

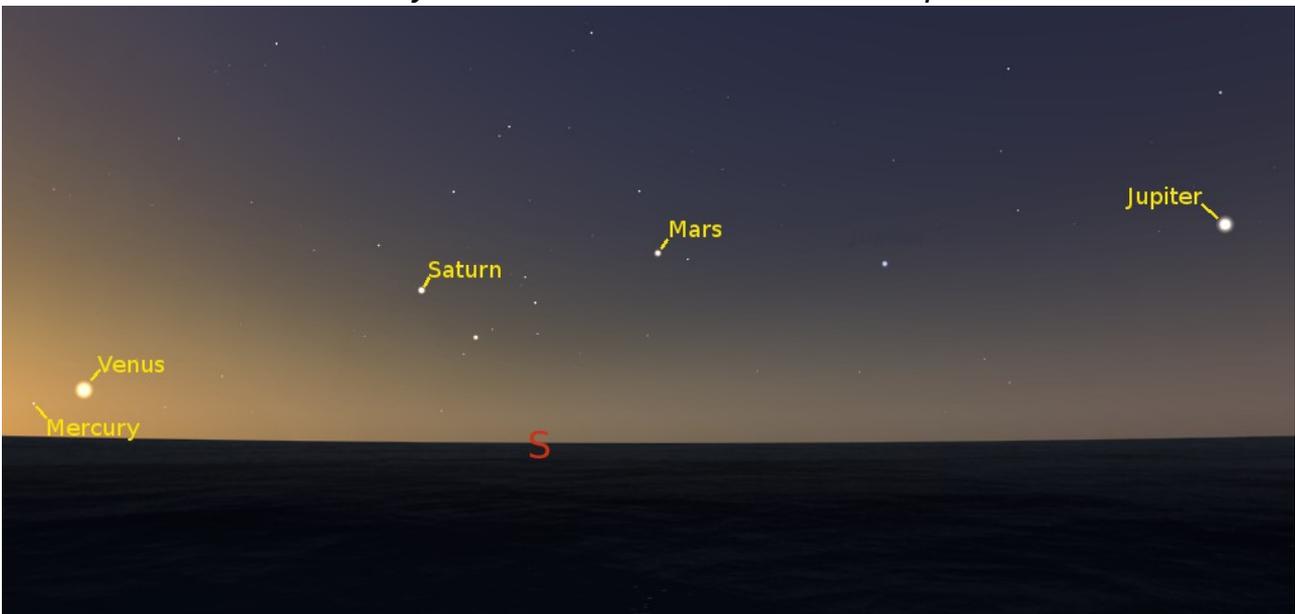
Thanet Astronomy Group

Astronomy for Everyone in Plain English

NEWSLETTER

January / February 2016

Mercury – Venus – Saturn – Mars – Jupiter



All five planets visible by eye in the sky at one time

This space is reserved for promoting members' businesses.
You can place an advert here for a donation to the group.

Contents

Cover	1
Contents	2
Executive Committee Messages	3
About the cover picture	4
About the cover picture	5
Thanet Astronomy Group Contact Details	6
Members' Meeting Dates and Times	7
Advertisement (West Bay Cafe)	8
What we did in January	9
Junior Members Page	10
Advertisement (Renaissance Glass)	11
Book Review	12
What's in the sky this month	13
What's in the sky this month	14
Members' Page	15
Did You Know ?	16
Did You Know ?	17
Junior Astronomers' Club (JAC & Gill)	18
Adult Word Search	19
Junior Word Search	20
Members' For Sale and Wanted	21

Executive Committee Messages

Don't miss What to see Saturday 30th January at 6:30 am !!

Planetary alignment (Mercury, Venus, Saturn, Mars and Jupiter)
See pages 13 & 14 in this newsletter and Friday 29th Thanet Gazette for details.

February 2016

February 3rd Wednesday's members meeting at the cafe.

February 6th Will start the Saturday meetings.

Your Newsletter

If any members would like to offer to help with any pages for the Newsletter we would be very grateful. We need help with :-

Typing up hand written articles
Proof reading
Ideas and planning for future pages
Printing services
Writing articles :-
 Book Reviews
 A Diary of the Saturday meetings and other events
 Members' Page
 etc.

We also need to know what pages you like ?

What pages you don't like ?

What new pages you would like to see...

Comments to ... ThanetAstronomyGroup@gmail.com

This is your Newsletter and help is needed if it is going to survive.

Telescope Making Group

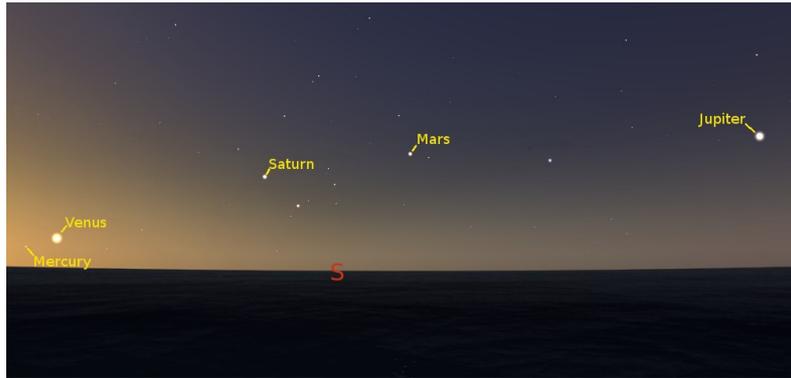
This year 2016 we will be starting work on the first of 3 telescopes we hope to make this year. If you have not already signed up for this amazing workshop and would like to, just let Danny, George W. or Gill know.

Note : There is no knowledge or experience needed to join this workshop.

The Junior group have already started on this and almost got working a 3" refractor they have built from scratch and already have made a tube and working focuser assembly for their 3" Newtonian Reflector Telescope.

Danny, George, Gill.

About the Cover Picture



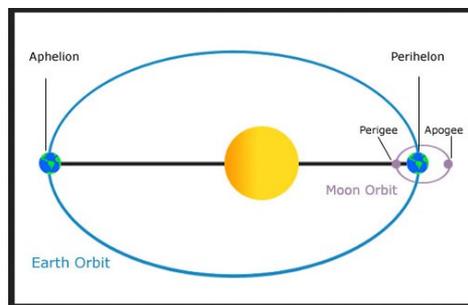
Mercury – Venus – Saturn – Mars – Jupiter 8 Feb 2016 @ 06:40 am

Last Chance Till 2040

In this issue (January / February 2016) of the news letter we will look in a little more detail at the rather rare occurrence of all five planets visible by eye all at the same time. This is not a common occurrence. The last time this happened was back in December / January 2004 / 05. It won't happen again until October 2040 !

So what is this alignment all about ?

Well, as you all know, the Sun is at the centre of our Solar System and all eight planets orbit around the Sun. Each planet has its own orbit like a running track at the sports stadium. Contrary to popular belief the orbits of planets are not perfect circles they are elliptical (more or less egg shaped).



Shape of an Orbit

Each planet orbits at its own speed and takes an amount of time to complete one orbit around the Sun. As you know the Earth takes one Year (365.25 Earth Days). The following table shows the eight planets' distance from the Sun in millions of Kilometres, and the length of their orbit (the planets' Year) in Earth Days (multiple's of 24 hours).

Planet	Mercury	Venus	Earth	Mars	Jupiter	Saturn	Uranus	Neptune
Distance	57.9	108.2	149.6	227.9	778.6	1433.5	2872.5	4495.1
Earth Days	88	224.7	365.2	687	4331	10747	30589	59800

You can see from the table that each planet takes its own unique amount of time to complete its orbit around the Sun. Therefore at any point in time different planets will be at different points in their respective orbits.

About the Cover Picture

From time to time, and not very often, various groups of planets will, of course, group together or 'align' around one particular direction from the Sun. When this happens if the alignment is in a direction visible from the side of the Earth that faces away from the Sun, the planets can be observed in the night sky all at the same time.

This is exactly what is happening now. The planets that have aligned are Mercury, Venus, Mars, Jupiter and Saturn. These are the five planets that are visible by eye.

The other two planets Uranus and Neptune (Refer to the table above) are much too far from the Earth to be visible by eye and are also not even an easy target for a small telescope. Uranus is about three times the distance of Saturn from the Sun and Neptune is almost six times the distance of Saturn !

Uranus and Neptune are also not part of this early morning alignment. They are at the time of this alignment still well below the horizon and will only rise above the horizon well after sunrise. Therefore they will not be visible even with a telescope in the early morning before Sunrise.

What can I see if I have a small Telescope or Binoculars ?

Mercury

With a small telescope you will not be able to see much detail of Mercury. It is a very small planet and the nearest to the Sun, therefore the last to rise above the horizon. It will be very close to dawn and the sky will not be very dark.

(Warning : it is very dangerous to look at this planet with a telescope as there is every chance that you will end up with the Sun moving into your field of view and blinding you)

Venus

This planet is a little further away from the Sun and will rise a short time before dawn.

(But you still need to exercise extreme care and turn your telescope away in good time before the Sun is due to rise)

When the seeing is good you can see this planet as a small disk but no detail is visible. When the position of Venus, Earth and the Sun are such that only part of the side of Venus facing Earth is lit by the Sun. You will see a tiny crescent Venus just like a crescent Moon.

Mars

This is usually a much safer planet to look at. With a small telescope you should be able to see a small disc and may even see the red colour of Mars a little better than by eye.

Jupiter

This is the planet to look at! It is the largest planet in our Solar System and has four large moons. Through a small telescope or binoculars you will see a clear disc and up to 4 small tiny star-like points of light in a line close to the planet. These small points of light are the Galilean moons of Jupiter. You may even be able to see some banding on the surface of Jupiter.

Saturn

This is the most amazing sight when you see it for the first time! The planet is over 30,000 million kilometres away from the Sun. Through a small telescope you can still, on a good night, just make out Saturn's rings. If it's a very clear and still night you may even be able to see a tiny star-like dot of light near the planet. This will be Saturn's largest moon, Titan.

Danny.

Thanet Astronomy Group Contact Details

Executive Committee

Chairman	Daniel Day	01843 228 904
Treasurer	George Ward	01843 292 640
Secretary	Gill Palmer	07543 942 245

Committee

Volunteers	George Cozens	07970 181 395
Members	Sheila Bull	07791 892 057
Newsletter	Janet McBride	01227 364 092
Newsletter	Tracy Howes	07917 710 638
Library	Janet McBride	01227 364 092
Web Site	Danny Day	01843 228 904
JAC & Gill	Gill Palmer	01843 848 064

Members' Meeting Dates and Times

Thanet Astronomy Group Members' Meetings Dates and Times

6th January 2016 at 7:30pm

3rd February 2016 at 7:30pm

2nd March 2016 at 7:30pm

6th April 2016 at 7:30pm

4th May 2016 at 7:30pm

1st June 2016 at 8pm

6th July 2016 at 8pm

3rd August 2016 at 8pm

***** 7th September 2016 at 8pm *****

***** Anniversary Three Years at West Bay Cafe Party *****

5th October 2016 at 7:30pm

2nd November 2016 at 7:30pm

***** 7th December 2016 at 7:30 for 8:00pm *****

***** Christmas Evening Meal and Entertainment *****

All Members' meetings will be held at the :-

West Bay Cafe,
Sea Road,
Westgate-on-Sea,
Kent.
CT8 8QA

Advertisement

WEST BAY CAFE

Sea Road, Westgate-on-Sea
CT8 8QA

Location :-

This Family Friendly Cafe is situated on the promenade just beside the sandy beach opposite the junction of Sea Road and Rowena Road, Westgate-on-Sea, CT8 8QA.

Access :-

via a flight of steps behind the cafe.

Disabled Access :-

via the main entrance to the bay and a slope at the cafe door.

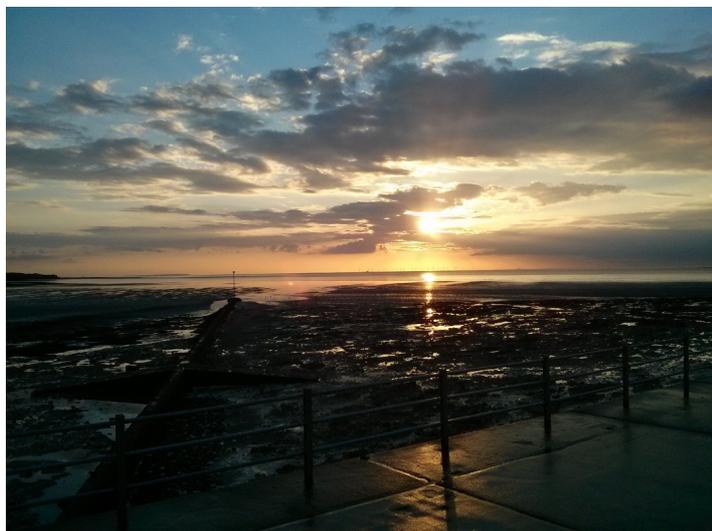
West Bay Cafe run by Alan and Kate has a very friendly atmosphere.



Alan outside the new style West Bay Cafe

There is a wide variety of good food and drinks at very reasonable prices and there are always special offers.

There is seating both inside and outside for those extra hot days.



A Typical Sunset at the West Bay Cafe

The Sunsets at the West Bay Cafe are Spectacular.

**With a meal, some friends,
and a pint or two.**

What more could you ask for!

West Bay Cafe have hosted Thanet Astronomy Group since September 2013.

We would like to say a
HUGE THANK YOU to Alan and Kate
for all the help and support they have shown us over the last year.

Please use this Brilliant Seaside Cafe and Tell Your Friends.

What we did in January

Saturday 2th January Public Outreach Meeting

Today was an “in the cafe” day. The weather was especially bad and we all kept warm while discussing astronomy over tea and coffee.

Wednesday 6th January Members' Meeting

Gill was unusually not at the meeting this night she was attending the birth of Rob and Demi's baby Justin. We received the phone call during the meeting announcing that mother and baby were fine. We started the night with the basics of Stellarium - keyboard commands by Danny, followed by Messier and other star Catalogues by George Ward. We looked at some of the stars and other objects from the catalogues and how this applies to Stellarium.

Saturday 9th January Public Outreach Meeting

Despite the cold weather we set out the telescopes for a while and had a good amount of interest, but we soon succumbed to the warmth of the Cafe, hot tea and coffee with good conversation about astronomy and, of course, the weather :-)

Saturday 16th January Public Outreach Meeting

Despite this being a very cold day our newest arrival, Rob and Demi's baby Justin came to his first Thanet Astronomy Group meeting. Granny Gill [*Group Secretary*] had purchased no less than a “Star” along with a presentation pack. The pack contains all the essentials for a young budding astronomer. For those that would like to see Justin's Star it is at $Ra12h37m11s$ $Dec+75^{\circ}52'58''$. The rest of the meeting was spent in the cafe keeping warm and discussing all things astronomical over many cups of tea, coffee, chips and the like.



Saturday 23th January Public Outreach Meeting

Today was a surprisingly 'warm' day for the time of year, and baby Justin made an appearance at the meeting. He is becoming quite a regular, and has an excellent attendance record - never missed a meeting! However, the result of the warmth was a sea mist. Luckily it stayed out at sea but it made demonstrating the telescopes a little difficult. The good weather had brought out a lot of people so we were very busy. A good afternoon was had by all.

Saturday 30th January Public Outreach Meeting

According to the weather it is going to clear us and there will be sunny spells just in time for our meeting, so we will be trying to get some pictures of Sun spots if there are any, and showing the members of the public. Along with answering all their questions.

Danny.

Junior Members' Page

Junior Members' News

Any adults who say Christmas is for kids must be a big kid themselves! Especially if they were hoping for Chrissy pressies from Santa.

Many of our members (Junior or otherwise) have received the gadgets and accessories to attach to their telescopes and cameras which they had been hoping for all year!

Can you identify which one is the happy Junior Astronomer in this picture...



But Christmas is not only about receiving gifts, it is about sharing and celebrating together.

Which is what Thanet Astronomy Group do best, particularly in the cafe!



The culmination of the year was our Christmas dinner at West Bay Cafe feasting on a sumptuous three course meal courtesy of Alan and his super staff and entertained by the inimitable talents of Porteous and Archer!

Undoubtedly, the “star” attraction was the impromptu performance by our very own George Harvey...

...who was persuaded into doing a turn with the entertainers...

...well done George!

Everyone had a jolly good time - the photos speak for themselves!



Reach for the stars, Junior Astronomers!

Gill P.

Renaissance Glass

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NEEDS FOR GLASS
GLASS FOR ALL USES**

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Book review

A Manual For Amateur Telescope Makers

By Karine and Jean-Marc Lecleire

This book is not for the faint hearted. It is all about 'you' making your own telescope.

This is not such a scary thing because you can take this book at 3 levels.

First : You can use it to learn more (A Lot More) about how your telescope works and keep your telescope in a good working condition, including cleaning and alignment.

Second : If you look a little harder you can learn how to make all the easy parts of the telescope (excluding the mirrors). Mirrors can be bought as separate items and installed in a telescope that you have made. At this level you would be able to fix anything that went wrong with a telescope.

Third : This is the main point of the book. It teaches you how to make the mirrors out of chunks of glass. If you are good at it and take the time to make a good mirror (there really is no reason why anyone can't make a good one) then you can convert a £15 chunk of glass into a £1,000 mirror.

It's just time and effort. Lots of effort... a 130mm mirror should take about 24 hours work. This could be 1 hour a week and by July you could have your own telescope - one that is much better quality than the ones in the shops.

In Part 1 In the first couple of chapters the book works through the basic information you need to know.

In Part 2 The book Launches into the construction of a D=5.11inch (130mm) f/9.2 Newtonian Telescope. This is a basic quality telescope designed to be the ideal starter project.

In Part 3 The book builds on what you have learnt and teaches you a few more tricks while you build a D= 9.84 inches (250mm) f/4.3 Newtonian Telescope. This is a serious telescope, almost 10 inches, it's bigger than George W's @ 9.25 inches.

In Part 4 The book cranks into top gear and teaches you how to build a D=11.81inch (300mm) f/12 Cassegrain-Coude Telescope. For a quality telescope of this type you would be spending a fortune if you were to buy one. They are only available from a specialist supplier.

In Part 5 The book finishes up by teaching you all you need to know about the care of your telescopes.

All in all not a bad little book and well worth its price even if you just read it and never actually made anything.

Do not believe the price on Amazon for this book, £130 - £150, it can be bought new for about £20.

Danny.



What's in the sky this month

What to see Saturday 30th January at 6:30 am !!

Planets (Mercury, Venus, Saturn, Mars and Jupiter)

From mid-January until about mid-February, Mercury, Venus, Mars, Jupiter and Saturn, will all be visible in the early morning sky at the same time (providing there are no clouds). This alignment last happened in 2004/5 and will not happen again until 2040.

Looking South

Mercury

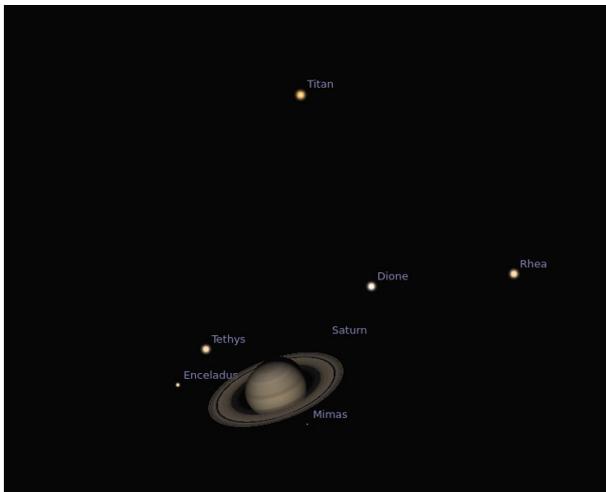
The planet nearest to the Sun (about 36,000,000 miles, 58,000,000 km) is the hardest and MOST DANGEROUS to see because of its proximity to the Sun.

It only rises just before the Sun, therefore it is very unwise to look at it with binoculars or a telescope unless you are very sure the Sun is not going to rise into your view and blind you. Mercury is also very hard to see because it is not a very bright planet and it is always in the “smog” of the horizon at sunrise and sunset.

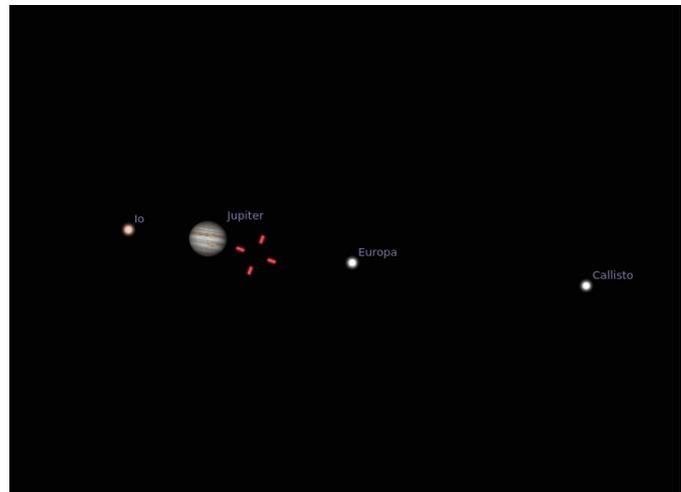
Venus

The second planet from the Sun (about 67,000,000 miles, 108,000,000 km) also suffers from the same DANGER as Mercury but, as it is a little further away from the Sun, it is a little safer to look at.

Extreme caution must be exercised when using binoculars or telescopes. Venus is the 3rd brightest object in the sky, only outshone by the Moon and the Sun, so you will be able to locate this planet very easily.



Saturn close up showing the moon Titan



Jupiter close up showing moons Io, Europa and Callisto

Saturn

The next planet in the line up is Saturn, the 6th planet from the Sun (about 890,000,000 miles, 1,433,000,000 km).

With good binoculars or a small telescope you will be able to see the rings of Saturn. Those with a slightly better telescope may even be able to see Saturn's largest moon, Titan.

George Ward / Danny.

What's in the sky this month

Mars

The next planet in the sky is the fourth planet from the Sun, Mars (almost 141,000,000 miles, 228,000,000 km).

Mars will be a much dimmer and slightly red tinted object. (The younger you are, the more you will be able to see the red tint). With a good telescope you can see the polar ice cap and some of the larger surface features.

Jupiter

Last in the line up is Jupiter, the 5th planet from the Sun (about 483,000,000 miles, 778,000,000 km).

Jupiter will be almost as bright as Venus and is the largest planet in our Solar System. With binoculars (if you have a tripod) or with a small telescope you will be able to see three of the four of Jupiter's largest moons, Io, Europa, and Calisto.

Ganymede will be in the darkness of Jupiter's shadow at this time, but if you look before 6:10am you will see Ganymede in the position marked by the red marker in the close up picture of Jupiter above.

Ganymede will vanish at about 6:11am as it moves into darkness of Jupiter's shadow.



All 5 planets visible by eye at one time Mercury, Venus, Saturn, Mars and Jupiter

George Ward / Danny.

Member's Page

A 1 in 25 Years Viewing Opportunity

Happy New Year Everyone!

I have been proud to be a part of Thanet Astronomy Group for over two years now and it never ceases to amaze me how awe inspiring the night sky can be!

Little did I know how hooked I would get when I first went to find the group one sunny Saturday afternoon in the Summer of 2013. Since then I have ventured out at all hours of the day and night to witness sunspots, star constellations, planets, ISS flyovers, Iridium satellite flares and even a Lunar Eclipse.

With the Group's guidance, I can now identify and find many of the constellations in our Northern Hemisphere and have seen Venus, Mars, Saturn and Jupiter by eye and in stunning detail through the range of telescopes, thanks to all my fellow astronomers I have had the pleasure to become acquainted with on my journey.

However, my greatest joy has been to pass on my enthusiasm for my hobby and the knowledge I have acquired in this short space of time, particularly to the younger members of the JAC & Gill Club who express an interest in Astronomy.

One such occasion was the auspicious alignment of five planets on the weekend of the 23rd January 2016, when we were joined at Dumpton Gap by three Junior Members alongside a handful of hardy Members who braved the 5.30am start.

I remember my first glimpse of Jupiter and seeing all four of its moons visible from Earth....the same feeling was present as two of the Juniors saw the bands on Jupiter and its moons for the first time rather than just in an illustration...the comments were "WOW!!!", as usual! Unfortunately, we only saw four out of the five planets as Mercury was hidden by the 'smog' at the horizon... but the effect of seeing all four spread across the early morning sky was just as awesome!



This month was also a momentous occasion for me when I was able to share my naming of a star after my newborn Grandson, Justin, with my fellow Members and arrange a stargazing session to try to find it.

It is within the constellation of Draco, just between the final star in the Plough's pan and the Pole Star, so in theory it can be viewed all year round to watch over him!



Justin's Star(Ra 12h 37m 11s Dec +75° 52' 58")

However, in practise, its magnitude is not very bright...at least not until his first tooth falls out and is gathered up by the Tooth Fairy to place in the sky to boost its brightness!!!

Although Justin may not be able to see it for himself right now, at least he will grow up to know there is a little bit of Space which belongs to him and I will be able to teach him how to find it!

Gill Palmer.

Did You Know ?

Solar System Orbits

There is a very good Solar System Simulator by NASA's David Seal of the Joint Propulsion Laboratory (JPL).

You can find the simulator at :- <http://space.jpl.nasa.gov/>

If you would like help to use this simulator please let me know at :-

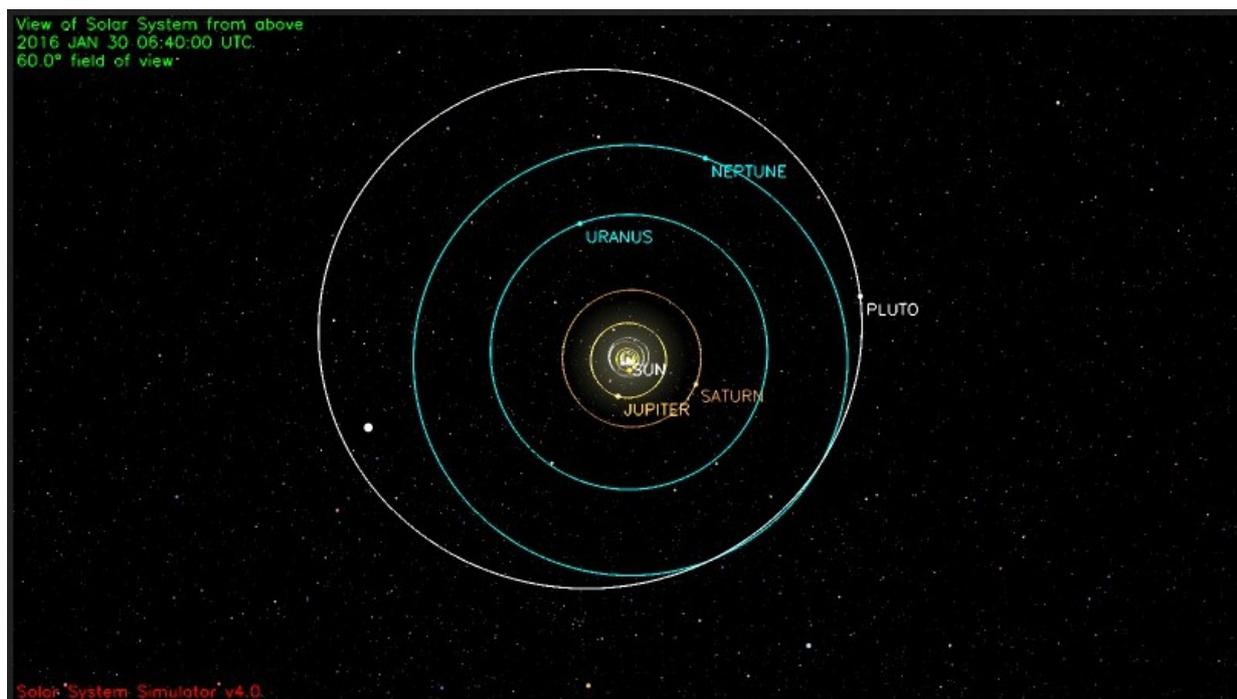
ThanetAstronomyGroup@gmail.com

... and we will arrange to add a tutorial into one of the members' meetings.

Continuing on the theme of the current of planetary alignment I thought it would be helpful to show what this alignment looked like from a distant viewing point way above our Solar System. Then you could see exactly where all the planets were in their orbits.

Below is an overview of the positions of the planets at the same time as the “What's in the sky this month” article.

Due to the huge size of our Solar System the detail in the inner Solar System is too small to see the inner planets' positions, so I have added some more detailed illustrations below of the inner planets.



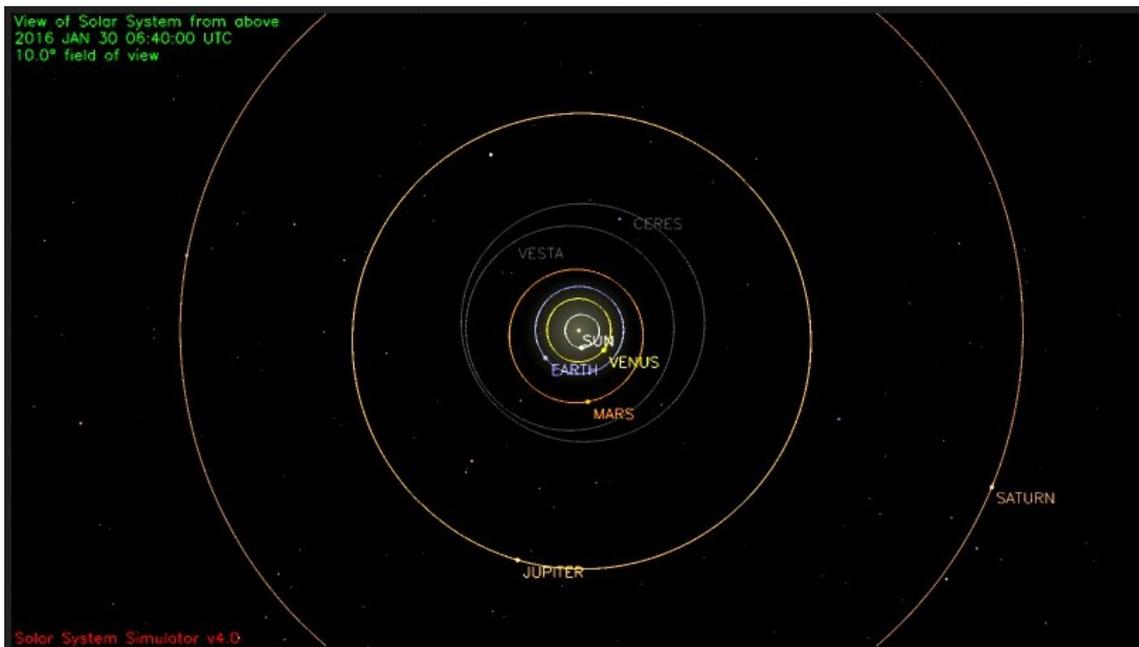
Wide angle view of our Solar System at 6:40am Saturday 30 January 2016 showing the planet positions

Image credit : David Seal NASA JPL

Danny.

Did You Know ?

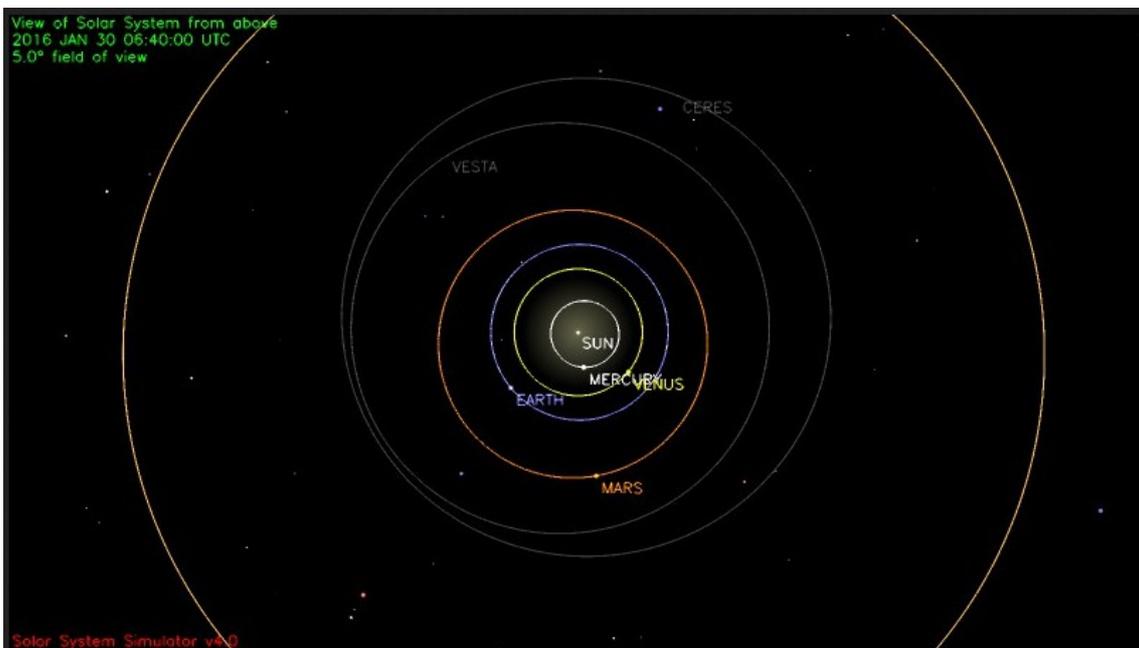
This next illustration is a closer view showing a little more detail of the inner planets and their positions.



Close up view of our Solar System at 6:40am Saturday 30 January 2016 showing the 5 planets visible by eye Image credit : David Seal NASA JPL

From this final illustration you should be able to see, looking out from the Earth's position, with the Sun on the left, just below the horizon before dawn, from left to right. The first planet is Mercury next is Venus.

Now looking at the illustration above the next planet to the right is Saturn, followed by Mars, then last and furthest to the right is Jupiter. Exactly as they appear in the sky.



Close up view of our Inner Solar System at 6:40am Saturday 30 January 2016 showing the inner planet positions Image credit : David Seal NASA JPL

Danny.

Junior Astronomers Club (JAC & Gill)

JAC and Gill's End of 2015 News

It has been a very exciting year for our Junior Astronomers, one which I hope they will look back on and remember as they get older.

To start 2015, the Juniors were treated to a Space Show in our very own cafe.



We saw a Solar Eclipse.

We also saw a Super Moon, Harvest Moon, Blood Moon and Full Lunar Eclipse all in one night.

JAC and Gill were invited to join 800 Beavers at a Space Camp.



At the cafe we were telescope making in true Blue Peter fashion.

We saw New Horizon's close up photos of Pluto's heart and whale shaped features.

A new Earth-like planet was discovered by NASA.

Finally... the ultimate space goal... our British Astronaut, Tim Peake, blasted off into Space to live and work on the International Space Station!!!

It has also been a little frustrating for our Junior Stargazers as the weather has been unkind to us on many of the important Meteor Shower months, particularly our favourite Geminids in December !



So, to make up for it, JAC and Gill decorated our own edible shooting stars on the Saturday before Christmas! Just like real shooting stars, they were gone in the blink of an eye!

Let's hope 2016 is an even more amazing and successful stargazing year and that the Juniors will be treated to even more new discoveries revealed in the wonders of our Universe!

Reach for the stars, Junior Astronomers!

Gill Palmer.

Adult Word Search

ALIGNMENT	ECLIPSE	ELLIPTICAL	JUPITER
JUSTIN	MARS	MERCURY	ORBIT
PLANETRY	SATURN	STAR	VENUS

W U U T Y J K L K G Q T W P F
H E P X F C Y F F H X V V N P
M U J T I B R O Z Z K S U Q Y
R F Y O M G T H H L D L X P I
R J R P X O E Y K Q A O Y W W
N U U D C D N F O C L N T B X
P S C P N A A Y I B I Q Q A K
Q T R D I V L T M V G L D N I
G I E Q X T P M D E N O R R R
Y N M H R I E V C V M G P U O
E F B S L A A R O Z E A X T S
S W X L X L T S L X N N R A G
I W E C L I P S E K T W U S C
E T D N G K D S A H D Q S S M
O X R L D P J O H Q R V L Q F

Danny.

Junior Word Search

ECLIPSE
MARS
SATURN

JUPITER
MERCURY
STAR

JUSTIN
ORBIT
VENUS

A U S W X R N P J
J M A Z L E R B U
T A E O X T U P S
Z R C R N I T Z T
U S L B C P A M I
E H I I L U S D N
Z L P T M J R S A
K H S T A R N Y T
I V E N U S O K L

We hope that you find the Adult and Junior word searches interesting and that they inspire you to look up any of the words you don't know *Absolutely Everything About* :-)

If you like these please let us know and we will continue to produce them.

We are thinking of adding a crossword as well in future newsletters. If you like this idea please let us know.

Comments Please : you all know the email address !

Danny.

Members' For Sale and Wanted

This page is for members to place items for Sale and Wanted adverts.

Please let us know if you have anything you would like on this page.

Email us at : - thanetastronomygroup@gmail.com

Or call Danny 01843 228904 or George 01843 292640

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