Aries

The Journal of the Derby and District Astronomical Society

Front Cover Picture:

A Symbolic representation of the constellation Aries, from a sixteenth century European manuscript

Back Cover Picture:

An image of the Moon around a day past full in late May 2013 from North Wales

It is a double exposure, one for the reflection and one for the moon, and then the two images superimposed on the computer.

Image Credit: Chris Newsome

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EDITORIAL

Aries is back!

Welcome to the latest edition of Aries, after 6 years of being Secretary of the DDAS, I have moved to pastures new and I am trying my hand as Editor of Aries (must have been a rush of blood to my head). I must admit that I have found getting this booklet out quite challenging; certainly more than I realised. I did try to follow the A5 booklet format that Anthony used before me however I have had terrible trouble trying to get this sorted using some DTP software at work, the main reason being time (I only get half an hour lunch and that soon disappears). I mentioned my problems to Arthur Tristram during a coffee break and he asked why I didn't just use Microsoft Word and put it in an A4 format if it was easier. So that is what I've done and I'd like to give Arthur a very big thank you for his suggestion

THANK YOU ARTHUR!

Anyway, after a vast amount of agony and heartbreak, here it is and I hope you enjoy it.

There are a number of articles by DDAS members and I would like to thank each of them for taking the time to submit these and by doing so making my first edition of Aries so much easier. There are three reviews in this issue, one by Pete Sturgess on his latest telescope, another by Malcolm Neal on the book 'Sputnik and the Soviet Space Challenge', and final one by Brian Dodson who reviews the last year and a half.

Bill Miles has provided a report on an Astronomical Oddity he saw whilst on holiday in Sicily and Arthur Tristram has produced an account on the life of William Abney, a somewhat forgotten local astronomer and there is also a light-hearted article by Stephen Webster on a 'famous' astronomer.

I am now ready for you to send in some more articles for the next edition and I will try to take less time to get it issued. It's a strange thing time, the older I get the less time I seem to have to do things. Is it because I am getting older and slower or maybe as I have got older I have more things to do? Or maybe time is like a steep hill, when you are younger you take shorter steps and it takes longer to get up that hill but once you pass a certain age you cross the summit and then it is downhill and time speeds up! I have one article that I kept back from this issue due to time constraints but you can look forward to an article by Matthew Trotter on 'Basic Telescopic considerations' in the next much anticipated edition of Aries!

In the future, I also hope to include some more features such as 'Meet the DDAS Member', a crossword section, an expanded Society News page, star charts and a section on the latest news from the astronomical world. I would also like to add a questions page for anyone who has any questions about astronomy in general or about the society. If you have any questions then please email them to me and I'll try to answer them

Dave

Society News

AGM 2013

Officers

Chair	-	John Holmes
Vice Chair	-	Robert Seymour
Secretary	-	Anthony Southwell
Treasurer	-	Ian Bennett
Site Curator	-	Mike Dumelow
Webmaster	-	Mike Lancaster
Aries Editor	-	Dave Selfe

Ordinary Committee Members

Tony Barker

Pete Sturgess

Brian Dodson

Bob Richardson

July - BBQ

The BBQ was blessed with good weather and all had a good time. See pictures on the website.

August

The August meeting was an observing session at the Flamsteed Observatory.

September

The September meeting saw our very own Webmaster Dr Mike Lancaster present a talk titled 'What a Crazy Way to Get to Mars'. Using some stunning images taken by Curiosity rover and some NASA videos of the descent Dr Lancaster covered how Curiosity made its spectacular descent to the Martian surface and how the mission has progressed so far.

October

Dr Colin Steele made his second visit of the year (his first was in March when he kindly stood in for Dr Samuel George who was unable to visit us) in October when he presented a talk titled 'Horseshoes on Saturn'.

This talk covered the fascinating orbits of the moons of Saturn particularly Janus and Epimethius. These two moons orbit Saturn in very similar orbits and every 8 years or so, the two moons come close together and actually exchange orbits.

November

November saw the return of Dr Martin Griffiths who tried to throw some new light on the Universe with his talk titled 'What is Dark Energy'. Even though no one knows what dark energy is, Dr Griffiths provided a thought provoking talk covering many of the innovative theories that currently abound in cosmology. He delivered his presentation in the knowledgeable and highly entertaining manner we have come to expect from him.

December

Chris Lintott made his long awaited return to the Society and provided us with a short review of the year. Although a brief visit it was nonetheless a fantastic night with his knowledge and sense of humour second to none. Let's hope that next time he visits the Society he will be able to spend a little more time with us.

January

The Society quiz was held in January and once again our quizmaster (or should that be 'Inquisitor'?) was Arthur Tristram. Arthur has certainly not lost his knack of finding some fiendish questions! It was a most enjoyable evening and for me the quiz continues to be one of the highlights of the year. Thanks Arthur.

February

February's talk was by our own Anthony Southwell who presented a talk titled 'Messages from Mercury: A New View of an Overlooked Planet'. Anthony provided a very interesting and in-depth talk on this often forgotten world and certainly made us consider it more a world in its own right rather than small speck rarely seen. In fact, I think we all left the meeting looking at Mercury in a new light.

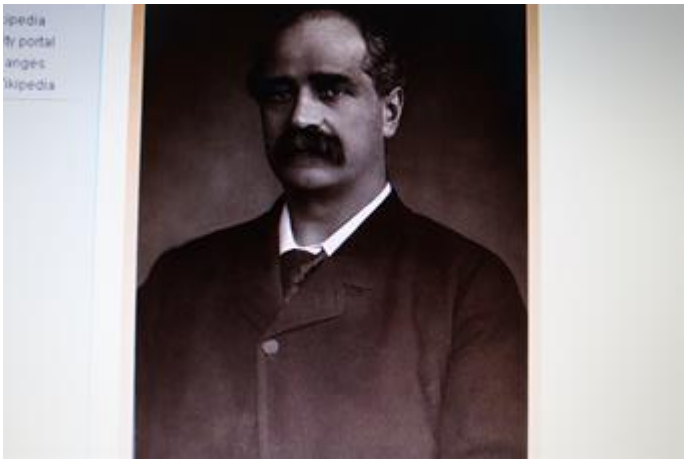
March

March saw the return of Professor Rob Jeffries from Keele University. Rob presented a wonderful in March 2013 and I was inundated with messages to bring him back to the Society. This time his talk was titled 'New Discoveries in Exoplanetary Systems' and once again he was thoroughly entertaining. He is most knowledgeable and has an easy way of connecting to his audience. The discovery of exoplanets seems to be moving ahead a great pace and Prof. Jeffries' presentation was completely up to date.

Local Astronomers—Arthur Tristram

William De Wivelleslie Abney

1843—1920



When we think of local astronomers, John Flamsteed rightly comes to mind. Other astronomers and scientists such as Erasmus Darwin, Immanuel Halton, and a few members of the Lunar Society shaped the way we look at the world today. One such local astronomer and scientist though seems to have been forgotten from this illustrious list, one William Abney

Abney was born in Derby on 24th July 1843. His father, Edward, was vicar of St Alkmunds church and owner of the Firs Estate in Derby. This is the land within the boundary of Burton Road, Abbey Street, Uttoxeter New Road, and Manor Road.

Abney's father came to Derby from Fulford near York and married Catherine Strutt, a member of the famous family from Belper.

Abney was educated at Rossall Public School, which is located between Cleveley and Fleetwood, Lancashire. The school houses the Lawrence House Astronomy Space Centre. The pupils have a good grounding in astronomy and science. One such 'Old boy' was Francis Graham Smith, who later became Astronomer Royal from 1982—1990. Other old boys include Sir Thomas Beecham, the famous conductor and Leslie Charteris the author of the Saint books.

William joined the Royal engineers in 1861 however after six years in India was invalided out. He became an instructor in chemistry and photography at Chatham School, the latter being his passion throughout his life. His father and brother were great friends of Richard Keene, the well-known Derbyshire photographer. William was one of the founder members of the Derby Photographic Society, formed in 1884. He joined the board of Education in 1877 after serving in the army. According to his record, he created over 100 training labs in Britain in his first seven years.

By the time he retired in 1903, there were over 1000 establishments, giving Britain a healthy lead in the sciences at that time. He was an adventurous chemist who became an expert on photographic emulsions and wrote many papers on the subject. One such emulsion was "Albumen Beer". This was a dry and fast film able to take pictures of the sun in fine detail. These led William to spectroscopy and in 1877 was the first to suggest that stars with rapid axial rotation were detectable through broadened lines in their spectra. He produced a formula for gelatine silver chloride paper, which enabled him to take the first infrared photograph of the solar spectrum in 1887. This was a major contribution to astrophysics.

Looking through his many achievements I came across one that surprised me, William had the honour of being the sole organiser for Britain's part in photographing the transit of Venus in December 1874. He wrote hundreds of

scientific papers and he even wrote some travel books. He retired to Folkestone in 1920 but unfortunately, he died on 3rd December 1920.

William was the president of the royal Photographic Society 1892– 1894, 1896, 1903—1905. He was also President of the Royal Astronomical Society 1893—1895 and Fellow of the Royal Society in June 1876. He was knighted in 1900.

Once again, a son of Derby seems to have been overlooked, William Abney deserves to be recognised more than he has been. The boost he gave to astronomy and photography at the time was incalculable. Hopefully this article goes some way in rebalancing his achievements.

Abney's Observatory before it was demolished

Abney's Old Home, Burton Road, Derby

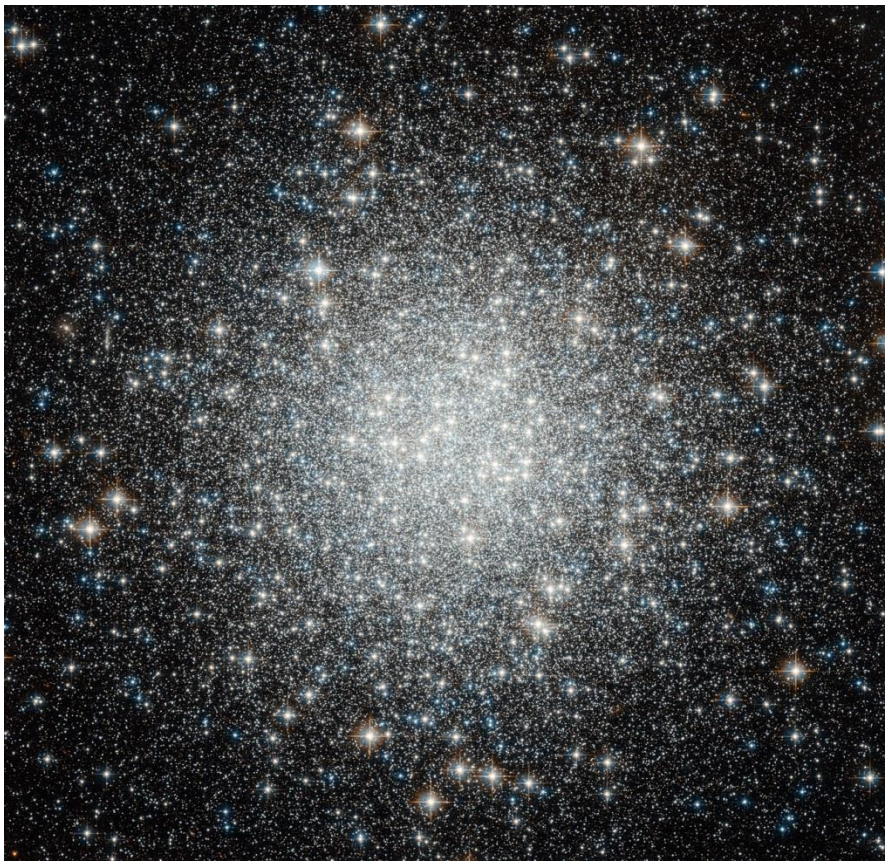
Firs Estate School

(The Editor went to Firs Estate School. Can you spot him in this class photograph from 1972?)

Quick Quiz

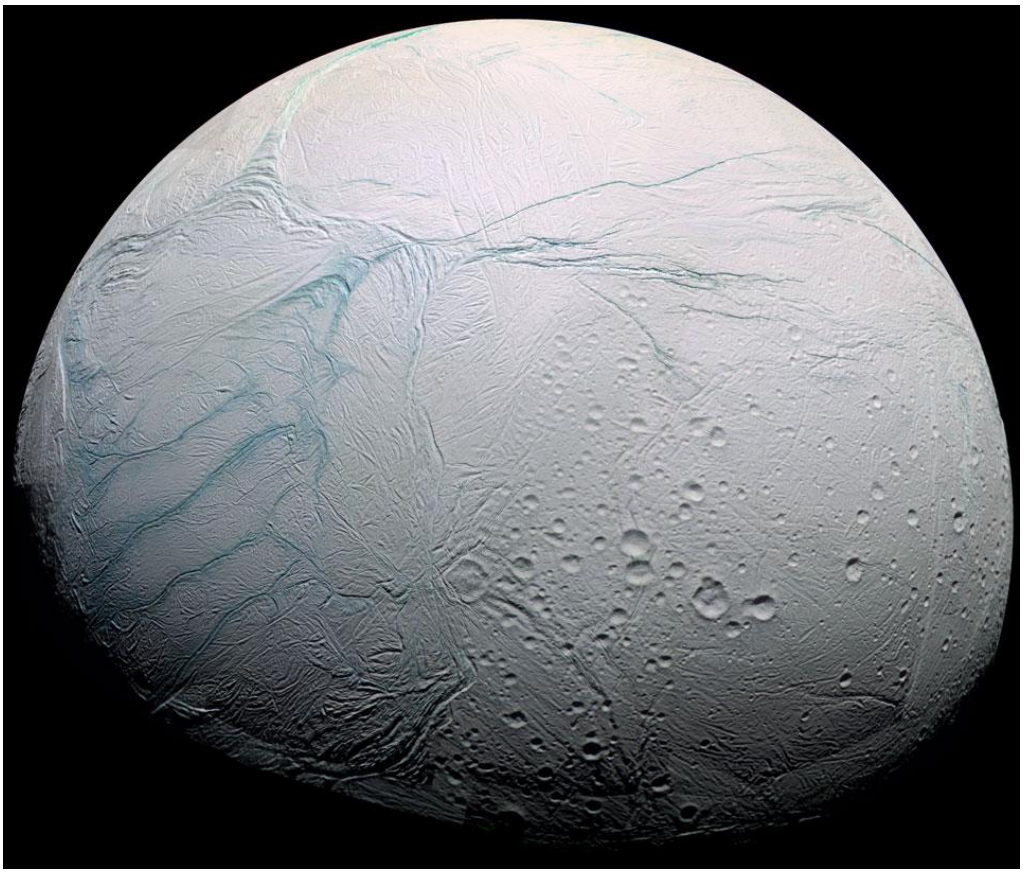
By what name is this Messier object commonly known as?

In which constellation is the globular cluster M13?



It is not zodiacal light, so what is this?

Which moon of Saturn is this?



A Great Double Act—By Pete Sturgess

I was thinking of upgrading to a bigger telescope and I decided on a 10 inch Dobsonian (the Dobsonian mount is cheap to manufacture and therefore you get a bigger aperture for your money). Having read an article entitled ‘A Match Made in Heaven’ I decided to purchase a Sky-Watcher 10 inch Synscan Dobsonian with GOTO. I always wanted a Dobsonian telescope owing to its simple operation but trying to find deep sky objects in a light polluted sky can be a pain. I thought ‘Wow a Dobsonian with a GOTO. That would be great’.

When I took delivery of the telescope, it came in two large boxes, one containing the wooden mount (in flat pack form), and the other the ready assembled telescope. The wooden mount is nicely finished in white laminate and is easily assembled. The telescope tube is 1200 mm in length and has a 250 mm primary mirror. The three locking bolts enable the optical tube to be extended and collapsed to make it easy to store when not in use.

When using the telescope in Dobsonian mode it feels slightly stiff but smooth, it has Auto Tracking as well the GOTO facility. The GOTO set up is done by the usual two star alignment method. The telescope is fitted with two encoders that allow the scope to be moved manually, even after setting up the GOTO or Auto-tracking, without the need to carry out the set up again. Simply move the scope to another part of the sky, let go and the scope will resume tracking.

WHAT A GREAT DOUBLE ACT.

The telescope comes with a 2-inch Crayford focuser and a 1.25-inch reducer. It holds collimation quite well and the optics are very good. The telescope and mount together are quite heavy but can moved easily by two people or by separating the tube from the mount making it easy to move by one person. It will fit into a medium sized car when collapsed so can be transported to a dark sky site of your choice.

I am very pleased with the telescope and would recommend it to anybody who wants a Dobsonian with a GOTO.

WHAT A GREAT DOUBLE ACT!

Although I have not had much chance to use the telescope, owing to poor skies, when I have used it the scope performed very well. The planet Saturn was an astounding sight, the Cassini division could be seen quite well. Mars was also a pleasure to observe and the moon, well; all I can say is WOW.

Deep sky objects such as M13 AND M45 were also a pleasure to observe, as was M36 and M37. The scope tracked them reasonably well both in auto tracking and GOTO mode. I found the scope a pleasure to use, both as a Dobsonian and as a GOTO, as well as combining the two modes together which is what makes this telescope so special.

One of my favourite pastimes is observing double stars. I have only managed to observe one up to now with this scope, which was Gamma Leonis. The telescope split them easily so I expect the scope will perform great on more difficult subjects, overall a nice telescope.

Astronomical Oddity - By Bill Miles

On holiday in Sicily, I saw an astronomical calendar/clock on a grand scale.

It is a Heliometer, constructed in 1690, it is a long bronze strip laid in Palermo cathedral floor on a north south line and a small hole in the roof.

The hole and the cathedral acts as a large pinhole camera, projecting an image of the sun on the floor.

The strip, the “Meridiana”, is positioned so that at solar noon the image of the sun is on the strip; this provides the clock function. As the sun proceeds from winter to summer solstice and back, at noon the solar image intersects the strip at different positions, the solstices marking the furthest excursions north and south of the solar image. The zodiacal calendar is marked on either side of the line, winter to summer on one side and summer to winter on the other; this provides the calendar function

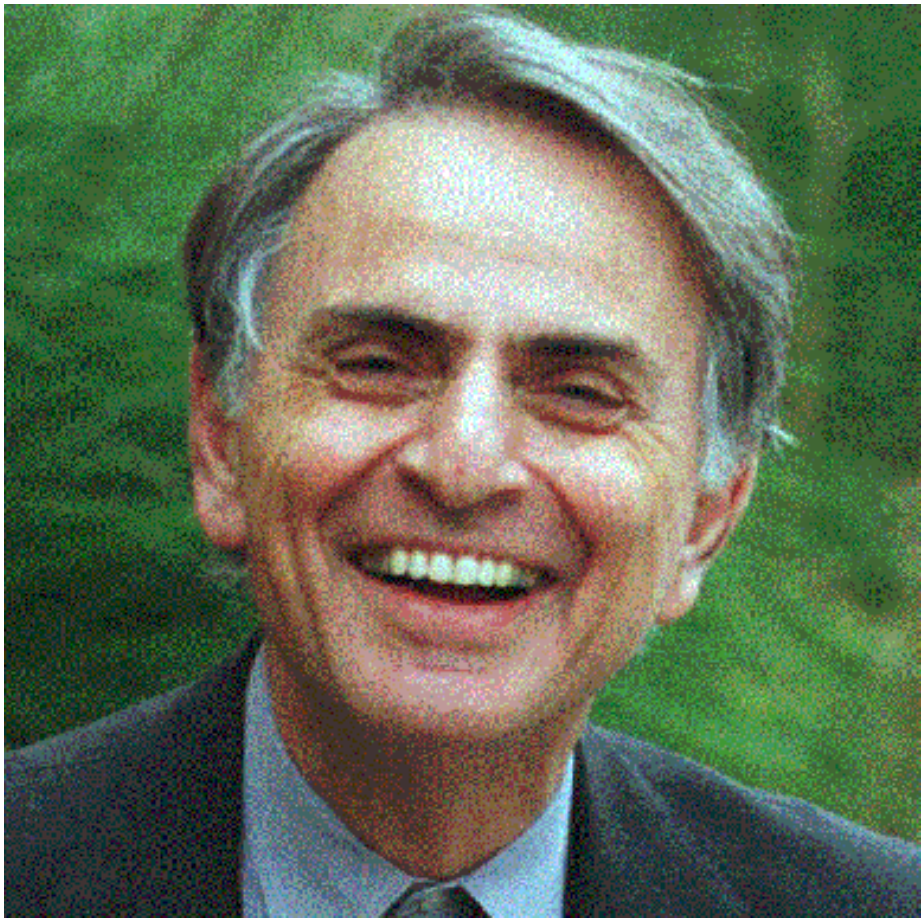
Being a member of the Derby and District Cloud watchers, when I was there, I saw no solar spot, not even the image of one of the rain clouds!

I did crib some of these pictures from a display. I was particularly interested in a photograph taken during the August 11th 1999 eclipse, showing the solar disc partially occulted – you will notice that this was taken near to but not at, noon – the image is not centred on the line.

Quick Quiz

Which bright star of the spring sky is this?

Who is this famous astronomer?



A Review of Sputnik and the Soviet Space Challenge

by Malcolm Neal

Sputnik and the Soviet Space Challenge by Asif A Saddiqi published by University Press of Florida.

This is the first of two very detailed volumes about the Russian space programme. The first volumes is some 516 pages long and is printed in quite a small font so there is a lot on each page. The book has many illustrations, mainly of key personnel but the quality of the images is not very good. To me they look like copies of copies etc. There are some line drawings of certain design stages of various vehicles but not very many.

This volume begins with a potted history of the Russian space program starting well before this century with Tsoilkovsky who we probably have all heard of but also has some detail about Yuriy Kondratyuk who was new to me. Apparently, he wrote about multi stage rockets, minimum energy trajectories and other quite advanced ideas including a two stage lunar insertion programme that NASA used in their moon landers in the 1960's and 70's and he published in 1929. Just to show the level of detail Kondratyuk is not his real name, which is Fredrikh A Tsander. Apparently, he was convicted of something and was sentenced but his mother somehow managed to get this put aside and he changed his name and managed to live a reasonably active scientific life. The history is very detailed and concentrates on Korolev (Sergey Pavlovich born 30/12/1906 died 14/1/1966) but is also details the huge input from very many other chief designers. However, the books and many of the other people interviewed for the books conclude that without the push from Korolev the Russian space program would have been a very different animal and would probably be well behind where they are now.

Strangely, Korolev did not go to school until aged 14 – before that being home tutored. The early chapters are about the development of the launch vehicles and there payloads but is really more concerned with the personnel rather than the vehicles etc. As such, there is much about Korolev and his troubles with the authorities his imprisonment in the gulag etc. However, it also covers many other contributors civilian, military, and political and the machinations between them all. It appears Korolev was always working behind the scenes following his own ideas to promote space travel and exploration even when working on missile development for the military. This is the push for the first three chapters.

Chapter 4 concentrates on SPUTNIK and how it came about, again really because of Korolev, his designers and fellow workers doing things behind the backs of the military and politicians to begin to explore near earth space. However it also details the development of the launch sites of Kaputsin Yar and later the Kazakhstan site. They seem to be very bleak places to be – especially during the early years. The latter site only started development in 1955 and seems to have been a monumental task to build. The book gives some details of the huge amount of work and cost to produce the launch site, rather more money than in developing the launch vehicles and payloads.

What really helped Korolev in getting his own way of exploring space on the back of missile development was President Eisenhower and the various announcements he made about the American Space Program. Korolev cleverly used this to push the politicians (at first Stalin and later and more easily Krushchev) to spend money and time developing Russian space exploration. Sputnik was payload D i.e. the 5th in the Cyrillic alphabet – the first four being nuclear war head designs – so you can really see what was behind the Russian side of the space race – at least in the early years. This vehicle carried a dog into space on a vertical flight on a R2A rocket. Not Layka who orbited in 1957 but one of 10 other dogs trained for such flights. We then have Sputnik and following this the orbital flight of Layka who died in space of heat exhaustion. The book then moves onto humans in space of course starting with Yuri Gagarin (chapter 7) and moves on to the rest of the manned Russian space program including their push for the moon, which is the main theme of book 2. This book looks at Soyuz and other developments some realised and many not.

There is a huge amount of detail in these books. The 2nd volume has about 60 pages of timeline and personnel summarising the whole program. I could go on but that would spoil the fun of reading it for yourselves.

A very heavy read but well worth it if you are interested in the history of the Russian Space program, one that we hear very little about.

THE MIS-ADVENTURES OF A VERY AMATEUR ASTRONOMER.

Hello again everyone; I must first apologise for taking so long in writing to you all again, I think the last time was back in 2012, has it really been 2 years. I think in that case I should do a little recount of all that has happened, (or not depending on your perspective) over these missing 2 years.

We had the Non-event that was the transit of Venus, and yours truly duly spent the night out at the observatory not witnessing it. As I recall the sun appeared from behind the cloud no more than two minutes after final contact, (if there is a god, good timing, that!!!). We also had the conjunction of Jupiter, and yes, I spent the night at the observatory. My laptop had died, I'd drunk a full flask of coffee and put all my gear back in the car when...you guessed it, the crescent moon appeared with Jupiter just hanging on to her tip like a pearl tipped tiara, so I dashed back upstairs with my camera and fired off a couple of shots before they both slipped away again.

We did lose three iconic figures of the Scientific and Astronomical world, all pioneers in their own way; they were of course, Sir Bernard Lovell, Neil Armstrong, and the unforgettable Sir Patrick.

With a little poetic license, you get the word L.A.M.P. and I'm pretty sure there are some very bright new lamps burning in the heavens since their passing.

We also recently lost one of our members, Keith Plamping. Keith was a longstanding member of the Society, held a number of positions on the committee and was well liked. A number of members attended. Keith's memorial service and Anthony Southwell gave a short eulogy.

2012 also saw a great deal of wet stuff come out of the heavens and as a result the entrance to the observatory became a quagmire, and yes, 'twas I dear readers that discovered its depth, (in my Volvo with my 14 year old son and his mate). One hour later, somewhat covered in mud and not a little panicky, we left. After all, it had started to rain, again.

2013 was to start with a bang, or so we thought. Stargazing Live, (look mum, I'm on telly), really...Where? It was FOGGY, A real pea souper. We were to show off a reconstruction of William Herschel's 20ft Telescope. I only had a couple of concerns,

1:- It looked absolutely nothing like the one that Herschel constructed, basically it was a lot of scaffolding holding a 20ft length of drain pipe, being pushed around by 5 hefty rugby players.

2:- Herschel was a German that lived and worked in BATH, NOT DERBY. Oh and it was built in the university car park in the middle of the city. Still it could have been worse; we could have been wearing evening dresses and trying to play violins in the freezing cold for over two hours. Little wonder it now goes by the name of 'Big Willy', (after its designer of course).

Our own stargazing event the following Saturday at Alvaston park went quite well, there were quite a lot of people wanting to look through the various telescopes available and ask some quite good questions, (especially from the youngsters), and there was a great deal of interest shown in our display in one of the rooms too.

There were a few Scout groups showing an interest in visiting the observatory, one in particular, after many postponements turned up one evening in march and guess what...It actually started snowing, (you can't get much worse than that). However, they have been in contact again and would like to visit sometime this year. October seems to be favourite at the moment. That evening, come to think of I,t was the catalyst for a long period of heavy snow, I remember making my way out to the observatory one day at the beginning of April and the snow at the side of the road was actually higher than my car. (Mind you, I did have 'Shadowfax' by this time), (For those who don't know 'Shadowfax' is the name I have given to my Jaguar, Pickies to follow).

April saw me travel to Bonnie Scotland, hopefully to catch a glimpse of the northern lights. Concerned about the amount of snow that had fallen, I contacted my hosts, I needn't have worried, they assured me they had seen neither snow or rain in over a month, in fact there had been a forest fire that had come as close as the field at the back of their house. (don't know which I preferred, the threat of snow or fire). The break was wonderful, Beautiful scenery, Glorious weather and lovely clear dark skies to do some observing. No sign of the elusive northern lights I'm afraid but there was plenty more to experience. I've never seen so many stars, It took me quite a while to find any familiar asterisms, but boy when I did! Seeing the double cluster in Perseus, with the naked eye, M51, M65 and M66 in Leo along with a whole host of other astronomical sights.

Margaret and in particular Gerry her husband are interested in astronomy and as a consequence weren't bothered about me keeping odd hours, and to be honest I could have stayed out all night long. They have managed to establish a small dark sky site on the Isle of Skye, (which is only a mere 10 miles or so away) and it was from there that I saw comet P2012 Panstarrs.

I could continue to wax lyrical about my first trip up north, how I packed everything and made a list so I wouldn't forget anything, like for instance the bracket that holds my camera to the tripod. I wouldn't forget something like that would I?.. Of course, I would.

Talking of comets, 2013 saw, or rather didn't see the appearance of the comet of the century. Isn't that typical, you wait 4 ½ Billion years to make an entrance and when the curtain goes up you freeze, or rather 'burn up'.

So here we are, in 2014, our 40th anniversary year. Plans are afoot, We have already done two stargazing events, one at Alvaston park again and the second at Allestree park with another planned for the 25th of October in Barrow on Trent, (we are certainly getting around a bit). We are also having a bumper day at the friends meeting house on the 21st of June with no less than 4 speakers, telescope displays and a whole host of other goodies to look at. It promises to be a very special day and one I would recommend you don't miss.

My trip to Scotland this year didn't quite go to plan, (a bit of an understatement really). I dutifully topped Shadowfax up with oil and water etc. before leaving at 5am on the 28th February, If you recall we had a nationwide display of aurora on the 27th (which I missed because I was in bed early preparing for an early start). TYPICAL. I then had to stop twice before I'd even reached Stoke, once to put my coat and gloves on because the heater in the car had packed up and the second time because I'd forgotten to replace the coolant filler cap.

Despite these setbacks I made pretty good time and even with a couple more stops reached Fort William by 2pm. My eyes were getting a little tired by this time so I decided to have a bit of a rest before tackling the final 80 miles to Braintra. I had a sandwich and shut my eyes for 10 mins only to wake up at about 3:30pm with it absolutely teeming down. Undaunted I resumed my journey only to get turned back at the outskirts of Fort William because there had been a fatal accident on the only major road out of the town and the Police had shut it off. (Still, it could have been worse, had I not stopped, there for the grace of god). All of which meant that I was destined to spend the first night in Fort William. Which by the way turned out to be the only clear night of the stay, (a pattern emerging here don't you think?) The days were quite nice, mostly clear but fresh to say the least, I did a bit of walking, took a lot of photo's and went for a drive on the Isle of Skye where I bumped into some people from Derby. (Small world). Even though I didn't get to do any observing I still had a lovely time and I even brought Anthony a present back, (I'll let him explain). I shall be going again next year but probably in April if anyone is interested, (It's a bit warmer then).

I hope you've enjoyed reading my review and the accounts of my adventures, (or mis-adventures) and hopefully it won't be two years before the next edition.

Thank you for reading and here's wishing us all Clear nights and good observing.

Brian

Quick Quiz

Which observatory is this?

Which constellation is this?

Davidus Selfeffacius – by Stephen Webster

From Wikipedia, the free encyclopedia

Davidus Selfeffacius c. AD 97 – c. AD 168) was a Greco-Roman writer, known as a mathematician, astronomer, geographer and astrologer. He lived in the city of Chaddo in the Roman province of Feta, wrote to lots of people in far away provinces, and held Roman citizenship.[3] Beyond that, few reliable details of his life are known.

Selfeffacius was the author of several scientific treatises. The Almanac (still available today) is the only surviving comprehensive ancient treatise on astronomy. Babylonian astronomers had developed arithmetical techniques for calculating stuff about stars; [20] Selfeffacius presented his astronomical models on a screen, often with help from outsiders when nerves overtook him, which could be used to compute the future or past position of the planets and the time of tea breaks.[21]

The *Almanac* also contains a star catalogue. Its list of forty-eight constellations (including 'The Salad' is ancestral to the modern system of constellations, but unlike the modern system was eccentric and was almost universally accepted until the appearance of simpler models in the 18th century (which avoided the unnecessary illustrations)

His *Planetary Big Ideas* presented a physical realization of the universe as a set of nested tables in which he used to compute the dimensions of the universe. He estimated the Sun was at an average distance of 1,210 Earth radishes (Greek radii)

His *Handy Observer Book of Tables* gave all the data needed to compute the positions of the Sun, Moon and planets, the rising and setting of the stars, eclipses of the Sun and Moon and time tables for the tides in Chaddo.

Aries is published by the Derby and District Astronomical Society.

You can submit items for publication within Aries to the Editor via the following email address.

arieseditor@derbyastronomy.org

Please submit articles in the following format:

Font size, style, and alignment: Arial 10 point and justified alignment

If you do not have computer access then type up or write up your article and give it to the Editor at one of the DDAS meetings.

If an article is too large to be included in one issue of Aries, the Editor reserves the right to split such an article into two parts.

Images:

Please submit images in JPG format. When submitting images please take into account the total image file size and include a suitable caption and image credit notation.

The Derby and District Astronomical Society is on the World Wide Web at the following URL: http://www.derbyastronomy.org