

Federation of Astronomical Societies



Editor: Michael Bryce

Newsletter

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Note: The FAS Council Reserves the Right to publish articles, events and reports submitted to the FAS Newsletter



*NGC6888, The Crescent Nebula in Cygnus.
Image by Bill McSorley. West Yorkshire Astronomical Society.*

See Feature on Pages 5 and 6

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President's Spot: Dr Paul A Daniels FRAS

Back in 2000, after over 30 years of working as a freelance IT contractor, I decided I wanted to 'get back into astronomy'. Any chance of getting to use my, by then relatively ancient, Astrophysics degree and PhD and re-entering the academic world as a professional astronomer had long passed so I cast my eyes around for a good local society. I chose Guildford Astronomical Society for my astronomical renaissance and, after just a short while, found myself genially 'pressganged' onto their committee. I spent a couple of years as their webmaster and then seven years as their President. During this time I re-joined the Royal Astronomical Society, was an RAS Council member for three years, an RAS Vice-president for two years, became a member of the European Astronomical Society and, in the last couple of months, a member of the International Astronomical Union. Just under seven years ago I joined the FAS Council and, nearly six years ago, became your FAS President. That's a lot of Committees and Councils but not a whole lot of *real* astronomy!

There's a long-standing joke amongst my friends that, despite my involvement with astronomy, I'm not an observer (which end do I look through?)! For me it's the science and mathematics of astronomy and a humbling, near-spiritual sense of being part of a Universe that's much vaster than any human mind can comprehend and more real, intriguing and rewarding than any religion could ever aspire to be.

I *have* enjoyed helping to organise astronomy and collaborating with, for the most part, good, enthusiastic people working towards the common goals of supporting, growing and promoting both professional and amateur astronomy but I've decided others need a chance to get involved and that I need to do more of my own thing; spending more time with my wife, Trish, walking our Red Fox Labrador, Mr Darcy (shown here Sep-2022 and Sep-2023), writing a textbook or two (combining my computing experience with astronomy) and restricting my committee involvement to work on the RAS Satellite Megaconstellation working group.

So, here I am, typing my last President's Spot after six years as FAS President – it's sincerely been an honour and a privilege to serve you all. There have been the occasional 'ups' and 'downs' of course but, for me, a very enjoyable and rewarding experience and I hope, for you, help and guidance where needed, an FAS newsletter that's grown in leaps and bounds, webinars, conventions and better recognition amongst the UK and international professional astronomical community.

I don't know who'll take over as FAS President at the AGM (2:30pm, Sunday, 8th October 2023 *via* Zoom) but I wish them, the rest of the FAS Council and you all the very best!

Stay safe and clear skies

Paul

PS: Mr Darcy says 'Woof'!



Image Above: Dr Paul A Daniels FAS President from 2017 until 2023



Image Above: Paul and Trish's Red Fox Labrador, Mr Darcy (shown here Sep-2022 and Sep-2023)

Dear Paul

Thank you for your support, praise, help and encouragement for my work since I became FAS Newsletter Editor in 2019. I'm sure Council Members will join me in saying "I will miss you".

Michael Bryce, Editor.



The Schools' Observatory: A New Brand for a New Year

At the beginning of the new academic year 2023, the National School's Observatory became The Schools' Observatory. A fresh start with a new logo and name change. This change ties in with the launch of the Observatory's our 5-year strategy and future international plans.

This was only possible due to the schools that use and recommend the facility. The School's Observatory thanks the Academic Community for their support.

In the early 2000s, staff at Liverpool John Moores University had an idea. What if we were to build the world's largest completely robotic telescope? Equipment which could respond so fast that we could see the first few minutes of a supernova explosion. Versatile enough to track a comet passing by the Earth. Innovative enough to carry out pioneering science and astronomy. And what if we also made it accessible to schools? For free.

The Schools' Observatory was born, opening a new window to the Universe – inspiring students to do science and experience technology.

From the seed of an idea, we have brought astronomy into the classroom – supporting schools to take hundreds of thousands of observations of the cosmos. Engaging millions of people with space education over the last 15+ years.

At the heart of the School's Observatory is the state of the art Liverpool Telescope with it's huge mirror, 2 metres in diameter. The large size of the mirror lets the LT collect lots of light from objects far away in space. The mirror also directs the light towards a set of scientific instruments. As well as collecting visible light that our eyes can see, the LT can see in infrared light. It also has spectrometers that let astronomers study the chemistry of stars in space.

Schools are able to use the LT because it is fully robotic and does not need to be staffed. After sunset, the LT's computer systems check the weather conditions. If the weather is good, the roof opens up like a clamshell. The telescope then works its way through the list of observations sent to it via the internet during the daytime. Once the data has been collected, the LT sends it back to whoever asked for it.

The whole telescope is 8.5 metres tall, 6.5 metres wide and weighs around 24 metric tonnes. Despite its huge size, the LT can move to look at different parts of the sky. Engineers designed the telescope to respond to new events far away in space. It can receive a request and start observing a different part of the sky within minutes.

The Schools' Observatory support students on their STEM journey – however far that might be. From the earliest stages we provide



Image Above: The Liverpool Telescope, La Palma

Credit: The LT

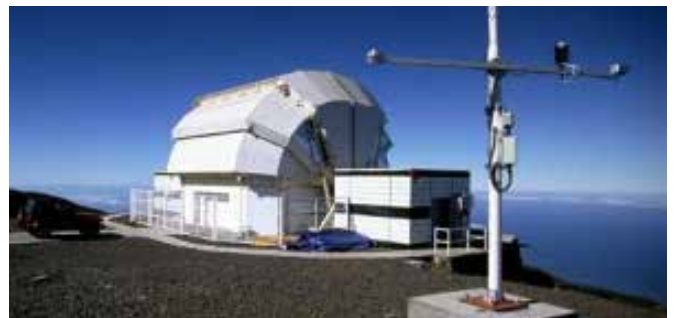


Image Above: The LT Enclosure. A special enclosure protects the telescope mirror and instruments from rain or any other bad weather. The shape of the enclosure keeps air flowing over the telescope. This prevents turbulence in the air close to the telescope. Any turbulence would make the images look blurry.

Image Credit: LJMU/ARI

resources for preschool families to think about space. We offer advice for those who want to pursue a career in STEM. And along the way we inform, educate, and inspire.

Space is truly Universal. Away from our diverse experiences on this Earth, we all share the same planet. We all look out to the same galaxy and wonder the same big questions – where did it all begin? Are we alone? What will become of our planet?

Space is truly wonderful. And in wondering about space, we can all learn. Science, maths, engineering, technology, programming, questioning and creativity. Skills which can set us up for life.

Original Text and Images:

Liverpool John Moores University and the Schools' Observatory
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LJMU: ljamu.ac.uk

Schools' Observatory: schoolsobservatory.org

The Astronomy of Sir Christopher Wren

By Grace Burthom

It is known that Sir Christopher Wren was an influencer in his day, having been an architect, astronomer and geometrician, among many other professions; taking a mathematical approach to his roles and a logical approach to his domestic life. Wren was born in 1632 and died 300 years ago in 1723, with a tragic upbringing where five of his siblings died. Even when an adult, his home life was difficult as four of his children and two of his wives passed away in his lifetime. Not only this, but Wren also lived through the Great Plague of 1665 and the Great Fire of London in 1666. Although having suffered so much and having endured some of the darkest times of history, he overcame it all and came out on top. He is now remembered as one of the greatest minds of his time, along with the likes of Robert Hooke and Sir Isaac Newton. He was one of the founders of the Royal Society; contributed to the solution of Saturn's unusual apparent shape; and designed some of our most famous landmarks, including Saint Paul's Cathedral, Hampton Court and the Sheldonian Theatre (Oxford). These accomplishments are only a few of which he made in his time, where science was limited by technological advancements. Truly, he managed to make his whole world, everything around him, into a monument and something worth admiring, no matter how ordinary.

At the start of Wren's career, he was a mathematician and astronomer. He adored the cosmos and was curious into both the microscopic and macroscopic. However, it was difficult to observe such extremities with such limited optics in the 1600s and so Wren made his own invention to improve this.

This led to the creation of the idea of his 'engine' [Figure 1 below]. This was in theory a cylindrical hyperboloid made from a hard substance, that would have been used to grind the surfaces of lenses accurately in order to create hyperbolic lenses which could have improved definition. It would have worked by using the solid to roll over the piece of glass to change its form and create a smooth curvature across the top. A hard material would have been

required to make these 'engines' so they would be durable. There has never been any proof that these 'engines' were ever created so it cannot be said that it worked, but if they were made and used, the quality of the lenses would have improved dramatically. Wren demonstrated this idea at the Royal Society which shows that although this creation was never used in masses and remained as merely a demonstration, Wren was a respected genius looking to make not only scientific but also technological advancements.

Another way Wren displayed his creativity in his early days, was through one of his sun dials. This sun dial is positioned in All Souls College, Oxford University. It is large, circular and grandly designed. Despite the fact that it is no new discovery during his time, it shows his interest in understanding the motion of celestial bodies through our sky.

Building on from the idea of Wren's interest in celestial bodies, he was equally fascinated by our nearest one: the Moon. Wren is recognised as the first person to attempt to map the surface of our moon. To do this, he made a 3D model made from paste board, which he gifted to King Charles II. In a painting of him positioned in the Sheldonian Theatre, one of the only ones existing, there is a depiction of this 3D model of the Moon in the bottom right corner. This painting also portrayed his other interests, such as architecture, displaying building plans and famous landmarks. It was also signed by at least 3 different artists. So not only does this painting imply Wren's importance in his day, but it also signifies the value of this 3D model which has never been found.

His love of the Moon extended to the eclipse in 1654. No major breakthroughs were made, but it is known that he assisted other scientists to view it in Oxford.

Wren's curiosity surpassed the Moon with his interests in the strange phenomena that was Saturn. At the time, due to the

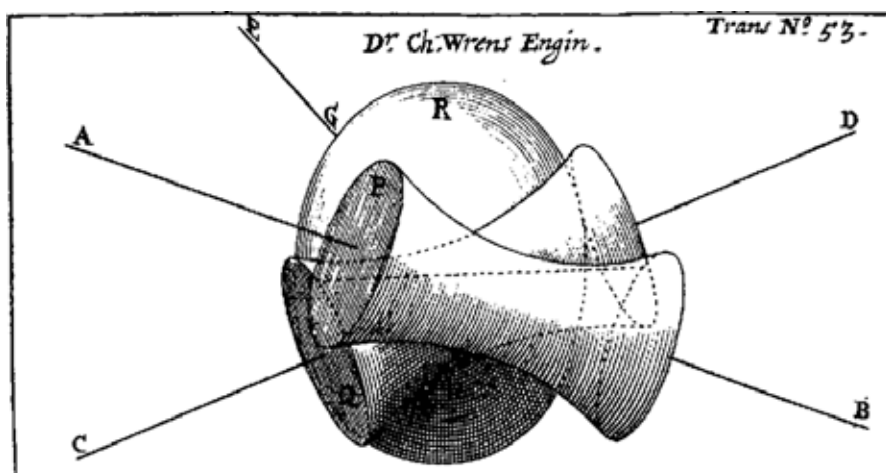


Image Left: [Figure 1] From Philosophical transactions, iv, no. 53 (15 November 1669)

poor optics available, Saturn and its rings could not be clearly distinguished. For an astronomer in the 1600s, what would have been seen was a shape-changing-blob. So, due to the orbits and rotation of both Earth and Saturn, as well as the nature of Saturn's rings, at some points, the image seen would be three circles or one circle or even an oval with two holes, as shown in the image [Figure 2] below. Wren drew upon the conclusion that the cause of these strange patterns was due to rings of matter around the planet. He made a model to display how this theory is true. Christian Huygens soon after did more research into Saturn's rings and decided that the rings were actually elliptical. He too created a model to display this idea and Wren praised it. He said that he was so 'fond of the neatness...and simplicity' that he 'loved' Huygens' model 'beyond [his] own'.

If you look up at the night sky on a good night with clear skies, you may be able to spot the Pleiades, the Seven Sisters. If there are good conditions, six can be seen with the naked eye, and if you have good eyesight then all seven should appear. This seemingly small star cluster is actually an open cluster and reflection nebula. Even with poor optics, Wren was able to measure the positions of 40 stars in this cluster by mapping them. It is known now, with use of the best telescopes available now, such as James Webb and Hubble, that there are about 3000 stars present. To be able to see 40 is incredible with so many stars squished together and with the low-quality telescopes, but to map and measure each of their locations is remarkable. This is another display of Wren's pure genius, perseverance and inspiring logic which allowed him to measure their positions.

In 1664, a very bright comet flew past the Earth. It was noticed by most of the population on Earth and was depicted in many art pieces and illustrations. Samuel Pepys even wrote in his diary about how people were discussing the event of this comet in coffee shops. Although most of the population on Earth was busy gawking and standing in awe at such a magical, celestial event, Wren was busy attempting to measure the comet and map its trajectory. Due to modern discoveries, it is now known that to do this, you have to take into account of the Earth's orbit and rotation and the fact that a comet's orbit is never a straight line. It can be assumed, though, that, over a short distance, a comet travels in a straight line and this is what Wren did. He also took account of the Earth's spin in his calculations and diagrams. This again shows how his thinking was beyond his time.

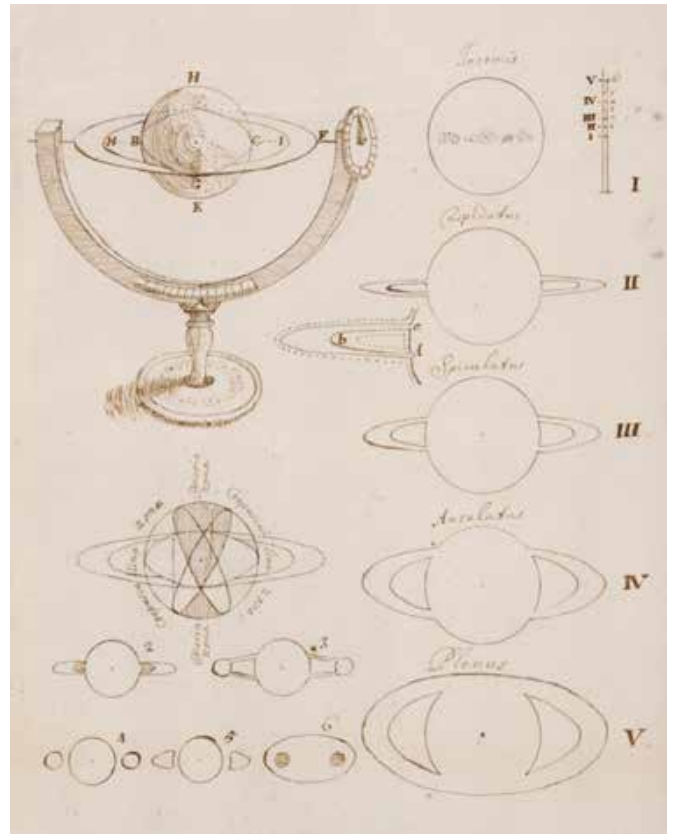
Image Right: [Figure 2] From Wren's *De Corpore Saturni* (RB/1/20/2)

Image Below: Grace Burthom with Dame Jocelyn Bell-Burnell at the 2022 FAS Women in Astronomy Conference.



Wren, having been a master at measuring and mapping the cosmos, came across stellar parallax [Figure 3] which would only be established by Friedrich Bessel two hundred years later. However, Wren, using Copernican Theory, stated that a nearby, observed star should appear to shift slightly due to Earth's orbit around the Sun. This meant at one point of the year, the star being observed would line up with a stellar object behind; but six months later when the Earth was positioned on the other side of the Sun, the same observed star would line up with a completely different stellar object in a different part of the universe. This change in position of the Earth, and therefore the seemingly different position of the stars, was not the only problem when attempting to map the cosmos.

Another problem that astronomers of Wren's day faced, was with positioning the telescopes. Some of the issues that had to be dealt with included flex in telescopes, the design of the telescope and the fact that there was no tracking like there is in our time. After the Great Fire of London, Wren and Hooke decided to build a telescope unlike any other previously built. He designed the 'Monument'. Wren's 'Monument' was an elaborate, 202ft tall sculpture where a telescope was placed in the middle. Its purpose was to observe the star Gamma Draconis. The theory was that there would not be much flex as it was built into the ground and unable to move, it would be able to view the sky right above and tracking would not be a problem as it is stationary. This would remove the issues of flex, positioning and tracking (in theory). The declination of the Gamma Draconis is 51.5 degrees, and the latitude of the telescope is approximately 51.5 degrees meaning that the star should have passed right over the telescope allowing a clear view of it in the summer. Unfortunately, it did not work. Hooke discovered a parallax error involved. It was possible that the vibrations of London's traffic created flex in the telescope. Even



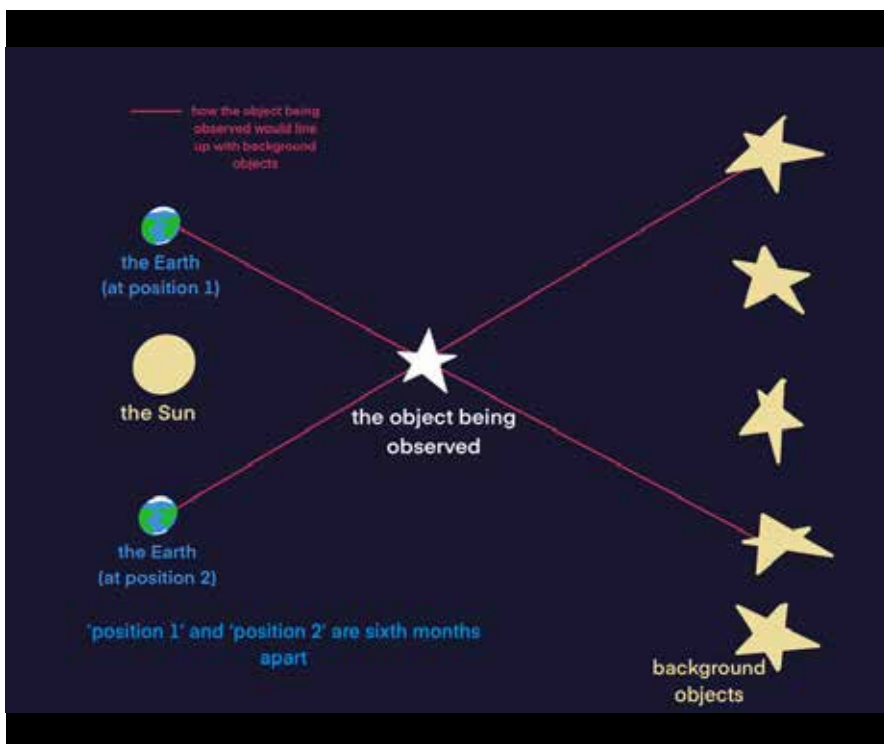


Image Left: [Figure 3] An explanation of parallax distance measurement for nearby stars.

Drawn by Grace Burthom

though the 'Monument' never fulfilled its purpose, it still stands tall in London, resembling proof of Wren's creativity, genius, love of the stars and impact in today's modern world.

Ultimately, Sir Christopher Wren was a true explorer of the cosmos. The cosmos may have been smaller then, as not even Uranus had been discovered yet, but Wren did his best to understand all that he could see and to look beyond previous limits. He worked collaboratively with other geniuses; he discovered so much in his relatively short astronomical career before he switched to architecture whilst still keeping an outward looking mindset. He surpassed the impossible by improving telescopes, mapping both

the stars and the Moon, and even became close friends with Robert Hooke. At the location of Sir Christopher Wren's grand masterpiece of Saint Paul's Cathedral, lies his body, and on his tomb is inscribed the words 'lector, si monumentum requiris circumspecte' – 'reader, if you seek a monument, look around'. I believe that this shows his open and accepting personality which was full of wonder. He turned everything his curiosity latched onto, into something worth admiring, and thus, into a monument.

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Grace Burthom

About Grace

My name is Grace Burthom, I am a Year 12 student and have always loved the stars. When I was 5, I started asking about space and why it exist. Since then, I have become a member of the Guildford Astronomical Society, gave a short presentation at the Women in Astronomy Conference for the FAS and become a student ambassador for the robotic telescope company, Slooh. One day, I wish to become an astrophysicist or particle physicist studying the cosmos and, hopefully, dark matter.



Stratford-upon-Avon Astronomical Society

Astronomical Society News

The Stratford upon Avon Astronomical Society meet every 1st and 3rd Tuesdays at 8pm (doors open at 7.30pm) at Alderminster Village Hall. Everyone is welcome, especially beginners and those wanting to learn more. The first Tuesday is a Club Night, in October that will be on 3 October and the speaker on the third Tuesday, which is on 17 October is due to be Professor Robin Jeffries from Keele University, with a talk called 'Gaia, the billion star mapping machine.' Please note that the speakers usually start quite promptly at 8pm.

Each month one of our members offer pointers to what to look for in the sky during the coming weeks.

The Aurora Borealis (The Northern Lights)

Back in the spring, you may have heard of the Northern Lights being sighted over Warwickshire, you may have even seen them yourselves.

This was due to the fact of the sun approaching Solar Maximum, and so it is more active with sun spots and Solar flares. This makes the solar wind stronger and when it interacts with Earth's magnetic field it is forced to the polar regions. There it reacts with the nitrogen and oxygen molecules, causing 'curtains' of colour - red and green in particular. They flow and shimmer and are an amazing sight (they are on most astronomers bucket list).

They normally appear just below the Arctic Circle. Northern Canada, Iceland and Norway are renown for them, and spring and autumn are generally the best time to see them.

At times of strong Solar activity, they are forced further south and can be visible in the United Kingdom. The aurora is measured by the Kp-Index - derived from the German Planetarische Kennziffer meaning "Planetary Index". The index scales runs from 0 to 9, the higher the index the further South the aurora are likely to be seen.

Similar lights are at similar southern latitudes and are called Aurora Australis.

Keep a watch out for them.

Club nights offer more information on what to look out for each month and if it is clear we do some observing just outside the Village Hall, so please join us. There is no charge initially to come along and find out more, but if you do want to become a member then the fee is JUST £15 A YEAR and it's free if you are in full time education. For more details go to the website <http://www.astro.org.uk> or contact the Chairman John Waller john.waller@astro.org.uk or on 07703 192188. Happy Observing!

Dave Benton
Stratford-Upon-Avon Astronomical Society
astro.org.uk

Send Your Name to Europa: NASA Invites Public to Sign Poem That Will Fly Aboard NASA's Europa Clipper Spacecraft

Members of the public are invited to add their names to an original poem dedicated to NASA's Europa Clipper mission before the spacecraft begins its journey to Jupiter's moon Europa in October 2024. The poem and the names will be like a message in a bottle, travelling billions of miles as the mission investigates whether the ocean thought to lie beneath Europa's icy crust could support life.

As part of the "Message in a Bottle" campaign, names received before 11:59 p.m. EST, 31 December 2023, will be stencilled onto a microchip, along with the poem, written by U.S. Poet Laureate Ada Limón and titled "In Praise of Mystery: A Poem for Europa."

To sign, read the poem, and hear Limón recite the poem in an animated video, go to:

<https://go.nasa.gov/MessageInABottle>



**The FAS AGM is on
Sunday
8 October 2023
at 14:30 hrs
via Zoom**

Readers' Images: Crescent Nebula and Black Velvet Nebula

By Bill McSorley, West Yorkshire Astronomical Society



*Sharpless 108, The Black Velvet Nebula in Cygnus.
By Bill McSorley, West Yorkshire Astronomical Society.
See description on page 5.*

Cover Image:

NGC6888: The Crescent Nebula in Cygnus

NGC6888 (also known as Caldwell 27 and Sharpless 105) is an emission nebula about 5000 light-years away from Earth. It is formed by the fast stellar wind from the Wolf-Rayet star WR 136, in the centre of the nebula, colliding with and energizing the slower moving wind ejected by the star when it became a red giant around 250,000 to 400,000 years ago. The result of the collision is a shell and two shock waves, one moving outward and one moving inwards.

Imaged from my back garden using a SharpStar 61EDPH Triplet refractor and a ZWO ASI1600mm Pro cooled astro camera, with Baader Ha, Sii and Oiii Ultra-Narrowband filters, on a SkyWatcher EQ6R-Pro mount.

20x600sec Ha, 16x600sec Sii, 12x600sec Oiii, plus Darks, Flats and DarkFlats (around 8hrs of total integration) over 6 nights during July 2023, in and amongst clouds and rain!

Processed in PixInsight as two separate images, one as HOO for the Crescent Nebula and one as SHO (Hubble Palette) for the background, then combined and finished in Photoshop.

Sharpless 108, The Black Velvet Nebula in Cygnus.

The Black Velvet Nebula is a Dark Nebula within Sharpless 108 (SH2-108) and is located just to the left and bottom of centre in this image. Sharpless 108 is an emission nebula where the gas is excited by the UV radiation from nearby stars and re-emits light at frequencies (colours) that are unique to the specific gas. This is a false colour image in the Hubble palette where Hydrogen-Alpha emissions are mapped to Green, Sulphur-II emissions to Red, and Oxygen-III emissions to Blue. The Dark Nebulae comprise dense clouds of dust that obscure the emissions from the main nebula.

Imaged from my back garden, using a SharpStar 94EDPH Triplet refractor and a ZWO ASI183mm Pro cooled astro camera, with



Image Above: Location of The Crescent Nebula - Caldwell 27 (NGC6888) in Cygnus. The Black Velvet Nebula is located between the Crescent and the variable star Sadr (Gamma Cygni), the centre of the Cygnus Cross

Image Credit: Screen Capture from Stellarium Web stellarium-web.org

Baader Ha, Sii and Oiii Ultra-Narrowband filters, on a SkyWatcher EQ6R-Pro mount.

22x600sec exposures through Ha, Sii and Oiii filters plus Darks, Flats and DarkFlats (11hrs of total integration), over 6 nights during July 2023.

Processed in PixInsight and finished in Photoshop.

Bill McSorley, West Yorkshire Astronomical Society
wyas.org.uk

Society for Popular Astronomy Meeting - Wolverhampton

Saturday, 28 October 2023, 2 pm – 5.30 pm. Doors open 1:15 pm.

University of Wolverhampton Science Park, Glaisher Drive, Wolverhampton WV10 9RU.

Main Speaker: Prof Lucie Green (UCL-MSSL): The Sun and the Solar Orbiter Mission.

After this talk there will be a break during which we'll be celebrating the 70th anniversary of the society. Free Entry. No need to Book. Details at:

https://www.popastro.com/main_spa1/meetings-and-events/forthcoming-meetings

Advanced Notice:

European Astrofest 2024 takes place on
Friday and Saturday 2 and 3 February 2024

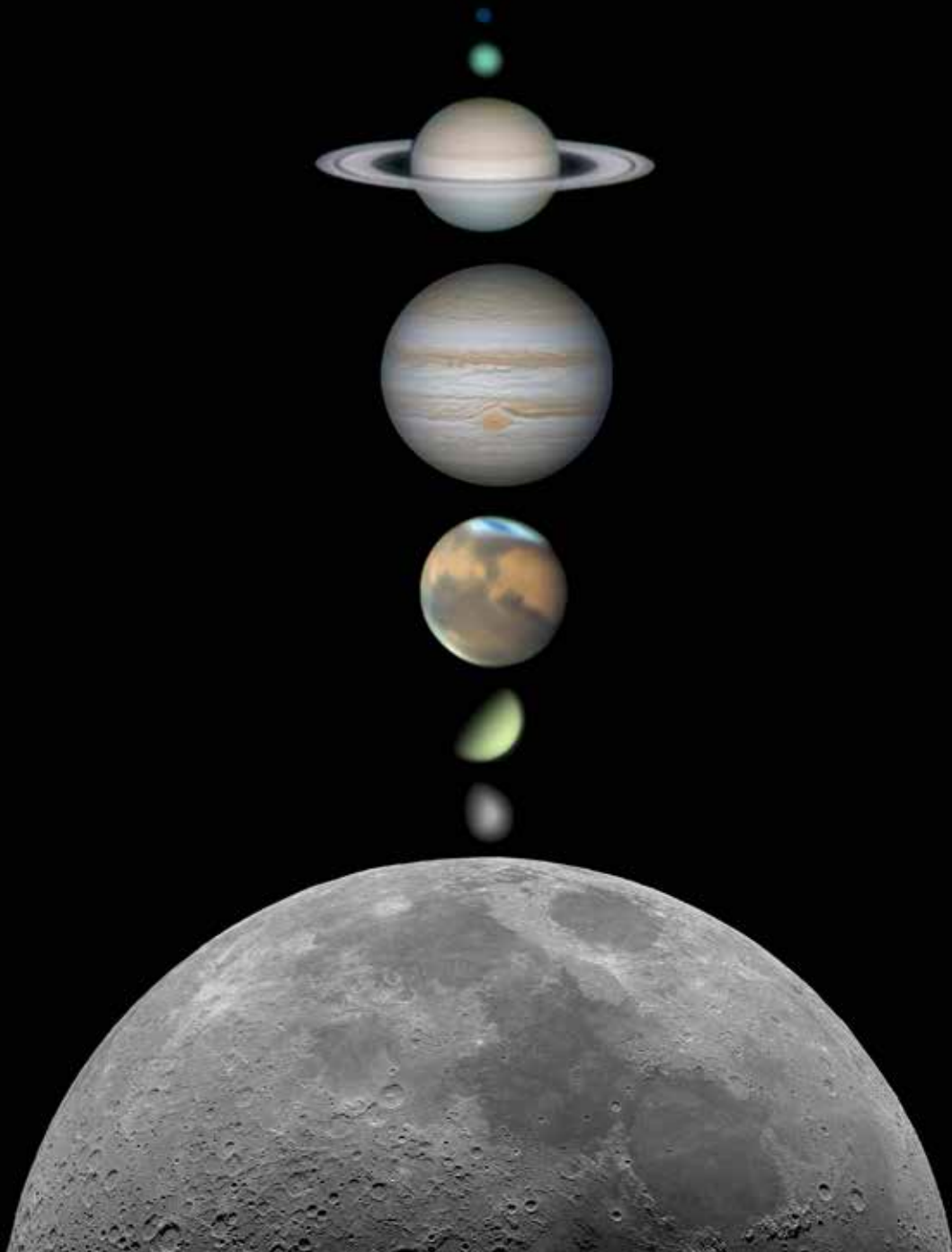
For More Information and Tickets please visit: europeanastrofest.com

Solar System Montage

By Martin Lowde

Hi, I'm Martin (Banger) Lowde from MSAS Sutton in Ashfield. Just sharing my collection of planetary images from the last 12 months. All taken with a 250p FlexTube GOTO Dobsonian, from my garden in Huthwaite Nottinghamshire. Moon was a 5 panel mosaic with the Player One Uranus-C camera, back in June of this year. Jupiter, Saturn and Uranus, 5 September 2023 with the Player One Uranus-C, Atmospheric Dispersion Corrector and x3 Barlow. Mercury, Venus, Mars and Neptune taken last year with a William Optics ASI 224, x2 Barlow and Atmospheric Dispersion Corrector. All gone through Planetary Imaging PreProcessor, Autostakkert, Registax and Photoshop.

Mansfield and Sutton Astronomical Society
sherwood-observatory.org.uk



Cygnus Wall and Aircraft Transiting the Moon

By Nick Williams, Loughton Astronomical Society

The aircraft/moon transit was taken 29 June 2023 at an observing evening held by LAS in Theydon Bois, Essex. I was lucky enough to have my Canon EOS250D DSLR attached to the society's Revelation 80ED refractor at exactly the right time.

I used the Flightradar24 app to identify the aircraft/flight details, & after tagging BA when posting the image on Twitter, the wife of the pilot flying that aircraft made contact with me. I happily shared the full-res image with her & I understand they are having it framed & displayed at home! The image was a single shot @ 1/125 sec @ ISO 100.

My image of the Cygnus Wall (in NGC7000) is a stack of 10x 5 minute exposures taken using my 90mm StellaMira EDT refractor

& William Optics ZWO533 MC-Pro camera, taken 20 August from Chingford, NE London. The final image was processed in SiriL & Photoshop. LAS has a number of members with a passion for astrophotography, and who are happy to share workflow processes and imaging tips- which helped me create this image which has quickly become one of my favourites!

Nick Williams
Loughton Astronomical Society
las-astro.org.uk



Space Oddities Live!

Space Oddities Live Moves to Tuesday at 8:00 pm!

Due to personal circumstances by one of the Space Oddities Team we have moved the show to Tuesday evening. 8:00 pm weekly!

Space Oddities Live YouTube channel can be found at: [youtube.com/@spaceodditieslive](https://www.youtube.com/@spaceodditieslive)

Our Facebook Group is at: [facebook.com/groups/spaceoddities](https://www.facebook.com/groups/spaceoddities)

Sponsored by Rother Valley Optics:
www.rothervalleyoptics.co.uk

Construction Starts on Sherwood Observatory Science Discovery Centre and Planetarium

By Steve Wallace



Image left: An artists rendering of the future Science and Discovery Centre at Sherwood Observatory. The big draw of the new Centre will be our 59-seat state-of-the-art planetarium. This will consist of a 10m diameter projection dome with dual projectors delivering 4.4K resolution.

Sherwood Observatory is the home of the Mansfield and Sutton Astronomical Society (MSAS) and is situated at one of the highest points in north Nottinghamshire between the towns of Sutton-in-Ashfield, Mansfield and Kirkby-in-Ashfield. This area is one of significant deprivation.

At a local level, Ashfield's education and skill indicators place it 310th out of 379 local authority areas in the UK for education and 371st for adult skills, with only 21.2% of the adult population holding at least Level 4 qualifications as opposed to 39.9% for the UK average. Lower educational outcomes mean residents are less likely to achieve the STEM qualifications needed to work in the high-skilled, high-paid jobs that improve lives and the local and regional economies. Lack of opportunity and not lack of talent lies at the heart of this disparity. We passionately believe that young people in our area should have the same access to extracurricular activities as those from more affluent areas and have used the observatory to deliver outreach for many years.

As described in previous newsletters, we've had a long-standing ambition to convert our underground Victorian reservoir, situated adjacent to the observatory, into a Science Discovery Centre. We are delighted to announce that after a multi-year fund raising campaign, we finally started construction on the 29th August this year. All being well, the new Centre will open in November 2024.

The new centre will include a planetarium, exhibition space, meeting room and a café. This will allow us to expand our outreach, excite more visitors, and provide a multifunctional community resource and events venue. It will serve to inspire STEM learning and improve skills in young and old alike to create a pipeline of talented and motivated people to support local jobs and prosperity. The new Centre will not only inspire future generations but will also be an important asset for the visitor economy.

As can be seen in this image, the design approach is to create a contemporary pavilion to house a planetarium over the reservoir, thereby creating a contrast of old and new that is then brought together as one. The reservoir will be accessed by an entrance mezzanine level leading to a central stair/lift core.

The floor of the reservoir will be repurposed into an exhibition space that will also be available for general community uses. Visitors, whether arriving for education or leisure purposes, will be transported up through the central core into the new first-floor pavilion, where their journey can flow between bright spots of the planetarium dome, café and meeting room overlooking the countryside.

The big draw of the new Centre will be our 59-seat state-of-the-art planetarium. This will consist of a 10m diameter projection dome with dual projectors delivering 4.4K resolution. A dedicated computer system and image generators will run SkyExplorer – a cutting edge specialist planetarium software package developed by RSA Cosmos, who are delivering the specialist fit out in partnership with ST Engineering Antycip. With the planetarium we will be able to take visitors on tours of the solar system (including the surface of Mars), galaxy and deep sky using data and images from scientific institutions and national space agencies from across the world. We will basically have an accurate simulation of the known Universe at our fingertips. Visitors will be able to look at the night sky in the planetarium and then see it in real life through our telescopes and radio astronomy equipment.

We are still looking for support to help with fit out costs. Donations can be made to our Totalgiving page here: (<https://www.totalgiving.co.uk/appeal/sciencediscoverycentre>) and we have a planetarium seat sponsorship available for £250, in exchange for which you get a dedication plaque on the back of a seat for 5 years and an invitation to a special VIP event. Corporate sponsorship packages are also available. Please contact **Steve Wallace** at projectmanager@sherwood-observatory.org.uk if you would like more information.

Steve Wallace
Sherwood Observatory
sherwood-observatory.org.uk

Celebrating 51 years of bringing the science of astronomy to all members of the community, near and far.



Programme for 2023/24

Sep 6, 2023	Roger O'Brien HAG President	The SpaceX Starship
Oct 11, 2023	Richard Goodrich Historian and author	How the 1910 Return of Halley's Comet (Almost) Destroyed Civilization <i>An event for World Space Week</i>
Nov 8, 2023	UH Astronomy Students	Various topics
Dec 13, 2023	Rodney Buckland Open University	Remote and Robotic Telescopes
Jan 10, 2024	David Arditti President, BAA	Astronomers' Tools: Choosing the right telescope
Feb 14, 2024	Alan Davies University of Hertfordshire	Rainbows and Atmospheric Phenomena
Mar 13, 2024	Ruth Gregory Head of Physics, King's College	Beyond Einstein and Modifying Gravity <i>An event for British Science Week</i>
Apr 10, 2024	Jerry Stone Spaceflight UK	The Development of Island Zero - Space Habitats <i>Celebrating Yuri's Night</i>
May 8, 2024	Ian Morison Jodrell Bank (Retd.)	Our Island Universe - the Milky Way
Jun 12, 2024	Andrew Coates UCL / MSSL / SPA VP	Life on Mars / Habitability of Jupiter's moons

Whether you are an experienced astronomer or just starting to take an interest in the night sky, then join us on the 2nd Wednesday of each month, except July and August.

Note that the September meeting is on the first Wednesday.

We meet at The Lindop Building, University of Hertfordshire, College Lane, Hatfield AL10 9AA
Doors open 7:30pm. Meetings start at 8:00pm

Membership is just £10 per year, and is calculated pro-rata.

Visitors are charged £2 per meeting. Under-18s and full-time students can attend for FREE.
Under-16s must be accompanied by an adult.

Members may also attend meetings of the HAG Astrophotography Section at no charge.

For more information, visit the website or write to programme@hertsastro.org.uk

www.hertsastro.org.uk

Facebook: <https://tinyurl.com/yets7jyp>

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Programme Secretary & Publicity Officer

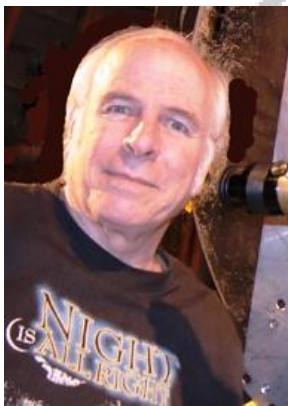
Society for the History of Astronomy



The Society for the History of Astronomy

Online Zoom® Webinar

**“Fantasy Flights to the Moon; from Roman
Writer Lucian to the Flight of Apollo 11”**



“A Trip to the Moon” Director: Georges Méliès – © Modern day Image.

Presentation By Bob Garfinkle, FRAS

Society for the History of Astronomy member Bob Garfinkle writes astronomy books, articles, and book reviews and is recognized as an independent scholar on the history of astronomy and observing the night sky.

*His first book, **Star-Hopping: Your Visa to Viewing the Universe**, was published in 1994 by Cambridge University Press. This best-selling book was republished as both a hardback and paperback in 1997. He co-authored another best-selling book **Advanced Skywatching**, also in 1997. This book has been translated into German and Spanish. Bob spent 30 years writing his 3-volume lunar observers' reference book, **Luna Cognita**. It was published by Springer in 2020. Harrison Schmitt of Apollo 17 wrote the Introduction. In May 2018, Bob was notified that the International Astronomical Union had renamed Minor Planet 2000 EY70 to be “31862 Garfinkle” in his honour.*

Wednesday, 1st November 2023 at 8pm (GMT)

Zoom link details will be made available to SHA members near to date.

Please contact:- meetings@shastro.org.uk

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