The Messenger
Mexborough & Swinton Astronomical Society
July 2017

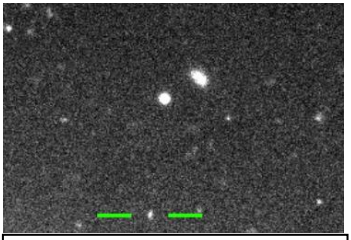
NEW MOONS

Jupiter's family of moons has now been increased to sixty-nine.

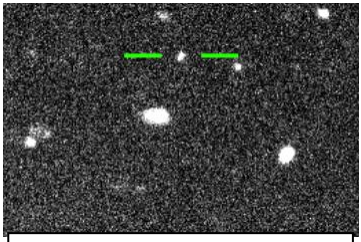
The new moons have the designation of S/2016 J 1 and S/2017 J 1. As of yet they haven't been given names. S/2016 J 1 is a member of the Ananke group of moons that orbit Jupiter and is thought to be around 3 kilometers in diameter. S/2017 J 1 is a member of the Pasiphae group of moons that orbit Jupiter and is thought to be about 2 kilometers in diameter.

The moons were discovered by Scott Sheppard (Carnegie Institution for Science) using the 6.5 meter Magellan-Baade telescope at Las Campanas Observatory, the 8.2 meter Subaru telescope at Mauna Kea and the 4.0 meter telescope at Cerro Tololo. S/2017 J 1 was at magnitude 23.7 when first photographed whilst S/2016 J 1 was recorded at magnitude 24. Between March 8th 2016 and April 23rd 2017 S/2016 J 1 has been observed 15 times and there have been 14 observations of S/2017 J 1 between February 5th 2017 and 23rd April 2017. These observations have enabled astronomers to calculate the orbits of the two moons. S/2016 J1 orbits at a mean distance of 20.6 million kilometres from Jupiter taking a leisurely 1.65 years to complete one orbit. It is in a retrograde orbit inclined at 140° to Jupiter's equator and an eccentricity of 0.14. S/2017 J 1 is even further away from Jupiter, averaging 23.5 million kilometres which means it takes 3 days over 2 years to complete an orbit. This moonlet is also in a retrograde orbit with an inclination of 149° and an eccentricity of 0.4 (very elongated!)

The Ananke group to which S/2016 J 1 belongs are a group of 18 retrograde moons that orbit Jupiter at a distance between 19 and 23 km with an inclination between 145° and 155°. They are all thought to be components of a larger body that broke apart due to Jupiter's gravity. Ananke the largest member of the group is only about 30km across and was discovered in 1951. Similarly the Pasiphae group orbit at an average distance from Jupiter of 23 to 25 million kilometres have eccentricities between 0.25 and 0.45 and inclinations between 144° and 159°. Retrograde orbits are always given inclinations greater than 90°. The Pasiphae group has 16 members of which Pasiphae is the largest body, some 40 km in diameter another member of the group Sinope is thought to be just slightly smaller at 38km diameter.



Discovery image for S/2016 J 1 with the 6.5m Magellan-Baade telescope in Chile



Discovery image for S/2017 J 1 with the 4.0m reflector on Cerro Tololo in Chile

MIKE HALL'S JULY 2017 SKYNOPSIS



Diary (all times BST Greenwich, Sunrise/Sunset, local (Sheffield) time).

1st	Twilight: 03.50, Sunrise 04.42, Sunset 21.34, Twilight 01.52; Jupiter 2.7° South of Moon
2nd	Moon at First Quarter, Twilight 22.29;
5th	Venus 6.5° South of Pleiades
6th	04.00 Moon at apogee, 405,932 km
7th	03.00 Saturn 3.20 South of Moon
8thth	Twilight 03.58, Sunrise 04.48, Sunset 21.34, Twilight 22.24
9th	Full Moon 05.08
10th	05.00 Pluto at opposition; 01.33 Mercury 0.1° North of Beehive Cluster
13th	18.00 Neptune 0.9° North of Moon; 18.03 Venus 3.1° North of Aldebaran
16th	Moon Last Quarter 20.27
17th	00.00 Uranus 4° North of Moon
20th	00.00 Aldebaran 4°South of Moon; 11.00 Venus 2.7° North of Moon
21st	17.09 Moon at perigee, 361, 238 km
23rd	New Moon 10.00
25th	08.49 Mercury 0.9° South of Moon, occultation; Mercury 0.8° South of Regulus
26th	03.00 Saturn's moon Iapetus at western elongation (+10.1)
27th	07.00 Mars in conjunction with Sun
28th	03.00 Southern Delta Aquarid meteor shower peaks, 20.00 Jupiter 3.10 South of Moon
29th	Twilight 04.33, Sunrise 05.17, Sunset 21.08, Twilight 21.52
30th	Moon at First Quarter 16.24; 04.00 Mercury at greatest elongation, 27.2° East

The Solar System

Mercury	Not visible from the UK
Venus	Brilliant morning star from the UK; racing between the Pleiades and Hyades
Mars	Not visible in July owing to proximity to Sun
Jupiter	Best seen early in the month, setting soon after 23.00 by the end of July
Saturn	Difficult evening target in Ophiuchus
Uranus	Morning object in Pisces, easily seen in binoculars
Neptune	Transits due South in Aquarius at 03.30 by end of month

Galactic Goodies.

Cocoon Nebula (IC 5146)	Excellent target in Cygnus, mag. +7.2, RA 21h 53m 29s, Dec. +47° 16′ 01″; spans 15 light year at a distance of 4 000 ly.
Veil Nebula	Mag. +7.0, RA 20h 45m 38, Dec. +30° 42′ 30″
Eagle Nebula	North of Sagittarius; Mag. +6, RA 18h 18m 48s, Dec. -13° 48′ 26″;
Comets	Comets 41P/Tuttle-Giacobini-Kresak and 81P/Wild may still be visible

THE THOUGHTS OF CHAIRMAN LES



My apologies that this is a bit shorter than my normal offering but I and Mrs Chairman have been surprised by our son booking a week away which is very good of him but it makes it that I won't be able to get to the AGM.

My thanks and appreciation must go to Roy for all his hard work in organising the Solstice Dinner again this year. The venue this year was the Rotherham Golf Club and was a first class place with very good service and food. It was a bit like Fort Knox to get in and out of. Roy did his speciality entertainment which I could only call ASTOINGO with prizes to boot which everyone enjoyed. Our President and guest speaker Alan Chapman won the full house, a few of us had supplied a few raffle prizes and I just happened to win one.

It was nice to see our oldest member Jo there and enjoying herself. We must ask Barry to relate the escapade that transpired when he offered her lift home!!

All in all the night was a total success and the past month has passed with no incidents.



Our member Jo with your illustrious chairman
23 June 2017

KEEP YOUR EYES OPEN

Thursday 6th July, Club Room, 19:45 – 22:00 - The Story of James Hall Nasmyth



Kevin has been interested in astronomy since age 4 and has had a particular interest in the moon and sun for about 50yrs. In his mis-spent yoof he saw the launches of Apollo 15 and 17 first-hand from the Cape and has spent 20minutes in earth shadow during four cloudless total solar eclipses. He is currently studying the surface colour of the moon and taking whole disc white light and H-alpha images of the sun for the BAA Solar Section whenever skies permit, typically on 150-200days each year. Having been president of Manchester AS on three separate occasions (they were desperate!), he is currently Vice President of Manchester Astronomical Society and Vice Chairman of the Society for the History of Astronomy.

Thursday 27th July 2017, Club Room 19:45 – 22:00 – "Mars and its Spiders Part 2"



Or more accurately, Ziggy Stardust and the Spiders from Mars. Where Ziggy Stardust is David Bowie's alter ego, a rock star who acts as a messenger for extraterrestrial beings. Unfortunately, no extraterrestrial beings have been found on Mars (at the time of writing, at least). But spiders have definitely been discovered...

The presentation shall be focused on a preliminary discussion about Mars in general, before focusing on results from the HiRISE (High Resolution Imaging Science Experiment). This has photographed hundreds of targeted swaths of Mars' surface in unprecedented detail. Many images have not been seen before by human eyes. HiRISE's camera operates in visible wavelengths but also can make observations at near-infrared wavelengths therefore obtaining information on the mineral groups present.

Sunday 13th August 2017, Old Moor RSPB, 10:00 – 15:00 –"View the Sun as Never Before"

The activity is free and is held in the courtyard, but to enter the RSPB reserve entry fee applies - £5 adults, £4 members, £2.00 children, and £8 family ticket. Children must be accompanied by an adult.

An amazing opportunity to look closely at the sun through our special telescopes with help from experienced astronomers from our Society. Safely examine the surface of our only star and see if you can spot rare solar flares or sun spots. See unique real time images of our only star (well, give or take eight minutes and nineteen seconds).

The Societies are keen to stress that members of the public should not attempt to observe the Sun themselves unless they have the correct equipment. To ignore this warning could result in permanent eye damage.

SOLSTICE DINNER 2017 MONTAGE



SOLAR IMAGING WORKSHOPS

If you have ever looked at the Mick Nichols' or Andy Devey's solar images of the Sun and wished you could produce similar photos then here's your chance.
Throughout July and August MSAS are running a series of sessions for members covering hands on use of telescopes, imaging capture, processing, animating stills and even solar filter making. We have already had the theory and now is the time to get your hands dirty!

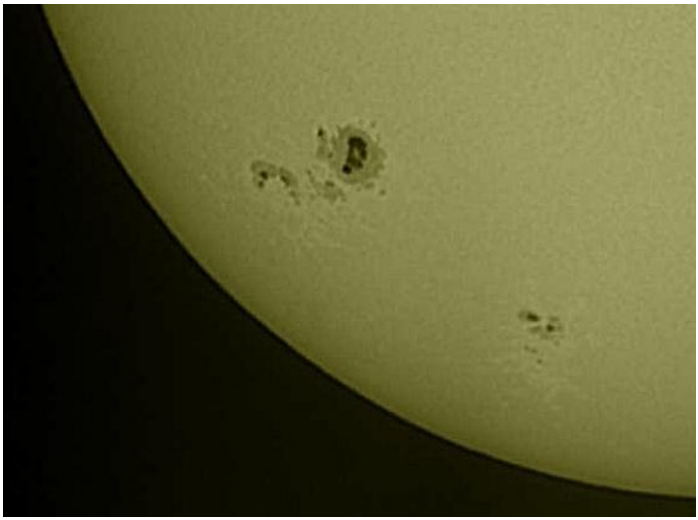
Imaging sessions:
Sessions comprise of using the Williams Optics 90 mm to capture images in Hα and the Celestron Nextstar 5 in white light. All sessions are at the JA Jones Observatory and will commence at 1:30 pm (this is to avoid the 'meridian flip' which happens at noon local time). The dates are as follows:-

Sunday	02/07/2017
Sunday	16/07/2017
Wednesday	19/07/2017
Wednesday	02/08/2017
Sunday	06/08/2017
Wednesday	09/08/2017

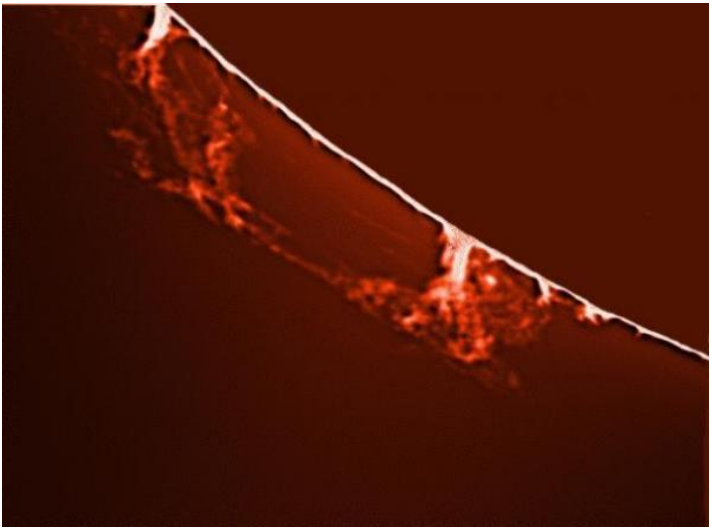
Please sign up to a session on the notice board in the society room at SBWMC. There is no restriction to the numbers but the first 4 signatories will be given priority in using the equipment and taking images.

Processing Session
Mick Nichols will lead the session on Saturday 26th August. The session will explain how to stack images in Registax, post process images in Adobe Photoshop CS4 and then create animations from a series of stills in Registax. The session will start at 1:00pm for those who need to install software and 2:00pm for the processing. Practice AVI files will be provided but you can bring your own data. Members will need to bring their own laptops (Windows 7 or 10, Registax 5, Adobe Photoshop CS4) with plenty of space on the harddrive, at least 50 Gbytes. Please sign up for the session on the board in the society room.

Filter Making
On Thursday 10th August Paul D'Silva will show members how to make a solar filter for their own telescopes and binoculars. The filters will be for white light observing using Baader Filter and members will be given a chance to make their own. If you are interested Paul will be asking you to fill in a small form so that materials can be ordered. There will be a small charge to cover materials



One of Mick Nicholls pictures of the sun and Sun Spots using white light and a filter



One of Andy Devey's photographs of Solar Prominences using Hydrogen alpha filters

DIARY

Date	Time	Location	Subject / Event	
Sun July 2nd	**13:30**	**Observatory**	**Solar Photography**	*Andy Kirton-Vaughan*
Thu July 6th	**19:45**	**Club Room**	**The Story of James Hall Nasmyth**	*Kevin Kilburn*
Wed July 12th	**20:00**	**Club Room**	**Executive Committee Meeting**	
Thu July 13th	**19:45**	**Club Room**	**The Infamous Marsden Quiz**	*Les Marsden*
Sun July 16th	**13:30**	**Observatory**	**Solar Photography**	*Paul D'Silva*
Wed July 19th	**13:30**	**Observatory**	**Solar Photography**	*Paul D'Silva*
Thu July 20th	**19:45**	**Club Room**	**Gemini : How NASA learnt to work in Space**	*Paul D'Silva*
Thu July 27th	**19:45**	**Club Room**	**Mars & it's Spiders Part 2**	*Peter Jalowiczor*
Wed Aug 2nd	**13:30**	**Observatory**	**Solar Photography**	*Paul D'Silva*
Thu Aug 3rd	**19:45**	**Club Room**	**Chasing a Solar Eclipse**	*Tony Morris*
Sun Aug 6th	**13:30**	**Observatory**	**Solar Photography**	*Paul D'Silva*
Wed Aug 9th	**13:30**	**Observatory**	**Solar Photography**	*Paul D'Silva*
Wed Aug 9th	**20:00**	**Club Room**	**Executive Committee Meeting**	*TBA*
Thu Aug 10th	**19:45**	**Club Room**	**Making a Solar Filter**	*Paul D'Silva*
Sun Aug 13th	**10:00**	**Old Moor RSPB**	**See the Sun as never before**	
Thu Aug 17th	**19:45**	**Club Room**	**TBA**	*TBA*
Thu Aug 24th	**19:45**	**Club Room**	**PVE Training Talk**	*Les Marsden*
Sat Aug 26th	**13:00**	**Club Room**	**Processing Solar Imaging Data**	*Mick Nicholls*
Thu Aug 31st	**19:45**	**Club Room**	**Autumn Sky**	*Andy Kirton-Vaughan*

Old Moor RSPB – Manvers Way, Barnsley, S73 0YF
PVE – Public Viewing Event – Bookable Only
CAE – Community Access Event
PO – Public Outreach
TBA – To be announced – (otherwise – We don't know!)

Web site: http://msas.org.uk
Meeting room is at Swinton Working Men's Club, Station Street, Swinton, South Yorkshire, S64 8AU.
Observatory is at Lee Brook Lane, Hoober, S62 7SH
Mexborough & Swinton Astronomical Society is Registered Charity N° 1064103 in England & Wales

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