gravitationally bound to the centre of the galaxy, stars near the centre should be rotating much faster around than those in the outer rims - much like our Solar System. This, however, does not appear to be the case as the stars in the outer galactic edges appear to rotate at similar speeds about the galactic centre as those near the centre!

So what is going on? The current explanation for this behaviour is attributed to 'dark matter'. Intriguingly, the search for its existence dates back to the 17th century, shortly after Isaac Newton released his theory of universal gravity, when astronomers posited that some celestial objects might not emit light but could still be observed based on their gravitational effects (ie, black holes). Over the past few decades, due to technological advances in optical and radio astronomy, evidence for the existence of dark matter has continued to mount but there is still no consensus as to what the stuff is actually made of. The two current leading theories are that dark matter is either made of Weakly Interacting Massive Particles (WIMPs), purported to have a mass of up to 100,000 times than that of an electron, or made of axions, elementary particles with a mass hundreds of billionths that of an electron (and that behave as waves). Whatever it is, it could interact with us through something that actually doesn't have an analogue in nature as we know it. So, trying to find something, which we have no idea what it actually is, has proven to be very frustrating to the scientific community. Many claims have been made to its 'discovery' but none have borne fruit.

The other potential explanation is the Modified Newtonian Dynamics (MOND), originally proposed about 30 years ago, which modifies the Newtonian force law at low accelerations to enhance the effective gravitational attraction. Effectively gravity stops following the square law and becomes linear. MOND has had a considerable amount of success in predicting the rotation of stars within galaxies and, particularly, the velocity dispersions of small satellite galaxies of the Local Group. However, there is no way of testing this theory as all our current measuring devices are within the strong gravitational field exerted by our Sun. When we venture into inter-stellar space we may have a chance to test and prove or disprove this theory. In the meanwhile, all the efforts are on dark matter, so watch this empty - or dark - space.

See you in January

Jim

THE NIGHT SKY : THE PLANETS : January - February 2018

January is difficult for planetary observers as any naked-eye planets visible are in the morning skies, while the evening only has the two telescope-planets, Neptune and Uranus, visible. Things change in February!

MERCURY : Reached greatest elongation west on 1st January. Very low down in the morning skies, with a close conjunction with Saturn on 13th. A pointer will also be the warning crescent Moon on 15th. At superior conjunction with the Sun (on the far side), 17th February, but reappears in the evening skies at the very end of February, when it will be accompanying Venus.

VENUS : too close to the Sun for viewing January - but brilliantly reappears in the evening skies in the latter half of February, at magnitude -3.9

MARS : In the morning skies, magnitude +1.5. Rising around 03.00hrs, in the east-south-east, near to Jupiter, but poorly placed for viewing. On 12th February passes by the similarly-shaded red star Antares in Scorpius, The name means 'rival of Mars' and the star is around the same magnitude. Moon close on 9th February

JUPITER : Rising very early, 01.00hrs in the morning skies. In Libra and at magnitude -2.1, stands out against the otherwise faint stars in the constellation. Moon close on 8th February
For 2018 it will only reach an elevation of some 25 degrees when south and during 2019 - 2020 just 18 degrees.

SATURN : Rising around 06.30hrs in Sagittarius, in the morning skies at +0.6 magnitude. Close to Mercury on 13th January. Reasonably close to Mars for much of the month. Moon close on 11th February.

URANUS : In the east mid-evening, in Pisces, west of star Omicron Piscium. Uranus is still around magnitude +5.8, so still *just* on the theoretical edge of naked-eye visibility. About as well placed for viewing as it gets. Moon close by on 20th February

NEPTUNE : Magnitude +7.9 in Aquarius, close to star Lambda Aquarii. As with Uranus, comparatively well placed for viewing, although lower down in the sky. Moon close 20th January. Neptune disappears into the twilight during latter half of February.

COMETS

Comet 2016 R2 / PanSTARRS is around Magnitude +9 passes by the Pleiades (M45) end of January.
Comet 2017 01 / ASASSN is near the Pole Star at magnitude +10

MINOR PLANETS

Minor planet 3752/Camillo passes within .14 AU of the Earth, on 19/20th February. This is 20.6 million km/12.8 million miles. This occurs in Orion, and it is magnitude +13, so will need a modest telescope to see it.

THE MOON

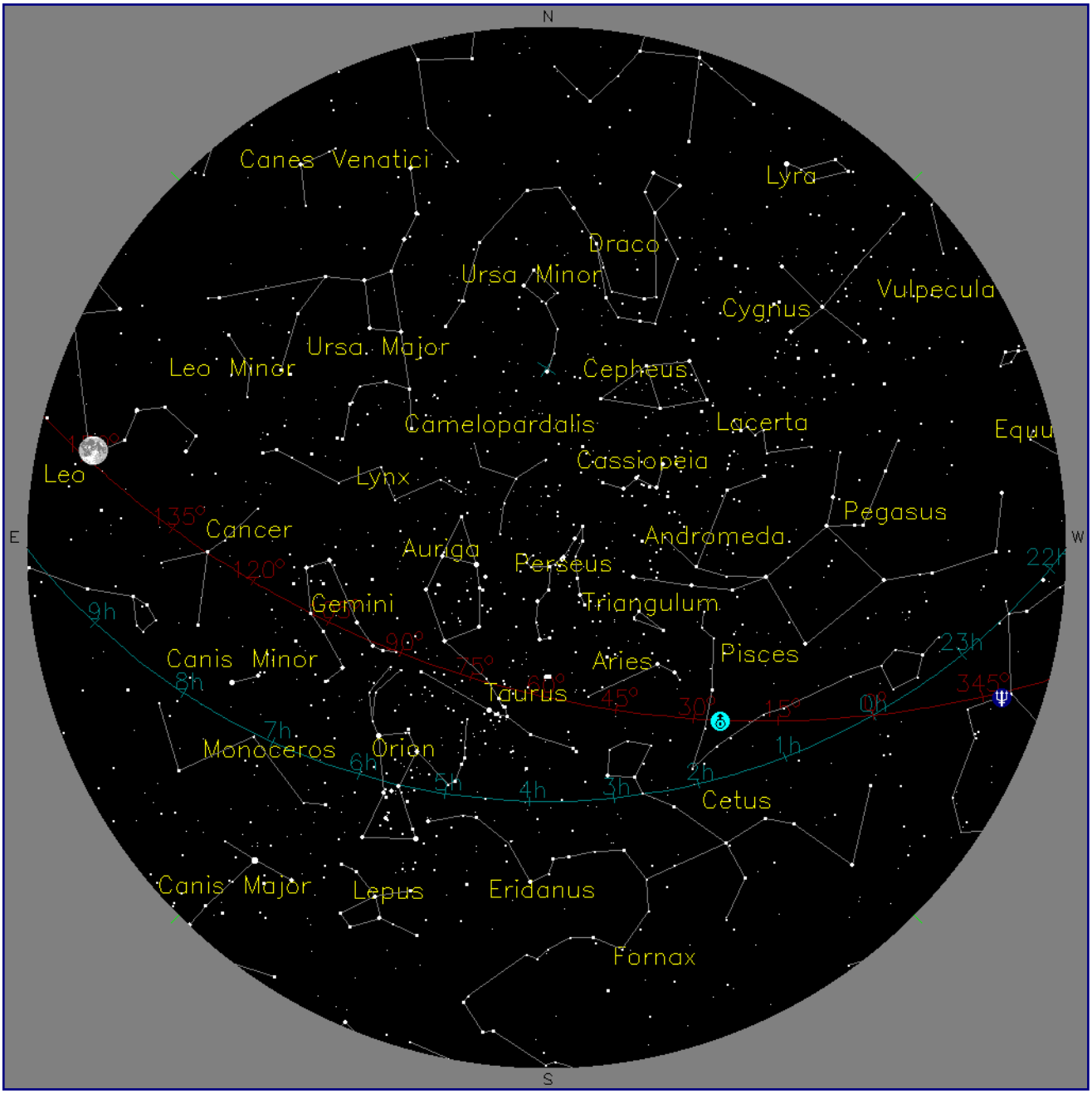
The Full Moon on 31st is the second in January, and is also a Supermoon, as was the one on 1st/2nd January. 'All' a 'Supermoon' is, is that it is closest to the Earth in the orbit, and being full and closest, appears brighter than usual. Although this is 30% brighter than at its faintest, this is sometimes difficult to quantify. The one at the end of the month is also called a 'Blue Moon'. There is also a Total Lunar Eclise on this day, but only visible in North America and Asia.

New 17th January First 24th Full 31st Last 7th February New 15th

THE NIGHT SKY : MAP

1st February 2018, 19.00hrs UTC-GMT

Timed so the map shows both Uranus and Neptune, plus the Moon



KEY	
MERCURY	SATURN
VENUS	URANUS
MARS	NEPTUNE
JUPITER	PLUTO

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