



The CHESTERFIELD ASTRONOMICAL SOCIETY

Newsletter FEBRUARY 2016

CAS website www.chesterfield-as.org.uk

Registered Charity No. 514048

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**Subscriptions - full membership £60
or £6 per month by Standing Order (10 months)**

**Senior citizens (60 yrs and over) and students (18 yrs and over) £40
or £4 per month by Standing Order (10 months)**

**Juniors members - (17 yrs and under) £0.
(All juniors must be accompanied by an adult who must be a fully paid up member).**

Welcome to the February issue of the CAS newsletter.

CAS News

Open Evening Friday 15th January 2016

This was an extremely successful evening. We started early, officially opening at 7pm with the first visitors arriving at 6:15 pm!! From then on a crowd soon built up around the barrier at the bottom of the car park while we tried to quickly put the finishing touches in place. From then on there was a steady stream of people filing into the lecture room and the dome. There was no end to the queues until about 9:15. It was the same outside with the telescopes which had been set up on the patio with queues for each one. Everybody seemed interested who visited the dome and "wowed" at the telescope. They asked many questions which we (Peter Davison and I) managed to answer.

Mark (Eustace) was busy keeping them entertained in the lecture room (as only he knows how!) with talks on the planets, How Big is Big and a Hubble slideshow.

Dave (Lester) ran the raffle and as usual there was much hilarity with this!

According to our treasurer (Graham Leaver) the visitors were very generous in their contributions to the raffle and that there must have been upwards of 150 adults plus children who came to look through our telescopes and enjoy the talks. It's good to know more people realise where we are (we had the usual comments of "I've lived just down the road all my life and didn't know about this") and that can only be good to bring astronomy to the people of Chesterfield and surrounding areas.

It was a great night and for once so very lucky with the weather. Mostly clear skies all night (apart from about half an hour when it clouded over but cleared quite quickly again) which enabled everyone to see different objects in the sky through our telescopes including a look at Jupiter later on.

A BIG thank you to all involved, lectures, dome, telescopes outside, people taking money and keeping the "traffic jam" at bay. Although Marilyn (Bentley) could not be in attendance on the night it's thanks to her for arranging and doing all the advertising including the Derbyshire Times (where most of the interest came from) and preparing everything before she left the previous night. Also to Graham (Leaver) for finding new fame in giving an interview for Radio Sheffield the previous day.

Visits to the Observatory

We are still busy with children's groups coming to visit us. From August last year through the winter season and with bookings stretching into March we will have had approximately 30 groups with a few off-site visits to other venues by a few of our members.

This is a good opportunity to get young people involved in astronomy and hopefully an interest that will continue into their adulthood.

For this it is thanks to the usual "crew" who make all this possible. Peter Davison helping in the dome and doing the occasional talk, Marilyn Bentley and Ian Cook for doing talks (and helping outside) and to Mark Eustace doing the bulk of them. Also to Rob McGregor for helping in the dome and bringing his own telescopes for outside use and pointing things out in the night sky that the rest of us struggle to see!

But as always on all these occasions the main attraction is our big telescope in the dome (and our biggest asset). That telescope IS the Society and our history.

Coming up.....

Talk on Friday 19th February by Dr Malek

We are lucky enough to have Dr Malek coming to the Observatory to give another talk for us on "Ultra High Energy Cosmic Rays". His last talk was a great success and very interesting.

Dr Malek makes a technical lecture very interesting and understandable for those of us (me) who are not so inclined and he gives a great presentation.

This from Peter Davison.....

HADDON GROVE ASTRO-CAMP – Friday 1st April to Sunday 3rd April

The first Astro-camp of the year will take place on Fri 1st Apr - Sun 3rd Apr, it will be at our normal venue at Haddon Grove. If anybody would like to go please let me know, either by email peterdavison45@virginmedia.com or by phone 07806670609. If you do not wish to spend the night then visitors can come along for an observing session at one of the darkest sites in Derbyshire. If you do fancy camping but do not have any equipment then I could lend out tents and sleeping bags. Please let me know as soon as possible if you wish to borrow anything so I can get them to you in plenty of time before we go.

Thanks Peter

Please check our website frequently to see what's on and when. Also have a look at our photo gallery plus news and notices.

Also please remember if you ordering from Amazon to follow the link from our website – it earns us commission!

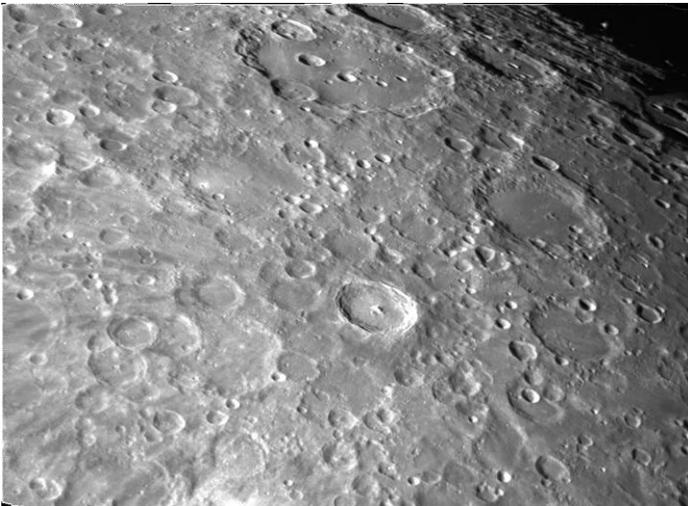
Photo gallery.....

These are from Graham Leaver:-

The Sun 15th January



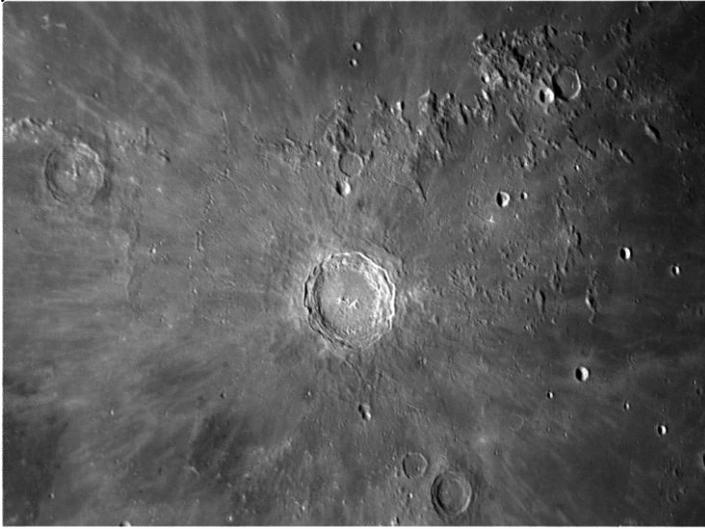
The Moon 16th January



Tycho



Aristarchus



Copernicus



Sinus Iridium



Gassendi

Thanks Graham

I picked this up in the "Sky at Night" magazine and though it might interest all you astrophotographers.....

"NASA NEEDS YOUR JUPITER IMAGES

The Scientists behind NASA's Juno mission have put out a call for images – they want amateur astronomers to send in their pictures of Jupiter. Your Earth-based observations will be used by the team operating the JunoCam instrument not only to track the cloud features before the probe arrives in July 2016 but also while it is there.

'In between our close Jupiter flybys Juno goes far from the planet...so we really are counting on having help from ground-based observers'....."

For full details visit the NASA website: www.nasa.gov/feature/jpl/to-jupiter-with-junocam

Why not have a look and see if you can help?

Things to see in February.....

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|--------------------------------|--|
| Monday 1st | Mars and a nearly last quarter Moon are 2.5° apart at 06:15, 25° up in the south. Mars will be shining at mag. +0.8 at this time. |
| Tuesday 2nd | Catch Jupiter through a telescope just after it has risen and you will see the shadow of the giant moon Ganymede crossing its disc. The shadow heads towards the western limb around 23:10 when Ganymede itself begins its transit across Jupiter leaving the disc around 02:25 on the 3 rd . |
| Thursday 4th | Look for the waning crescent Moon (21% lit) rising in the southeast at around 04:30 and you will see mag. +0.9 Saturn 6° to the left of it. |
| Friday 5th | Europa's shadow crosses Jupiter's disc from 23:24 on the 4 th until 02:16 this morning followed by Europa itself from 00:54 to 03:42. Next comes Io's shadow which transits between 03:56 and 06:14, the moon doing the same between 04:40 and 06:55. |
| Saturday 6th | The Moon continues to pose with the morning planets and this morning there is a lively triangular conjunction between mag. -3.9 Venus, mag. 0.0 Mercury and a 6% lit waning lunar crescent. Catch the trio low in the southeast from 07:00. |
| Sunday 7th | The lunar crescent, now only 2% lit appears 9° left of Mercury and is visible from 07:00 given a flat southeast horizon. |

Monday 8th Comet C/2013 US10 Catalina should be at least 8th magnitude and will lie around 1° from mag. +4.2 open cluster Collinder in Camelopardalis this evening.

Tuesday 9th It may be possible to spot a 1% lit lunar crescent low in the west-southwest just after sunset.

Ganymede's shadow crosses Jupiter's disc from just before midnight until 03:22 on the 10th. Ganymede follows suit between 02:34 and 05:52.

Friday 12th Venus and Mercury are just 4° apart low in the southeast before sunrise from 07:00.

Wednesday 17th The giant shadow of Ganymede crossed Jupiter's disc from 03:50 until 07:22. The latter stages occur as the sky starts to get brighter. Ganymede itself transits from 05:54.

Monday 22nd Comet C/2013 US10 Catalina should be 8th magnitude and will appear to pass close to mag. +5.7 open cluster NGC 1502 this evening. NGC 1502 lies at the end of the impressive asterism known as Kemble's Cascade.

Wednesday 24th Mag. -2.3 Jupiter sits close to the 98% lit waning gibbous Moon this morning and despite the Moon's brightness brilliant Jupiter should stand out well. The pair appear close throughout the entire night of the 23rd/24th, being closest at 02:40 when they will be separated by 2°.

Monday 29th Mars and the Moon have their second meeting of the month. The 66% waning gibbous Moon and the mag. +0.3 planet are just 7° apart when Mars reaches its highest point in the sky, due south, at 05:20.

Jupiter is host to a double transit tonight starting at 22:33 with Europa's shadow then followed by the moon itself at 20:57. Next is Io's shadow at 22:32 closely following by Io itself at 22:43. At 22:46 Io, Io's shadow, Europa and its shadow transit the disc all at the same time finishing at 23:20 when Europa's shadow reaches Jupiter's western limb.

Also.....

Five planets are aligning across the dawn sky over the next month, in a rare treat for sky watchers.

Mercury, Venus, Mars, Saturn and Jupiter will be simultaneously visible to the naked eye for the first time in more than a decade.

The spectacle is visible from the end of January through to about the first two weeks in February, but experts warn that Mercury will become fainter towards the end of that window.

Experts advise stargazers to begin their viewing 45 minutes before dawn.

The display is made possible by the unusual alignment of the five planets along what is known as the ecliptic plane of their orbits. In practice, this means the planets lie near the plane of Earth's orbit, projecting as a line.

There will be another opportunity to view the planets in alignment from 13th August to 19th August.

At that time, the spectacle will take place around dusk, and sky watchers in the southern hemisphere will be best placed to view it.

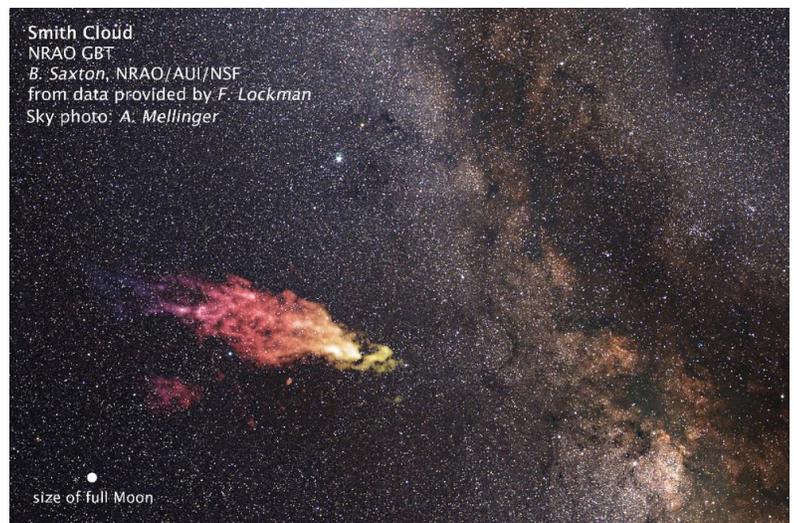
The last occasion when the planets were visible before dawn in this way was late December 2004 to early January 2005, when their order in the sky briefly matched their relative order outward from the Sun: Mercury, Venus, Mars, Jupiter, and Saturn.

ASTROSTUFF

Monstrous cloud boomerangs back to our galaxy

Hubble Space Telescope astronomers are finding that the old adage, "What goes up, must come down" even applies to an immense cloud of hydrogen gas outside our Milky Way Galaxy. The invisible cloud is plummeting toward our galaxy at nearly 700,000 miles (1,100,000 kilometres) per hour.

Though hundreds of enormous high-velocity gas clouds whiz around the outskirts of our galaxy, this so-called "Smith Cloud" is unique because its trajectory is well known. New Hubble observations suggest it was launched from the outer regions of the galactic disk around 70 million years ago. The cloud was discovered in the early 1960s by Gail Smith, who detected the radio waves emitted by its hydrogen.



The cloud is on a return collision course and is expected to plough into the Milky Way's disk in about 30 million years. When it does, astronomers believe it will ignite a spectacular burst of star formation, perhaps providing enough gas to make 2 million Suns.

"The cloud is an example of how the galaxy is changing with time," said Andrew Fox of the Space Telescope Science Institute in Baltimore, Maryland. "It's telling us that the Milky Way is a bubbling active place where gas can be thrown out of one part of the disk and then return back down into another."

"Our galaxy is recycling its gas through clouds, the Smith Cloud being one example, and will form stars in different places than before. Hubble's measurements of the Smith Cloud are helping us to visualise how active the disks of galaxies are," Fox said.

Astronomers have measured this comet-shaped region of gas to be 11,000 light-years long and 2,500 light-years across. If the cloud could be seen in visible light, it would span the sky with an apparent diameter 30 times greater than the size of the Full Moon.

Astronomers long thought that the Smith Cloud might be a failed, starless galaxy, or gas falling into the Milky Way from intergalactic space. If either of these scenarios proved true, the cloud would contain mainly hydrogen and helium, not the heavier elements made by stars. But if it came from within the galaxy, it would contain more of the elements found within our Sun.

The team used Hubble to measure the Smith Cloud's chemical composition for the first time to determine where it came from. They observed the ultraviolet light from the bright cores of three active galaxies that reside billions of light-years beyond the cloud. Using Hubble's Cosmic Origins Spectrograph, they measured how this light filters through the cloud.

In particular, they looked for sulphur in the cloud that can absorb ultraviolet light. "By measuring sulphur, you can learn how enriched in sulphur atoms the cloud is compared to the Sun," Fox said. Sulphur is a good gauge of how many heavier elements reside in the cloud.

The astronomers found that the Smith Cloud is as rich in sulphur as the Milky Way's outer disk, a region about 40,000 light-years from the galaxy's centre — about 15,000 light-years farther out than our Sun and solar system. This means that the Smith Cloud was enriched by material from stars. This would not happen if it were pristine hydrogen from outside the galaxy, or if it were the remnant of a failed galaxy devoid of stars. Instead, the cloud appears to have been ejected from within the Milky Way and is now boomeranging back.

Though this settles the mystery of the Smith Cloud's origin, it raises new questions: How did the cloud get to where it is now? What calamitous event could have catapulted it from the Milky Way's disk, and how did it remain intact? Could it be a region of dark matter — an invisible form of matter — that passed through the disk and captured Milky Way gas? The answers may be found in future research.

FUN STUFF

THE HIT AND RUN CASE

A very successful lawyer parked his brand-new Lexus in front of his office, ready to show it off to his colleagues. As he got out, a truck passed too close and completely tore the door off of the driver's side. The counsellor immediately grabbed his cell phone, dialled 999, and within minutes a policeman pulled up.

Before the officer had a chance to ask any questions, the lawyer started screaming hysterically. His Lexus, which he had just picked up the day before, was now completely ruined and would never be the same, no matter what the body shop did to it.

When the lawyer finally wound down from his ranting and raving, the officer shook his head in disgust and disbelief.

"I can't believe how materialistic you lawyers are," he said. "You are so focused on your possessions that you don't notice anything else."

"How can you say such a thing?" asked the lawyer.

The cop replied, "Don't you know that your left arm is missing from the elbow down? It must have been torn off when the truck hit you."

"Ahhh!" screamed the lawyer. "Where's my Rolex!"

That's all folks.



Sue



This newsletter is sent out to all present members without whom the Society could not survive. Also to previous members and people with an interest in astronomy in the hope that they may wish to join/re-join the Society.

If you no longer wish to receive this newsletter by e-mail please let us know. Thank you.