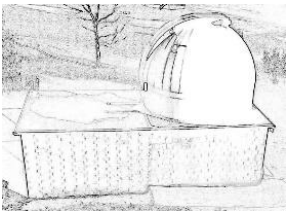
The Messenger

Mexborough & Swinton Astronomical Society

August 2019

The View from the Ob - 41 Years Strong



With the official opening of the Observatory extension on Saturday June 22nd we officially came to the end of our 40 years anniversary celebrations. It's been a busy year (and a bit)

We spent most of the year busy with the upgrade to our Observatory extension. We now have some excellent facilities at the J. A. Jones Observatory, the presentation room is up to date and I think gives us an almost "professional look". In addition, the disabled use toilet and the installation of a water supply has just made the observatory one of the best amateur observatories in the UK (in my opinion!). We also installed a time capsule under the flooring of the observatory so some future members can have a look at the events of the society at some distant date in the future.



We started the celebrations with a "Binocular Challenge" to all members to see how many messier Objects they could spot through binoculars.

We had the 40th anniversary "Solstice Dinner" on the 15th of June 2018 at Rotherham Golf Club, Members, Ex-Members, their partners and friends, and other society members are all invited to attend.
Our after-dinner speaker was Dr Alan Chapman of the University of Oxford (and MSAS President)
We went on a society outing to Oxford in August and Alan Chapman showed us around.the Oxford museum of the History of Science and the Radcliffe Observatory.

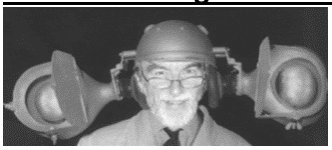


We held a celebratory "Swinton Astrocon" at the Masonic Hall, which was well attended by over 80 of our members and from other societies and was a great advert for our society in the wider community of Astronomical Societies.
We held events at Manvers Lake RSPB, Clifton Park and also "Did Santa bring you a telescope" at the observatory.

In Spring we had a Society "Weekend Away" at Malham Tarn FSC even though the weather didn't actually allow us any night time (or day time) observing all participants had a great time.

We have finished the "extended" year with the official opening of the Observatory site by the Mayor of Rotherham, councillor Jenny Andrews.
I think we can give ourselves a big round of applause for what we have achieved this year, and we can look forward to even more exciting times in the future.

Mike Hall's August 2019 Skynopsis



Diary (all times GMT).

1st	New Moon, 19.55 Mars 1.75° South of Moon
7th	Moon at First Quarter
9th	Mercury at greatest elongation
11-12th.	Perseid shower at maximum
15th	Sunrise 04.00, Sunset 20.11
15th	Full Moon
23rd	Moon at Last Quarter
28th	Alpha Aurigid shower at maximum
29th	22.29 Regulus 3.2° South of Moon
30th	New Moon, Mercury 1.9° South of Moon
28th	Alpha Aurigid shower at maximum

Messier Objects

M13 in Hercules
M15 in Pegasus
M20 and M22 along the Ecliptic above Sagittarius and below Scutum

Mercury may be a good morning object to try and observe Between the 12th and 19th of August it will be higher than 10° in the sky at sunrise, mind you'll have to get up before 4am!

From the Final Frontier: Going Up in Japan & China"

A Space Elevator prototype tested in space. Engineers at Shizuka University in Japan are testing the concept of the 'Space Elevator'. Two satellites were sent to the International Space Station and then deployed into space and were then tethered by a ten-metre cable with the intention that a 'robotic climber' will from one satellite to the other. The satellites are called 'Space Tethered Autonomous Robotic Satellite Mini Elevator' STARS-ME'. The cables would need to withstand high-energy cosmic rays and to be able to avoid collisions with space debris and satellites. The final goal is to enable the transport of people, supplies etc. from a planetary surface to an object in space. The goal is a long way off but serious research is taking place in universities, industry and government institutes across the globe.
Obayashi Corporation in Japan is a serious contender in implementing the concept. The major challenge is the cable or tether which has to be strong enough to support the Elevator and the means of transporting people, equipment and supplies. 'Carbon nano-tube' is the current runner with a tensile strength of XXXX Giga-pascal. A new single crystal form of Graphene has been discovered which could be kilometres long! Watch this space!!

Whilst NASA has to depend upon Russia to provide access to the International Space Station and Musk and Branson compete to develop returnable space transports; China is planning an ambitious programme of space exploration. Plans are being developed to establish a research station in the South Polar Region of the Moon. This contrasts with US landings between 1969 and 1972.

Details of China's long-term plans are still sketchy. Earlier this year China's National Space Agency (CSNA) made a significant step towards lunar exploration; launching unmanned Chang'e 4, on the far-side of the moon earlier this year. CSNA also placed also placed astronauts on board two temporary space stations – Tangong1 and Tangong2. The space agency also has plans to put a large more permanent space station in orbit. It is expected to be in place by 2020 using the new Long March 5B rocket.

Mike Hall

In The Press



The Star sent a Journalist and photographer on Tuesday July 9th, we appeared in the July 12th



We also appeared on YTV Calendar on Friday 19th July

Keep Your Eyes Open



Thursday 15th August – Peter Lloyd – owner of www.astrolloyd.uk, and a member of Doncaster Astronomical Society will give a talk about the value of amateur observations and photographs in appreciating the history of the Moon and its surface features. I will look at some of our knowledge from an historical perspective to see how our modern understanding developed.



Thursday 26th September – a regular visitor to our society Dr. Matthew Malek Matthew may be the only physicist you ever meet who has gone SCUBA diving in a particle physics detector. After starting university with the intention of a career in cognitive psychology, he accidentally got side-tracked in to particle physics. Matthew will review the history of neutrino astronomy and present the recent observations from IceCube, and describe future discoveries that astronomical neutrinos have in store for us

25 New Brown Dwarfs! Exclusive for MSAS.

Dr Marc Kuchner, Astrophysicist and Citizen Science Lead for NASA's Science Mission Directorate, Exoplanets and Stellar Astrophysics Laboratory at the Goddard Space Flight Centre confirmed in June 2019. The discovery of 25 Brown Dwarfs is by this MSAS Member. Their designations have not been disclosed yet. Most are expected to be L-class Dwarfs and expected to lie at a distance of 200-300 Light years. Judging from the data set analysed. The team has a backlog of candidates to go through and is cataloguing many submissions. This is the confirmed number of discovered BDs so far and this number may increase.



3D Models at home showing a comparison in sizes. On the left the four Exoplanets: the 'author's' planets (2011) followed by three Brown Dwarfs: Y, T and L representatives and a Red Dwarf. All are scaled correctly.

All four Exoplanets have masses lower than Jupiter and, assuming similar densities, are slightly smaller than the largest planet in our Solar System. The Brown Dwarfs contain far much more mass than Jupiter and actually are smaller than Jupiter as you pile on the mass because of gravitational contraction (Chabrier et.al., 2008). Brown Dwarf classes are: YD from ~13Mj to 30Mj; TD from 30Mj to 60Mj and an LD from 60 Mj to 80 Mj. As we increase the mass we get to a point where there is maximum compression to the point where nuclear fusion initiates. And, a star is born!

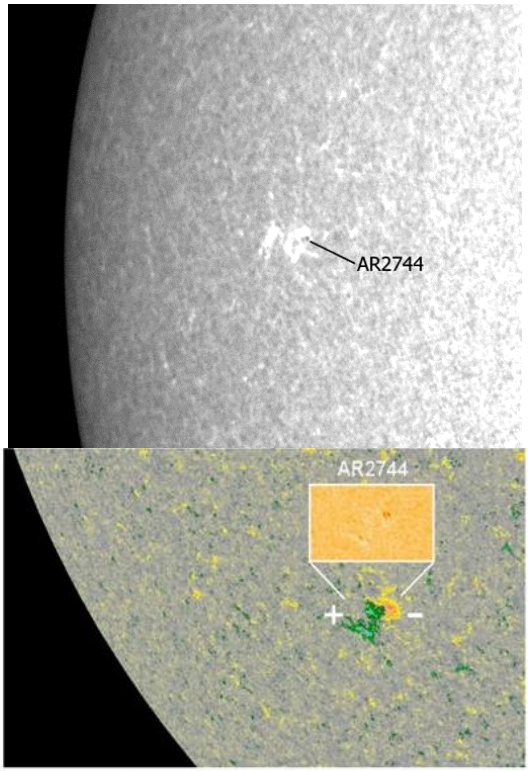
Summary

The principal aims of the project are to discover Brown Dwarfs and Planet Nine.
Red Dwarfs are a secondary target and are also being catalogued.
Planet Nine has so far remained elusive.
Since research began early in 2017, well over previously unknown 1,000 candidates have been submitted to the project by this MSAS Member.
Most of the submissions are judged to be Red Dwarfs with a small percentage being Brown Dwarfs.
Brown Dwarfs are divided-up into three main spectral classes: YD, TD and LD.

Peter Jalowiczor

Report of MSAS's Solar Sunday July 7th
Plus - The First Official Sunspot of Solar Cycle 25

Being a Solar observer and imager, I always welcome the chance to be able to attend any Solar days that take place at MSAS's excellent observatory and excellent new facilities. The 7th July 2019 was no exception; the only issue for the day was lots of clouds. I think we only got about 10 minutes of solar viewing done in a total of 4 hours but as we shall see that 10 minutes would prove to be all we needed to see something special. On the day Myself, Paul D'Silva and Tony Hood where joined by 6 members of the public (4 adults and 2 children) More than I expected to be honest given the weather conditions.
As an avid solar observer and imager, I always keep my ears to the solar grapevine and rumours around the 6th of July started to filter through that a new sunspot was breaking through and this new sunspot could be the very first sunspot of the new solar cycle number 25. Solar observers are very excited about this because we have been in a very deep and prolonged solar minimum for about 18 months. On our solar day nothing was official so I really wanted to image this spot in H-Alpha and Calcium-K just in case, and as we shall see I am so glad we saw it and was able to show members of the public it.
At about 15.00pmGMT we got a good 10-minute cloud gap and the members of the public and MSAS's members were able to see and image the new active region. Paul and Tony used the observatory facilities upstairs in the observatory to assist members of the public and I was able to show them outside my equipment and what I do with my equipment. I was able to get lots of AVI's and show people the data I was capturing Live on my laptop screen.
That evening it was confirmed that this new active region had a reverse polarity to the last solar cycle and it was looking promising that this was indeed the start of the new solar cycle. By the morning of Monday 8th July 2019 NOAA had posted all the official data for this new active region. It was labelled AR2744 and was officially the first spot in the new solar cycle number 25 (there was one other active region that had a reverse polarity but produced no sunspot). It was totally a coincidence that MSAS chose to host a solar day on the 7th of July 2019 but I for one am so glad we did because it enabled members of the public and MSAS members to see the first sunspot of the new solar cycle has it emerged which is something quite rare indeed from the UK given our unpredictable weather.

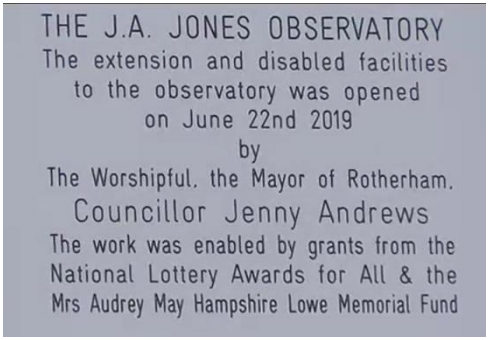


Above: The magnetic polarity and high latitude of sunspot AR2744 mark it as a member of new Solar Cycle 25.

All in all, I think that the members of the public were very pleased with the facilities on offer and the welcome we gave them. I Know that I was literally over the Moon or should that be the Sun that I was able to see and image this first sunspot in solar cycle 25 from MSAS's observatory. Let's hope in the coming months that cycle 25 ramps up and there is lots of activity to see on our closest star the Sun.

Mick Nicholls

Official Opening of the Observatory Extension



Project Aquarius reached its final destination with the official reopening of the observatory by the Mayor of Rotherham, Councillor Jenny Andrews. On Saturday 22ndJune we decided to replace our now customary mid-summer's dinner with an event to mark the five years of hard work spent on Aquarius.
Many thanks must go to Roy Gunson who coordinated the effort. Unfortunately, Roy fell ill just a few days before the event and had to miss all the fun. The day started very early and for once the weather remained on our side (maybe Roy is a 'rain god') bright, warm and not too windy. Many members turned up early to carry out final cleaning, move furniture and put up a borrowed 3 metre by 6m pop up gazebo, thanks to Mick Collinson and Warmsworth Community Library for the loan. With the official plaque in its temporary place by the entrance and suitably covered members and guests chatted and had a good look round getting use to the space and new facilities.







We were pleased that guests from Wentworth Parish Council, the West Riding Masonic Charity and our local MP John Healey took the opportunity to join us. In addition, our society president Alan Chapman had agreed to extend his usual visit and to present a talk. Joining him was another society favourite and friend Paul Money. The Mayor arrived at 1:00 pm and was introduced to the official party of Chairman Les Marsden, Observatory Curator Tony Morris, President Allan Chapman by Paul D'Silva acting as MC in place of Roy. Cllr Andrews gave an address that briefly described the work of the society and why Project Aquarius was set up, then deftly unveil the plaque to re-open the observatory. Tony led the official party, at this stage joined by John Healey, on a tour of the observatory. The visitors were obviously engrossed because the tour went on for nearly twice as long as scheduled and at the end of it the Mayor was in no hurry to leave after the agreed half hour. Instead after a quick cup of tea she joined guests and members in the work room for the first of the afternoon's talks by Paul Money on his interest in astronomy told through the story of the telescopes he has used.

Many thanks to Jane from Swinton Bottom Workingmen's Club who provided us with a magnificent buffet lunch and to Mick Collinson for organising the beverages. Lunch seemed to overrun and as the afternoon was warm Jan Stallard asked if Allan could give his talk outside in the lovely afternoon sunshine. Allan jumped at the opportunity and standing in the shade of the gazebo gave his talk on Tycho and his contemporaries as if addressing students at Academia.



Many thanks to all the members who came and helped set up and pack away on the day.

The J A Jones is now operational, with its new facilities it is available for a wider range of users and ready for the next forty years of astronomy with Swinton & Mexborough Astronomical Society and the local community.

Paul D'Silva

Diary

Date	Time	Location	Subject / Event	
Thu Aug 1st	19:45	Club Room	AGM – Members Please Attend	
Sun Aug 4th	13:00	Observatory	Members Only – Solar Observing	
Thu Aug 8th	19:45	Club Room	Global Positioning Systems	*Tony Morris*
Wed Aug 14th	20:00	Club Room	Executive Committee Meeting	
Thu Aug 15th	19:45	Club Room	The Moon	*Peter Lloyd*
Thu Aug 22nd	19:45	Club Room	Astro Clinic	*Usual Suspects*
Thu Aug 29th	19:45	Club Room	Round Like a Circle	*Paul D'Silva*
Thu Sep 5th	19:45	Club Room	TBA	*Phil Muffett*
Fri Sep 6th	19:45	Observatory	PVE	*Les Marsden*
Wed Sep 11th	20:00	Club Room	Executive Committee Meeting	
Thu Sep 12th	19:45	Club Room	Return to the Moon	*Andy Kirton-Vaughan*
Thu Sep 19th	19:45	Club Room	TBA	*Ed Bothomley*
Thu Sep 26th	19:45	Club Room	What's Nu in Neutrino Astronomy	*Matthew Malek*

(Details correct to time of publication)
PVE – Public Viewing Event – Bookable Only
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 Nº 1064103 in England & Wales
For submissions to The Messenger - Editor: Roy Gunson: royg@gmx.co.uk

.



"Can you see anything yet?"

Paul & Tony's telescopic masterclass in observational skills

Lesson One – "***How to identify the eyepiece end!"***

Lesson Two – "***Where to keep your glasses whilst looking though a telescope***"