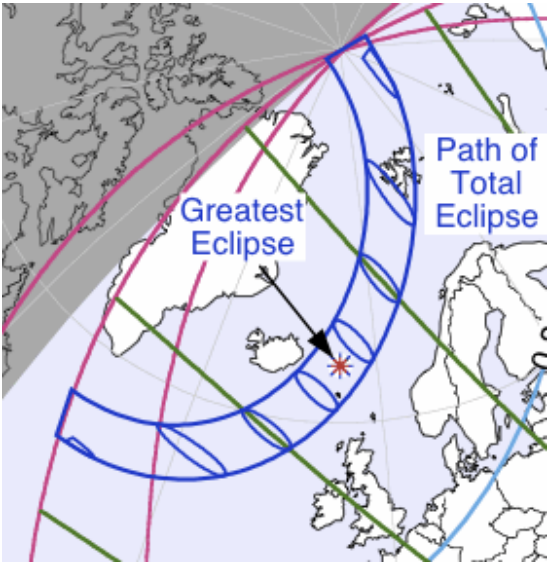
The Messenger
Mexborough & Swinton Astronomical Society
March 2015

The Coming Eclipse – March 20th 2015

At the Hoober Observatory the eclipse will be as follows. The maximum amount of the sun covered (obscuration) will be 88.41%.
The Partial eclipse will start at 8:27am and the Sun's altitude will be 19° above the horizon. The eclipse will reach its obscuration maximum at 9:32am with the Sun at 27° above horizon.
The eclipse will finally end at 10:42am with the sun at 33° altitude.
The point of greatest eclipse will last for 2min 46 secs.



Picture courtesy of NASA eclipse web site

Eclipses belong to a group or series of eclipses called a Saros cycle. The frequency at which eclipses occur is a period of 6,585.3 days.
Any two eclipses separated by a Saros period have similar properties. They occur when the moon is at the same distance from the earth at the same time of the year. Because the Saros cycle is not equal to a whole number of days then the eclipses rotate and extra 120° (or a third) of the way around the globe of the earth. A Saros cycle eclipse return to the approximate same position on the Earth every 3 cycles or 54 years 34 days. Because of slight changes in the position of the Moons orbit with the Earth, the cycle moves northwards by 0.5° with each cycle, as a result a complete sequence of Saros cycles lasts about 1500 years. Each Saros series starts from the South Pole region and moves slowly northwards till it finishes.
The March 20th eclipse is part of "Cycle 120", the first eclipse in this series was on 27th May 933AD and could only be seen from Antarctica, the last will be on 7th July 2195 and only visible from the North Pole region. 3 cycles ago the eclipse from this cycle was on Feb 15th 1961 and missed the UK to the south crossing from the Atlantic into France, Bordeaux and La Rochelle would have had fine views of totality – at Hoober it would have been a 90% partial similar to the current one!

The Thoughts of Chairman Les



I would like to welcome those new members that have joined us since or last journal and I hope that you have many interesting and happy years with us.

January 30th we had our imaging competition with seven contestants fighting for first place. After an interesting show of very good images first place was taken by Mick Nicholls, second place by Andrew Kirton-Vaughn and third place by Phil Muffett.

The Feasibly Study Group met with Yorkshire Water Services personnel on site for them to see our site and to ask what we want to do. The morning went very well and they are looking into what they can do to help us. In particular it has become extremely important for us to know who the surrounding land belongs to. We were surprised to learn that the land to the west of the observatory was sold to 'the farmer' back in March 2008 which caused us to worry about what might happen to our site, will it be sold from under us!?

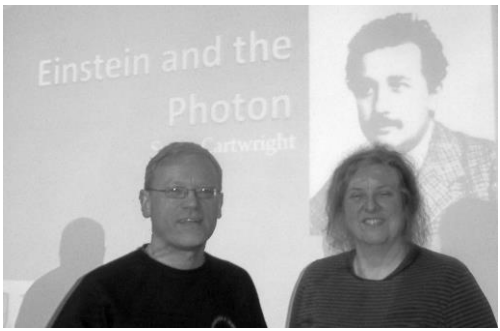
We have gained access to the some Land Registry drawings for the area with the different plots marked in red which do makes us feel a bit happier. We are still waiting for answers from YWS and hoping that we will hear something in answer to our questions quite soon.

I will keep you informed as and when we gain further information.

I wish you clear skies

Les Marsden
Chairman

Guest Speaker



Our guest speaker for February was Sue Cartwright who stepped in at the last minute to give us an excellent talk on "Einstein and the Photon". She explained in detail the history of the "wave – particle" duality problem of photons (and electrons). We also had a discussion on the LHC and the hopes for the detection of "new" particles and also the detection of fast neutrinos.

The Photo shows our illustrious speaker finder with Sue.



TONY AND MICK SHOWING OFF THEIR NEW "COLD NIGHT" CLOTHING RANGE FOR THOSE WINTER NIGHTS UP AT HOOBER

Pauline's Puzzle Corner



A boy has a 28in wheel bicycle and his sister has a 26 inch wheel. They both buy cyclometers which in error, get interchanged before they fit them to their machines. After going for a ride the find there is a discrepancy of 2.7 miles in the readings.

How far did they ride?

Who bought the cyclometer giving the higher reading?

Greenwich and the Pips

The pips are a series of six short noises or tones broadcast by the BBC to mark the start of each hour. They were originally produced by equipment at the Greenwich Observatory but now are [produced internally by the BBC. Their usefulness in very accurate time measurement has now been reduced due to time delays brought about by the different broadcasting methods in use (in particular digital broadcasting) where different transmission sources may lag behind the "true" time. The BBC World Service broadcast the pips every hour, other BBC stations vary in their output – radio 5 live does not seem to broadcast the pips at all. BBC television has not broadcast the pips since the mid 1960's.

A newspaper article from 1924 announcing the start of the pips.



GREENWICH TIME BY BROADCAST.

The British Broadcasting Company have inaugurated an improvement in its time signals, and the Astronomer Royal, Sir Frank Dyson, announced from the London Broadcasting Station that in future the time signals distributed by the British Broadcasting Company will be transmitted direct from Greenwich Observatory.

It was explained that the clock of Greenwich Observatory "will tick in the house of everyone who has a wireless receiver." The last five seconds of the minute will be heard as "clicks" when the signal is about to be given, representing the 55th, 56th, 57th, 58th, and 59th seconds, and then the final "click," which will be a little louder than the others.

An electrical contact will transmit a current direct to 2 L.O. aerial. The personal factor is entirely eliminated, and so zealously is the accuracy of the signals guarded that not even a "relay" is interposed lest it should introduce a time-lag of a fraction of a second.

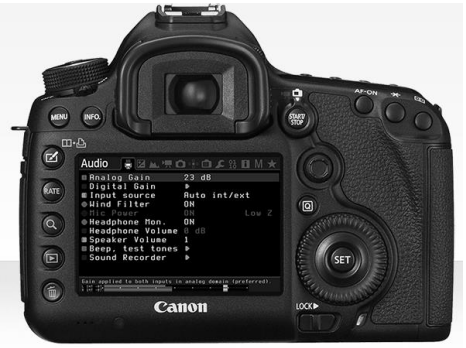
Tamworth Herald - Saturday 16 February 1924

Magic Lantern

Analog / digital gain adjustments. Selectable input source. Toggle wind filter. Live audio monitoring with headphones. WAV recording. Beep / test tones. Custom Kelvin white balance. Auto ETTR (Expose To The Right). Exposure Lock for manual mode.	Quickly switch between two exposure presets. Manually override exposure settings (movie mode). Toggle exposure simulation on/off (Liveview). Bracketing for exposure, flash, or depth-of-field. In-camera intervalometer. Custom bulb timer for extra-long exposures. Motion detection. Silent pictures. Record voice tags for photos / videos.

Magic Lantern is a free software add-on that runs from the SD/CF card and adds a host of new features to Canon EOS cameras that weren't included from the factory by Canon,

http://www.magiclantern.fm/



HIGH WINDS AT THE OB

Can you advise on the maximum wind speed for safe shutter operation. i.e. at what wind speed is it inadvisable to have the dome open? – Paul D'Silva

No numerical values as we have no means of measuring wind speed at the Ob, but all I would say that if it's getting to a situation where the question is being asked then the dome should be parked as normal, clamped in position and shutters closed.

Sometimes gusts of wind have moved the dome when I have been imaging and I have simply put the G cramps on in the observing position.

If it's so windy as to cause concern during observing I would cover the scopes ASAP. When the wind changes at the Ob it usually means that a weather front is on its way, usually rain.

Or you could simply change your diet *T. Morris*

March 2015 Skynopsis



Diary (all times GMT unless otherwise specified)

2nd	Sunrise 06:58, Sunset 17:51
3rd	Jupiter 5deg North of Moon;
3rd	02.00 Iapetus at greatest western elongation (mag. +10.1)
4th	20.00 Venus 0.1deg. North of Moon
5th	Full Moon
6th	Minor planet Iris at opposition
7th	Sunrise 06:47, Sunset 18:01, 0700 Venus, Mars and Uranus appear close together
9th	Juno is stationary
11th	20.00 Mars 0.3deg. North of Uranus
12th	Sunrise 06:35, Sunset 18:10, Saturn 2deg. South of Moon
13th	Moon at last quarter,
14th	Saturn stationary
15th	Minor planet Flora (mag +9.1) at opposition
17th	Sunrise 06:23, Sunset 18:19; Mercury 1.6deg. South of Moon
19th	Moon at Perigee (156, 992km), 0200 Neptune 4deg. South of Moon
20th	Solar eclipse 08:26 – 10.40, maximum 09.31: New Moon
22nd	Sunrise 06:11, sunset 18:28, dwarf planet Makemake at opposition, 20.00 Venus 3deg. North of Moon, Minor planet Nyasa at opposition mag. +9.4
25th	0700 Aldebaran 0.9deg South Moon
27th	Sunrise 05:59, Sunset 18:36 : Moon at First Quarter
29th	British Summer Time, clocks FORWARD one hour @ 01:00

The Planets

Mercury	No viewing this month
Venus	Good viewing as Venus rises in the West South West and gets brighter through the month; on the 7th Venus, Mars and Uranus appear close together in Pisces
Mars	Poor viewing, setting shortly after sunset
Jupiter	Bright in the South East (Cancer)
Saturn	Morning object moving into Scorpius, increasing in size and brightness through the Month, stationary on the 14t. then moves 'backwards'
Uranus	Unfavourable viewing this month.
Neptune	**Unfavourable viewing this month.**

Galactic Goodies

Solar Eclipse	Monday 20th March, 08:36 - 10:40, maximum 09:31; approx. 91% of the Sun's disk will be eclipsed as viewed from mid-UK, probably nearer 88% for us. Viewing event at the Hoober Observatory
M81 & M82	M81 spiral galaxy in Ursa Major, Mag. +6.94, RA: 09h 55m 33s, Dec: +69deg 03m 55s, catalogued by Messier but position accurately plotted by Caroline Herschel;
M82	irregular starburst galaxy in Ursa Major, Mag. +8.41, RA 09h 55m 52.2s, Dec. 40m 47s
M67	Open cluster in Cancer, RA 08h 51.4m, Dec. +11deg 49m, Mag. 6.1
M48	Open cluster in Hydra, Mag. 5.5, RA 08h 13.7m, Dec, -05deg 45m
Alphard	Bright star in Hydra; Mag. +2.00, RA 09h 27m 35.24s, Dec. -8deg 39m 31s

Mike Hall

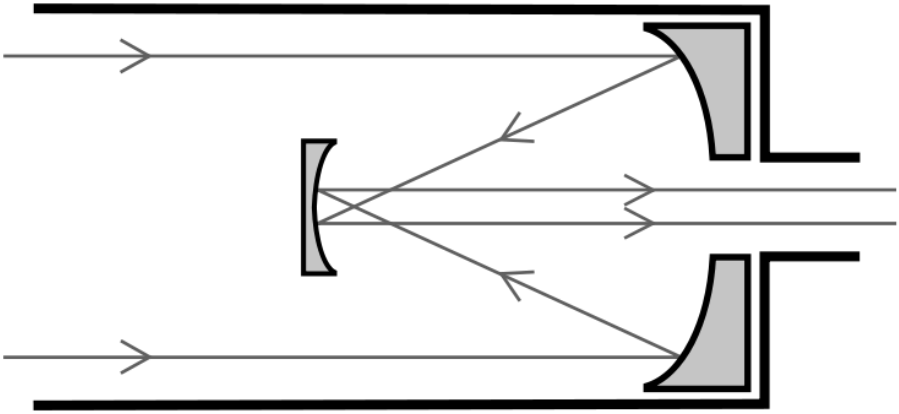
The Gregorian Telescope

The Gregorian telescope is a type of reflecting telescope the design of which pre-dates the design promoted of Isaac Newton. Unsurprisingly the Gregorian Telescope was promoted by Newton's great rival Robert Hooke.
The Gregorian Telescope doesn't get its name from the Gregorian period – which relates to the Gregorian calendar in 1582, but from its designer James Gregory.

James Gregory published his design in 1663 in a publication entitled Optica Promota (The Advance of Optics), Isaac Newton published his design in 1668. However James Gregory was not able to build the telescope himself, and it wasn't until Robert Hooke got interested in the design that the first Gregorian Telescope was constructed.
The Gregorian telescope was similar to a cassegrain telescope except for the design of the secondary mirror which is a concave whilst in a Cassegrain the secondary mirror is slightly convex.

In the Gregorian Telescope the concave secondary mirror is placed outside the focal point of the primary mirror, and in theCassegrainr the secondary is convex, placed inside the primary mirror focus. In either case, the final focus is made accessible either by focusing through an opening on the primary mirror.

The image in a Gregorian Telescope is upright, not inverted as in other astronomical telescopes, and thus is still used as a design for some terrestrial spotting scopes.



The Green Bank Telescope, the Arecibo Observatory, and the Allen Telescope Array are all radio telescopes employing off-axis Gregorian optics.

Surprisingly the telescope at the University of Saint Andrews, in Fife, Scotland, is named after James Gregory but isn't a Gregorian design – instead it is a Schmidt Cassegrain telescope.

A solar telescope at the Teide Observatory on Tenerife (GREGOR) is named after James Gregory as well

Programme for March & April 2015

Date	Time	Location	Subject & Speaker
Tue Mar 3rd	18:00	Observatory	**CAE** *1st Ackworth Cubs*
Thu Mar 5th	19:45	Club Room	**"Spring Sky & Eclipse"** *Mike Hall*
Sat Mar 7th		Wentworth Castle	**Stargazing at Stainborough**
Wed Mar 11th	19:45	Club Room	**Executive Meeting**
Tue Mar 10th	18:00	Observatory	**CAE** *Chapeltown Cubs*
Wed Mar 11th	19:45	Club Room	**Executive Committee Meeting**
Thu Mar 12th	19:45	Club Room	**"The Herschel Trilogy Part 2"** *Trevor Worrall*
Thu Mar 19th	19:45	Club Room	**"The History of Astronomy"** *Emily Winterburn*
Fri Mar 20th	07:30 – 12:30	Observatory	**Partial Solar Eclipse**
Sat Mar 21st	All Day	Club Trip	**Outing to Space Guard Centre, Knighton, Wales.**
Thu Mar 26th	19:45	Club Room	**Club Room Training**
Fri Mar 27th	19:45	Observatory	**PVE** *Les Marsden*
Sat Mar 28th	17:00 – 20:30	Old Moor RSPB	**Public Stargazing**
Thu Apr 2nd	19:45	Club Room	**Constellation Corner** *Paul D'Silva*
Wed Apr 8th	19:45	Club Room	**Executive Committee Meeting**
Thu Apr 9th	19:45	Club Room	**Measuring the Universe** *Gary Gawthorpe*
Thu Apr 23rd	19:45	Club Room	**Supernovae** *Paul Crowther*
Thu Apr 30th	19:45	Club Room	**Cosmology** *Tony Morris*

Old Moor RSPB – Manvers Way, Barnsley, S73 0YF
Wentworth Castle – Stainborough, Barnsley, S75 3ET
PVE – Public Viewing Event
CAE – Community Access Event

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

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For submissions to The Messenger - Editor: Roy Gunson: royg@gmx.co.uk