The Messenger
Mexborough & Swinton Astronomical Society
September 2016

Who owns the Sun?

Well certainly not Andy Devey or Mick Nichols, even though it's their favourite and most prized object of admiration!



However In 2010, Maria Angeles Duran officially laid claim to the body under Spanish Law at the Notary Public There is an international agreement which states that no country may claim ownership of a planet or star, but it says nothing about individuals, she added.
'There was no snag, I backed my claim legally, I am not stupid, I know the law. 'I did it but anyone else could have done it, it simply occurred to me first.'
The document issued by the official notary public declares Ms Duran to be the 'owner of the Sun, a star of spectral type G2, located in the centre of the solar system, located at an average distance from Earth of about 149,600,000 kilometers'.
In 2013 she began selling plots of the Sun on eBay. She offered square-meter plots for the price of 1 euro each and by 2015, she had over 600 buyers, (there's one born every minute they say!) but then eBay pulled the plug on her, saying her auctions violated its "intangible goods" policy.
Duran then sued the auction site for violation of contract, arguing that the sun is, indeed, a tangible object, and a Spanish court agreed to hear her case.
It remains to be seen if Duran will win her case, but even if she does she may one day run into other problems establishing the legitimacy of her land-on-the-sun claims. That's because long before she came along, numerous other people had already staked a claim to the sun. In fact, for over 75 years there's been a booming market in celestial real estate, with the result that by now every corner of the universe has been claimed by multiple would-be owners.
As of August 2016 the case doesn't seem to have hit the courts maybe it's been eclipsed!

Massachusetts Institute of Technology Exam

The Massachusetts Institute of Technology has placed some of it's course material on line. The following is an example of one of it's questions to first year undergraduates in its astronomy course. Can you solve them?

A candle has a power in the visual band of 0.03 Watts. When this candle is placed at a distance of 3km it has the same apparent brightness as a certain star. Assume that the star has the same luminosity as the Sun in the visual band (10^{26} Watts). How far away is the star in parsecs? (1 parsec = 3.086 x 10^{13} km)

Coming soon to Skies near us!

The winter sky is fast approaching, and I thought I'd just mention a few objects in the sky that might be worth having a look at

In September Piscis Austrrinus (Southern Fish) pokes its head above our southern horizon and it just may be possible to get a peek at the bright star Fomalhaut. Fomalhaut is an A3 main sequence star. It is notable has having a dust ring photographed by Hubble which also photographed an extrasolar planet Fomalhaut b. Anyway it would be an interesting star to check off your "I've seen it list".

Uranus will be a good object to train your binoculars or telescopes on over the autumn months. It will climb to as high as 45° when it "souths" That's about 3am mid-September, and 8pm in December. It may be possible to grab images of five of the larger moons, Oberon is at mag 14.7, Titania 14.4, Umbrial 15.3, Ariel 14.7, Miranda, a difficult 16.9

Neptune is at opposition early September and continues to be a good object for observation throughout the autumn. Neptune is magnitude 7.8, Triton comes in at magnitude 14 and might be worth a look for in a large aperture as it only some 12" of arc from Neptune at best

Ceres will be at opposition towards the end of October some 35° above horizon,

Penumbral Eclipse on 16th September - Moon will be "in eclipse" at moonrise. Penumbral eclipses are not that distinctive and the moon is only expected to dim by 10% of its normal brightness.



Mnemonics

Used to remember the order of things

In order to remember the four largest moons of Jupiter, in the order of their distance from Jupiter that is Io, Europa, Ganymede, Callisto you can use :-

"I Eat Grandma's Cookies" or "I Eat Green Cows"

The order of Spectral types of star, starting with the hottest and then in decreasing stellar surface temperature we have

"Oh, Be A Fine Girl, Kiss Me!"

There are variations which includes:

"Oh, Be A Fine Gentleman, Kiss Me!"

The order of the planets from the sun can be remembered by one of these:-

"Mean Very Evil Men Just Shortened Up Nature",

"Mary's "Virgin" Explanation Made Joseph Suspect Upstairs Neighbour"

"My Very Educated Mother Just Served Us Nachos"

Finally in order to remember the order of Neptune's moons starting with the innermost:-

"Neptune's Tiny Dancing Girls Look Pretty To-Night"

This stands for Naiad, Thalassa, Despina, Galatea, Larissa, Proteus, Triton, and Nereid.

Massachusetts Institute of Technology Exam

Answer

$$Same\ Flux = \frac{Power}{Distance^2} = \frac{0.03}{3km^2} = \frac{10^{26}}{d^2}$$

So, $$d^2 = 10^{26} \cdot \frac{3km^2}{0.03}$$

$$d = 1.73 \times 10^{14}\ km$$

$$d = \frac{1.73 \times 10^{14}}{3.086 \times 10^{13}} = 5.6\ pc$$



The Committee in session

Mike Hall's September 2016 Skynopsis



Diary (all times BST unless otherwise specified; Sunrise/Sunset local time)

1st	09.00 New Moon; Sunrise 06.17, Sunset 19.45
2nd	17.00 Mercury 60 South of Moon, 20.00 Jupiter 0.40 South of the Moon, 17.00 Neptune at opposition
4th	06.00 Venus 30 North of Moon
5th	09.00 Venus 1.10 North of Regulus
6th	19.00 Moon is at apogee
8th	Sunrise 05.34, sunset 21.31, 21.00 Saturn 40 south of moon
9th	00.00 Moon First Quarter Mars at 80, South of Moon: Piscid meteor shower
13th	Mercury in inferior conjunction
15th	Sunrise 05.46, Sunset 20.19, twilight 20.58; 08.00 Neptune 1.20 South of Moon
16th	19.00 First Full Moon
17th	Venus 30 North of Spica
18th	Moon at perigee (361, 894 km) 17.00 Uranus 30 North of the Moon
21st	Mercury stationary 23.00 Aldebaran 0.20, South of Moon
22nd	Sunrise 06.53, Sunset 19.03
23rd	10.00 Moon at Last Quarter
26th	03.00 Pluto stationary 07.00 Jupiter in conjunction with the Sun
28th	20.00 Mercury at greatest elongation, West 180
29th	Sunrise 07.05, Sunset 18.46

The Planets

Mercury	Best viewing, late in the month, 28th 20.00 at greatest elongation, West 180 East in the morning twilight 05.00
Mars and Saturn	Best viewing, 8th-9th SSW in the region of Ophiuchus and Scorpius; 21.00 on 9th, Mars mag. -0.2, 7.30 below Moon; Saturn mag. +0.5 v. low in SW
Venus	Poor visibility this month, lost in twilight
Jupiter	Not visible this month, lost in the solar glare
Uranus	Best viewed mid-month; mag. +5.7in Pisces, culminates 03.00 on 22nd
Neptune	Best viewing in Aquarius, in opposition on 2nd; mag. +7.8, occultation with waxing gibbous Moon on 15th
Pluto	Best viewing, Mid-month in Sagittarius at mag. +14.2; culminating 20.30, setting 24.30

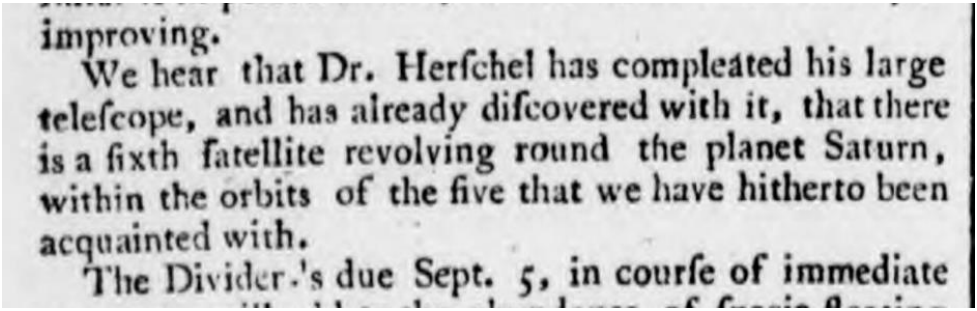
Galactic Goodies

M27	Dumbbell Nebula, mag. +7.4 in Vulpecula, inside the Summer Triangle
Almach	Double star, 150 to lower left of Andromeda Galaxy
Albireo	Beta Cygni, located at the foot of the Northern Cross

Paul and Roy match Herschel

The first seven moons of Saturn were discovered by direct observation using optical telescopes. Saturn's largest moon, Titan, was discovered in 1655 by Christiaan Huygens using a 57-millimeter (2.2 in) objective lens on a refracting telescope of his own design. Tethys, Dione, Rhea and Iapetus were discovered between 1671 and 1684 by Giovanni Domenico Cassini, Mimas and Enceladus were discovered in 1789 by William Herschel.

A newspaper cutting report on Herschel's discovery of Enceladus is shown below

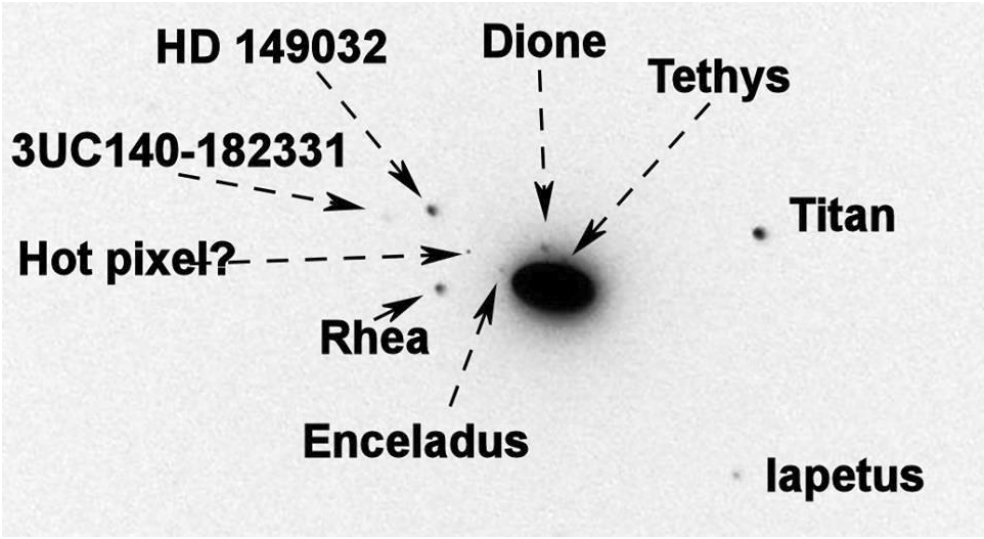


improving.

We hear that Dr. Herſchel has compleated his large teleſcope, and has already diſcovered with it, that there is a ſixth ſatellite revolving round the planet Saturn, within the orbits of the five that we have hitherto been acquainted with.

The Divider's due Sept. 5, in courſe of immediate

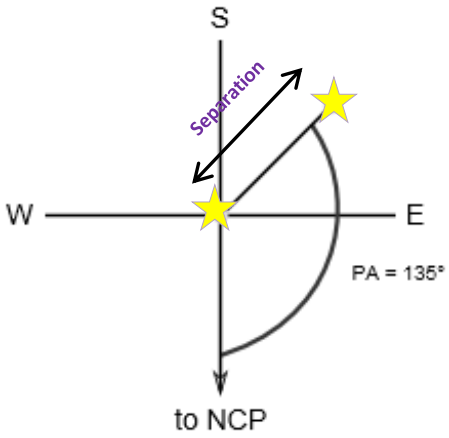
On Monday 22nd August Paul D'Silva and Roy Gunson took the photograph below of Saturn's moons using the C14 at the observatory. [10 second exposure using a canon 600D at prime focus]



The correct labelling was done by Paul Money as we had originally identified the "hot pixel" with Enceladus. (We're always looking for "hot stuff"!)

Measuring Double Stars

The two measures of a double star are separation and position angle. The directions shown here are for an inverting scope, such as a Newtonian reflector. Other telescopes may have different field orientations. Position Angle for visual binary stars, it is defined as the angular offset of the secondary star from the primary, measured counterclockwise, relative to the north celestial pole (NCP). Note the diagram below is shown as the object would be seen in an inverting telescope like the majority of astronomical telescopes. The seperation is a measure of the direct angular distance between the two stars.
Choosing an eyepiceis not difficult. To get an easy seperation in your eyepice then a simple rule is to divide 500 by the angular seperation in minutes to get an approximation for the minimum magnification you will need to separate the stars easily. Of course the resolving power of a telescope or binoculars will also have an effect however for most objects listed below this shouild be a problem. For example a typical 75mm object glass pair of biunoculars should be able to reolve with ease anything seperated by more than 4 arc seconds (theoretical 1.5”) and a magnitude of +9.
A small 125mm cassegrain should get you down to a couple of arc second (theoretical 0.95”) and possibly magnitude +12.



So here’s a list of doubles that may be worth having a look at

		Mags		PA	Seperation		Notes
η Cassiop[eia		3.5	7.2	317°	13.0”		Yellow & Red
α U Major	Polaris	2.0	9.0	217°	18.3”		Pole Star
ψ Draconis		4.9	6.1	15°	30.3”		Binocular object
η Andromedae		4.4	8.7	174°	36.1”		Binocular object
γ Andromedae		2.3	5.1	63°	10.0”		Orange & Blue
η Persei		3.9	8.6	301°	28.4”		Yellow & Blue
ε Monocerotis		4.5	6.5	27°	13.2”		Yellow & Blue
ζ U Major	Mizar	2.4	3.9	150°	14.5”		Also with Alcor 12’ away
α Leonis	Regulus	1.3	7.6	307°	176”		
ε Lyrae		4.7	4.5	172°	208”		Could be naked eye!
β Orionis	Rigel	0.1	6.8	203°	9.1”		Difficult due to Rigel glare
ζ Orionis	Alnitak	1.7	3.9	165	2.3”		One for the C14!
θ Orionis							Trapezium & Nebula!

The Thoughts of Chairman Les



Hello everyone this is your chairman here, I hope that you are all well and have been under a few clear skies.
If you take a look at our programme for the month you will see that we are going to be very busy. Apart from our usual Thursday nights the first of our PVE's at the observatory takes place Friday 9th Sep. The following day we are back at Thrybergh Country Park on Saturday 10th with our 'A Night Under the Stars' at which your support with your scopes would help enormously to make the night a success. Will a few of you get yourselves up to speed and take part in our 'Internal Astromind' on Thu 22nd. I'm afraid that the programme doesn't show that we are doing a 'first time' visit to 'Boston Castle' in Rotherham on Saturday 17th for solar observing. One or two members have been to the site and it is thought it might not be ideal for night observing but we think it would be fine for solar observing. I would ask those of you that have solar scopes to come along and give your support to this interesting site.
This is the month for our long awaited Aquarius Meeting. I did mention this in last month's Messenger with a lot of the items that are expected to be dealt with. I find that you may need to be informed that we have not had any new information from our friends at Yorkshire Water Services up this date.
I hope that many of us will be able to support this month's activities.

I wish you clear skies

Les Marsden

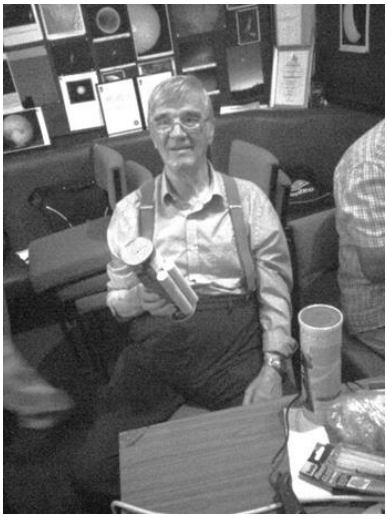
Chairman Les proudly shows off his model of Thunderbird 3!

Actually an evening of instruction on how to build a basic sun finder by Paul D'Silva took place on July 21st. Several members made their own solar finders, and we had a brief talk on solar observing by Paul.

Much cardboard, Pringle tubes, and sticky backed plastic was deployed.

Plus Paul had one he had made earlier.

We're all looking forward to the "Tracy Island" demo next!



Programme for September & October 2016

Date	Time	Location	Subject / Event	
Thu Sep 1st	**19:45**	**Club Room**	**We are going to the Movies**	***Jez Robinson***
Thu Sep 8th	**19:45**	**Club Room**	**TBA**	***Phil Muffett***
Fri Sep 9th	**19:45**	**Observatory**	**PVE**	***Les Marsden***
Sat Sep 10th	**18:30**	**Thryberg Park**	**A Night Under The Stars - POI**	***Les Marsden***
Wed Sep 7th	**19:45**	**Club Room**	**Executive Committee Meeting**	
Thu Sep 15th	**19:45**	**Club Room**	**Astronomy & Astro Photography with the Skywatcher Mak 180 Pro & Registax**	***Mick Nicholls***
Sat Sep 17th	**19:45**	**Boston Castle**	**PO Event (TBA)**	***Les Marsden***
Thu Sep 22nd	**19:45**	**Club Room**	**MSAS Astromind**	***Les Marsden***
Wed Sep 28th	**19:45**	**Club Room**	**Aquarius Project Meeting**	***Paul D'Silva (Chair)***
Thu Sep 29th	**19:45**	**Club Room**	**The Solar System in Fiction**	***Paul Money***
Thu Oct 6th	**19:45**	**Club Room**	**TBA**	***Tony Morris***
Fri Oct 7th	**19:45**	**Observatory**	**PVE**	***Las Marsden***
Sat Oct 8th	**18:00**	**Old Moor RSPB**	**Stargazing Extra + Pie & Peas**	***Les Marsden*** ***Phil Muffet***
Wed Oct 12th	**19:45**	**Club Room**	**Executive Committee Meeting**	
Thu Oct 13th	**19:45**	**Club Room**	**TBA**	***Mike Frost***
Thu Oct 20th	**19:45**	**Club Room**	**TBA**	***Dr Matthew Malek***
Thu Oct 27th	**19:45**	**Club Room**	**Astronomy News**	***Various***

Old Moor RSPB – Manvers Way, Barnsley, S73 0YF
RA – Rockingham Arms, Wentworth
Clifton Park –Clifton Lane, Rotherham, S65 2AA
Thryberg Country Park – Doncaster Rd, Rotherham, S65 4NU
PVE – Public Viewing Event – Bookable Only
CAE – Community Access Event
PO – Public Outreach
TBA – To be announced – (otherwise – We don't know!)

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

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

Coming Soon
2017 Solstice Dinner – Friday June 23rd, 2017