The Messenger

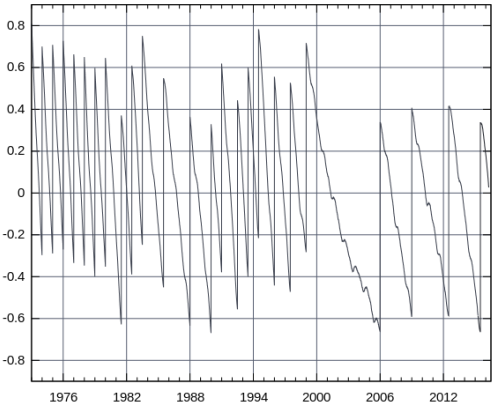
Mexborough & Swinton Astronomical Society

July 2015

June 30th has hiccups!

If you missed it then the month of June 2015 was a little longer than expected. Apparently the Earth is slowing down, I bit like me in my old age, and the powers to be are to add an extra second. Rather than blame the government for this , the actual culprit is the Moon.

As the Moon orbits around the Earth, the pull by the surface irregularities on the Earth is enough to very slightly increase the Moons orbital velocity, pushing the Moon into a higher orbit – essentially making the Moon move away from the Earth at about 4cm every year. Now for every action there is an equal and opposite reaction so the force that is moving the Moon away from the Earth also tugs back on the Earth and causes it's rotation to slow down. About 250 million years ago the Earth's day was only about 21.5 hours.



A Leap second will be added into the Earth's clocks at 23:59:60on June 30th 2015, thus delaying the arrival of July 1st by 1 second!

These leap seconds are introduced periodically the previous one was added on June 30th 2012.

It's so happens that 25 leap seconds have been added since 1975. It doesn't mean that the Earth's day is 25 seconds longer – but there is a slowing down of about 1.5 milliseconds in a year – and over 1,000 days or so this will approximate to a second.

Because this variation in the rotational speed of the Earth is irregular – it is not a smooth variation , the insertion of a Leap second is normally decided upon only a few months in advance and is usually planned to take place on June 30th or December 30th.

The Graph above shows the changes to the length of the day since 1975, the vertical lines indicate when a leap second alteration has been made. There were 9 leap seconds inserted in the period 1972 through 1979, however between January 1999 and December 2005 no leap seconds were added.

Apparently the addition of the leap second in June 2012 caused the Quantas airlines check-in system to crash, and it took some 12 hours to solve the problem. There were problems also apparently with Netflix and Pinterest. So by the time you read this on July 1st 2015 the world will probably be in chaos and you're probably fending off those zombie hordes or alternatively you missed it and didn't notice a thing!

The Thoughts of Chairman Les



I would like to welcome those new members that have joined us since our last journal and I hope that you have many interesting and happy years with us.
With reference to The Feasibly Study Group there was a meeting of this group Wednesday 17th June when Phil and Les each gave a presentation of detailed ideas for an extension. No further updates were made for costings. The meeting decided that it would propose one model for consideration to the general membership and that any documentation produced by the group should include the frame of reference and models discussed.
The meeting was reminded that the financial model for the running of the observatory had not been costed properly. The meeting agreed that this should be done to be complete this by the end of June 2015.
We need to put together a purchasing figure the land on which the observatory stands to present to YWS.
The next meeting will be on Wednesday 15th July. There are meeting dates for the Feasibility Study Group scheduled for July and August so if you have any ideas for the observatory and its development please let us know.
A number of your committee members are to meet with the SBC Ltd Sunday 12th July to discuss the whole situation surrounding their operating procedure. We need to know how long they will continue to safeguard our meeting room

I wish you clear skies

Les Marsden

Les Marsden FRAS

August 12-13, 2015, The Perseids

The Perseid meteor shower is perhaps the best observed meteor shower of the year for the Northern Hemisphere. For once a night's observing should be in the relatively balmy weather of a British summer night. This year the, the thin waning crescent moon rising at or near dawn will not brighten the summer twilight sky on this year's shower. The Perseid shower builds to a peak, often producing 50 to 100 meteors per hour in a dark.
The Perseids tend to strengthen in number close to midnight, and typically produce the most meteors in the hours before dawn. They radiate from a point in the constellation Perseus the Hero, but, as with all meteor shower radiant points, you don't need to know Perseus to watch the shower; instead, the meteors appear in all parts of the sky. They are typically fast and bright meteors. They frequently leave persistent trains. Every year, you can look for the Perseids to peak around August 10-13. Predicted peak mornings in 2015: August 11, 12 and 13. With little or no moon to ruin the show, this is a good year for watching the Perseid meteor shower, unless the clouds roll in!

Mike Hall's July 2015 Skynopsis



Diary (all times **BST** unless otherwise specified)

1st	05:00 Venus closest approach to Jupiter
2nd	Full Moon
5th	Sunrise 04:51, Sunset 21:42
8th	Moon at Last Quarter;
10th	Venus at greatest illumination at 04:00; Sunrise 04:56, Sunset 21:38
14th	New Horizon at Pluto
15th	Sunrise 05:02, Sunset 21:33
16th	New Moon
19th	01:00 Venus is 0.4deg North of the Moon
20th	Sunrise 05.09, Sunset 21.27
21st	Summer Solstice; Moon at apogee
23rd	06:00 Venus stationary
24th	Moon at First Quarter
25th	Sunrise 05:16, Sunset 21.20
26th	Saturn 2deg South of Moon
29th	Southern Delta Aquarids meteor shower peaks 03:00
30th	Sunrise 05:24, Sunset 21:12
31st	Full Moon, Venus 6deg South of Jupiter 08:00

The Planets

Mercury	Not visible
Venus	Heading towards inferior conjunction, within 0.5deg of Jupiter before being lost in evening twilight
Mars	Poor viewing
Jupiter	With Venus towards North West, 5deg North of Moon on 14th
Saturn	South West sky, transiting at 21.00 mid-month and slowly moving away
Neptune	In Aquarius,
Uranus	At brightest, moving into opposition in Pisces
Pluto	At opposition low down in Sagittarius on the 6th, good optics required!

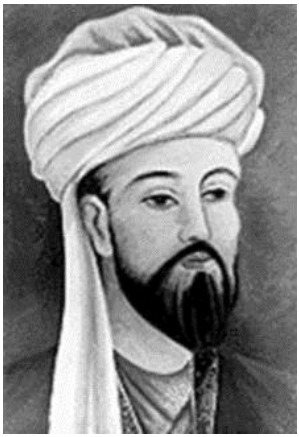
Galactic Goodies – opportunities and challenges

Aquarids	Southern delta Aquarids meteor shower peaks but poor viewing
Summer Triangle	Vega (Lyra), Deneb (Cygnus) and Altair (Aquila)
M51, M63	Canes Venataci group of galaxies including: M51 [RA13h 29.9m, Dec. +47deg 11'43" : 12, Mag. 8.4], Whirlpool Galaxy and M63 [RA 13h 15m 49.3s, Dec +42° 01' 45" Mag.9.3],Sunflower Galaxy
Virgo Cluster	RA 12h 27m, Dec. +12deg 43m; Contains approx. 1500 galaxies; of which 16 are in Messiers original catalogue
Epsilon Lyrae	The 'Double-double' RA 18h 44m 20s, Dec. +39° 40' 12.444", App. Mag. 4.7
Deep Sky Challenge	NGC 6118 (Herschel 1785) [RA 16h 21.812m, Dec. -02deg 17.00', Mag. +12.4

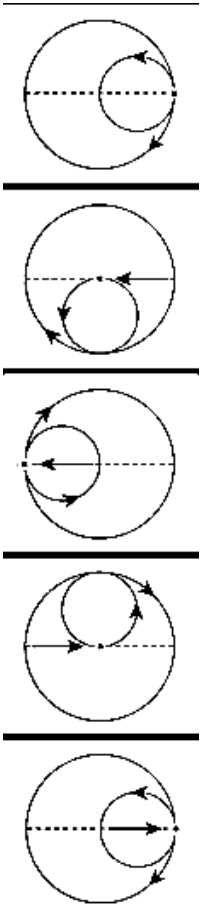
New Club Lotto

As Camelot, the firm that runs the National Lottery, has increased the number of balls used in the Lottery this has had a roll on effect for MSAS's own lottery draw, which we all know is much more lucrative for the participants than the National Lottery itself. Our own lottery also gives each participant the opportunity of receiving a brown envelope stuffed with notes from our Chairman (not Sepp Blatter), whilst getting roundly booed by the rest of the nights audience – Ahh the Joy of it all!
Anyway, it's been decided that Mr "Custodian of the Balls" Collinson will purchase a number of ping pong balls and conduct his own weekly lottery draw. Whether this will be done live on a Thursday night, and whether Phil Muffett will be suitably attired as his "young and pretty" assistant is still open for debate.

The Tusi Couple



A Tusi Couple is a constructed system where one circle rotates (or rolls) along the inside of another circle.
The device was first proposed by a 13th century Persian astronomer called Nasir al-Din al-Tusi in his publication "Commentary on the Almagest" as a solution for the motion of the inferior planets, Venus and Mercury.
The Almagest was Ptolemy's work on the motion of the planets using epicycles which was published in the 2nd century.
The Tusi-Couple was used as a mathematical treatment of Mercury's orbit in the heliocentric model proposed by Nicolas Copernicus in
De revolutionibus orbium coelestium
(On the Revolutions of the Heavenly Spheres) which was published after Copernicus's death in 1543.



The term "Tusi couple" is a modern one, coined in 1966.

The Tusli couple seems to be a variant of the epicyclic gear – which was used to great effect in the ancient Antikytheria Mechanism which was able to approximate the moon's elliptical path through the heavens, and even to correct for the nine-year precession of that path. Nasir al-Din Tusi was born in the city of Tus in medieval Khorasan (in north-eastern Iran) in the year 1201 and began his studies at an early age. In Hamadan and Tus he studied the Qur'an, Hadith, Shi'a jurisprudence, logic, philosophy, mathematics, medicine and astronomy.

A 60-km diameter lunar crater located on the southern hemisphere of the moon is named after him as "Nasireddin". A minor planet 10269 Tusi discovered by Soviet astronomer Nikolai Stepanovich Chernykh in 1979 is named after him

Club Guest Speakers



On Thursday June 18th we were joined by the effervescent Paul Money for the 6th edition of his Images of the Universe series. Explaining in detail about astronomical related images that are amongst his favourites. He included some of the latest pictures from the Dawn mission to Ceres, and the Martian Rover "selfies". In the photograph he is placed under close guard by the similarly attired Sergeant D'Silva and Constable Muffett.



The following evening, Friday June 19th, we were joined as our guest speaker, by the club president Dr Allan Chapman, who regaled us with an excellent lecture on William Lassell. William Lassell was a Lancastrian astronomer who discovered Triton, the largest moon of Neptune, in 1846. He also discovered Ariel and Umbriel (moons of Uranus) and the Saturnian moon, Hyperion. A good question and answer session finished off the evening. The photograph shows Allan with club member Mick Nicholls.

We will be having two guest speakers in July – On Thursday 16th Dr Stuart Muldrew will be speaking on "How to Build a Universe", and on Thursday July 30th, John D Timmins will present a talk on "Improving your Telescopes Performance".

Joke Corner

I was up all night wondering where the sun had gone … then it dawned on me.

A Seminar on time travel will be held last Tuesday

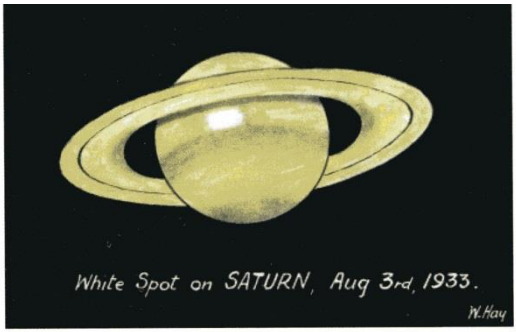
Heisenberg is out for a drive when he's stopped for speeding. The policeman says "Do you know how fast you were going?" Heisenberg says "No, but I know where I am

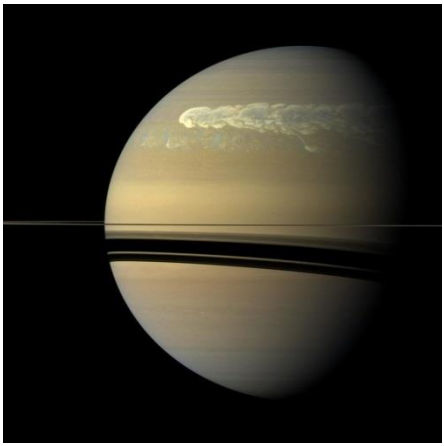
"In awe, I watched the waxing moon ride across the zenith of the heavens like an ambered chariot towards the ebony void of infinite space, wherein the tethered belts of Jupiter and Mars hang forever festooned in their orbital majesty. And as I looked at all this I thought: 'I must put a roof over this toilet'."

Will Hay and the White Spot

Probably best known as a comedian who achieved much fame portraying inept people of authority (Schoolmasters, policemen, lawyers etc.)
Will Hay was also a prominent amateur astronomer. In an interview he had with the Daily Mail on August 9th 1933 the following was reported; "He believes astronomers to be the finest brotherhood on Earth, the only men who see life in its true proportion. '*If we were all astronomers there'd be no more war' he says. He has the broad, calm philosophy of a man who thinks habitually of universes. All astronomers are philosophers he will tell you*".
This interview in the newspapers was when Will Hay hit the headlines, not for his film or radio work, but for his astronomical observations.
On August 3rd (at 10:35pm!) he observed a great white spot on Saturn. This spot lasted until mid-September 1933.

Will hay had used a 6"refractor at his home in Norbury, South London, to observe Saturn. A record of Will Hay's log book exists and in it he wrote;
"August 3rd. G.M.T. 22H.35M.00. Observing Saturn with 6" Cooke Refractor. I was surprised to see a large bright area in the equatorial region of the planet and just left of the central meridian. I rang up Dr Steavenson who observed the planet thro' his 20½" reflector and confirmed the existence of the bright area. I observed the spot from 933 Aug 3 22H.35M until it reached the limb of the planet at 1933 Aug 4th, 00H.10M.00. The large bright area seemed to be followed by the other bright areas tho' not so conspicuous or well defined as the principle one.
Another white spot was seen in 1960, 1990, and in April 2010 the following picture was taken of a white spot through Hubble.





Will Hay's drawing above, Hubble 2010 on the right

WILL HAY AS A STAR-GAZER

BUT HE NEVER MENTIONS IT ON THE STAGE

By A Special Correspondent

Will Hay, comedian, is a very funny man, as everyone knows; but William Thompson Hay, F.R.A.S., astronomer, is a monument of scientific dignity, as I discovered to-day.

He knows what he is talking about, too.

Will Hay—I beg his pardon, Mr. William Thompson Hay—has just taken the wind out of the sails of American astronomers. They noticed a queer spot on the planet Saturn, and announced it triumphantly as a new discovery. And then Mr. William Thompson Hay calmly pointed out that he had reported this same spot to the British Astronomical Association about two days earlier.

I saw Will Hay to-day in the most extraordinary suburban garden in London. You won't find any flower beds there. But you will find two giant telescopes inside circular wooden frames. On the door of the larger one is a brass plate marked "Observatory," and among the maze of scientific apparatus is the telescope with which Mr. Hay spotted the spot on Saturn.

HOBBY KEPT QUIET

Now he is building a big dome to cover his newest telescope—a big 10-inch model. And he is doing most of the carpentry himself.

I suggested to Will Hay that a few jokes about star-gazing would have to be worked into that comic schoolmaster turn of his.

"Certainly not," he said, "I've kept my hobby absolutely quiet until now, and I shall never mix it up with my work. But, you know, I really couldn't let the Americans get away with a thing like that."

Then he brightened up a bit. "Not that I can't think of some good jokes about stars—but, seriously, that's about the only gag I've never used.

"When I was quite a nipper I was always fascinated by shooting stars. Where did they come from—and why? A year or two later, while still at school—must have been about 1900—there was an eclipse of the sun, and we boys watched it through a bit of smoked glass.

BUSY ASTRONOMER

"That got me going, and I've been keen on astronomy ever since.

"It's my hobby.

"There are a good many of us amateur astronomers, and we all work together in the British Astronomical Association. By pooling our observations quite a lot of useful information is gained about the heavens.

"I work particularly on comets and variable stars—stars whose light fluctuates.

"Now, about half-past two this morning. . . ."

"Gracious," I interrupted, "don't you ever go to bed?" (Remember Mr. Hay doesn't get home from the theatre until after midnight).

He chuckled.

"I go to bed every wet night," he said, "and usually that is about five out of every six. We astronomers are enjoying this fine weather."

THOSE LAMP-POSTS

Then Mr. Hay waxed confidential.

"I tried to keep this hobby of mine quiet, because people think you're balmy if you go looking at stars—but I'm rather glad about this business.

"You see, two street lamps outside interfere an awful lot with my observations. The local council wouldn't take any notice of me before when I asked if they might be shaded. Perhaps they will now."

Gloucestershire Echo 9th Aug 1933

WILL HAY—ASTRONOMER.

Will Hay, the famous British "schoolmaster" comedian and Fellow of the Royal Astronomical Society, has become the world's most talked-of astronomer. He is the first living astronomer to have discovered a large spot on the planet Saturn.

The greatest possible importance is attached to Will Hay's discovery, by means of which it will be possible to determine the course and speed of Saturn's rotation.

This no astronomer has ever before been able to attempt with any accuracy, for the spots discovered in the past have been too small to enable the scientists to make their calculations.

YEARS OF STUDY.

The spot, first seen by the British comedian shortly before midnight on Thursday, is about 20,000 miles long. Its discovery was confirmed a few minutes later by Dr. W. H. Steavenson, the famous astronomer. It has since then also been observed by an American scientist.

Mr. Hay's discovery is the reward of years of industrious study, on which he has spent many hundreds of pounds. He has three powerful telescopes.

Yorkshire Post 8th Aug 1933

Programme for July & August 2015

Date	Time	Location	Subject & Speaker
Thu July 2nd	19:45	Club Room	**Astronomy Quiz** *Les Marsden*
Sun July 5th	14:00	Observatory	**CAE - Solar Observing**
Wed July 8th	19:45	Club Room	**Executive Committee Meeting**
Thu July 9th	19:45	Club Room	**Sex & Health in Space** *Mike Hall*
Sun July 12th	10:00	RSPB, Old Moor	**Public Outreach** **View the Sun as Never Before**
Thu July 16th	19:45	Club Room	**How to Build a Universe** *Dr Stuart Muldrew*
Thu July 23rd	19:45	Club Room	**The Sun and Noctilucent Clouds** *Mick Nicholls*
Thu July 30th	19:45	Club Room	**Improving Your Telescope Performance** *John D Timmins*
Sun Aug 2nd	14:00	Observatory	**CAE - Solar Observing**
Thu Aug 6th	19:45	Club Room	**Herschel 3** ***Trevor Worrall***
Wed Aug 12th	19:45	Club Room	**Executive Committee meeting**
Thu Aug 13th	19:45	Club Room	**Astro Clinic**
Sun Aug 16th	10:00	Old Moor RSPB	**View the Sun as Never Before** **Public Outreach**
Thu Aug 20th	19:45	Club Room	**TBA**
Thu Aug 27th	19:45	Club Room	**Autumn Sky**

Old Moor RSPB – Manvers Way, Barnsley, S73 0YF
Wentworth Castle – Stainborough, Barnsley, S75 3ET
Thryberg Country Park – Doncaster Rd, Rotherham, S65 4NU
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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