

Thanet Astronomy Group

Astronomy for Everyone in Plain English

NEWSLETTER

May 2017



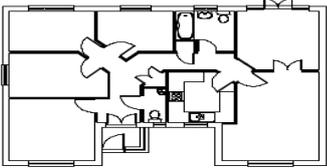
Cassini's fly-through of the Enceladus plume in October 2015

Credit : NASA/JPL-Caltec

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

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Executive Committee Messages

May 2017

The month of May will start with :-

May 3rd Will be the Members' meeting.

May 6th Will start the Saturday meetings.

Notices :

Danny, George, Gill.

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About the Cover Picture



Cassini's fly-through of the Enceladus plume in October 2015

Credit : NASA/JPL-Caltec

The prospects for life on the moons of Jupiter and Saturn are still improving

New discoveries : April 2017

It has just been announced that a significant amount of hydrogen has been detected in the plumes of Enceladus. This article will look at the background to this discovery and what it means.

Background

Enceladus, the basics

Enceladus is one of Saturn's many moons (in total over 150 moons and moonlets).

This moon was discovered on August 28th 1789 by the famous astronomer, William Herschel. The moon is quite small at only 314 miles (505km) across.

Enceladus is 9.5AU from the Sun (an AU is about 93 million miles).

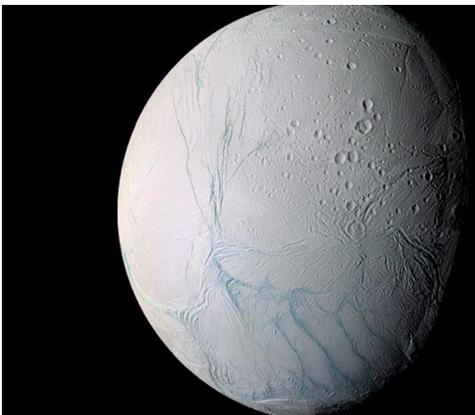
This moon has been explored by Voyager 1, Voyager 2 and Cassini.

It is one of the top locations for the possibility of life beyond Earth.



Enceladus to scale with the UK

Enceladus in detail



Enceladus viewed from Cassini. Credit NASA

Enceladus orbits Saturn at 148,000 miles (238,000km). This is in the densest part of Saturn's E-ring. It is Saturn's sixth largest moon and is about one tenth the size of Titan, (Saturn's largest moon).

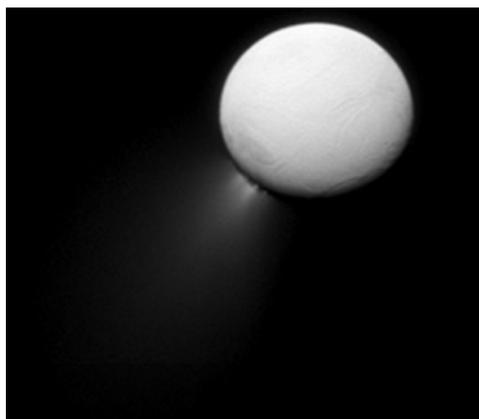
In 2005 the Cassini spacecraft discovered that Enceladus had geysers spouting water vapour and gases into space. At the surface the water vapour is travelling at a speed of 800 mph (400mps) and can reach a height of three times the radius of Enceladus, forming an icy halo.

About the Cover Picture

The prospects for life on the moons of Jupiter and Saturn are still improving

Enceladus is one of the brightest objects in our Solar System and this is due to the geysers and the icy water particles that fall back to the surface ensuring that it is always clean and white. This surface reflects sunlight like new snow. In fact Enceladus reflects almost 100% of sunlight that falls on it.

This reflection of almost all the sunlight makes the moon a very cold place indeed at about -210°C (-330°F).



Enceladus Plume

Enceladus' icy halo is also responsible for supplying material to Saturn's E-ring within which the moon orbits.

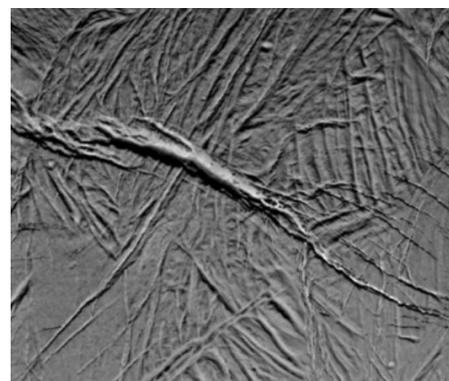
Enceladus plumes are made up of mostly water vapour but also contain carbon dioxide, methane, ammonia and a large amount of hydrogen.

After analysing Cassini data in 2015 it was discovered that the size of the moon's tiny wobble could only be explained if its outer ice shell was not attached to the solid interior of the moon. There *had* to be a global liquid ocean below the ice. The data suggests that the outer ice shell is about 19 – 25 miles (30-40km) thick and the ocean is about 6 miles (10km) deep.

Credit : NASA/JPL-Caltech/Space Science Institute

The surface of Enceladus has a variety of surface types, craters and areas with no craters, fissures, plains, corrugated areas and geysers.

This variety of surface area and the sub surface liquid ocean require some form of heat and this is likely to be due to the tidal gravitational effects of its parent planet's (Saturn) huge gravity. This effect is the same as that on Jupiter's moon Io, which is most volcanically active body in the Solar System!



Enceladus Surface

Credit: NASA/JPL Space Science Institute

What does this all mean?

Potential for Life

It means there is a good potential for at least some form of life in the sub-surface ocean of this and other similar moons.

Hydrothermal Vents

The discovery of significant amounts of hydrogen in the plumes of Enceladus strongly suggests a continuous hydrothermal process. This is similar to the hydrothermal vents in the Earth's oceans. It is this chemistry that could be used as an energy source by life.

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 Tomkins	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

Co-opted Members

Vice Chair	Sheila Tomkins	07791 892 057
Vice Treasurer	Tracy Howes	07917 710 638
Vice Secretary	TBA	

Members' Meeting Dates and Times
Thanet Astronomy Group
Members' Meetings

Dates and Times

2017

4th January 2017 at 7:30pm

1st February 2017 at 7:30pm

1st March 2017 at 7:30pm

5th April 2017 at 7:30pm

3rd May 2017 at 7:30pm

7th June 2017 at 8pm

5th July 2017 at 8pm

2nd August 2017 at 8pm

***** 6th September 2017 at 8pm *****

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

4th October 2017 at 7:30pm

1st November 2017 at 7:30pm

***** 6th December 2017 at 7:30 for 8:00pm *****

***** Christmas Stargazing Quiz and Buffet *****

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.

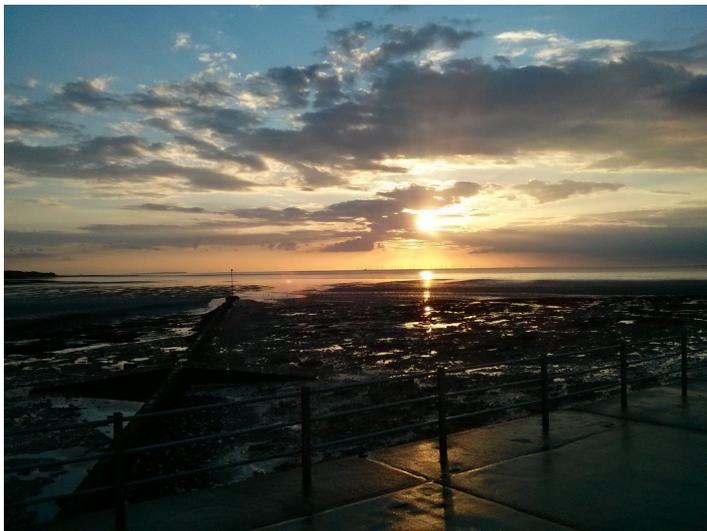
West Bay Cafe run by Alan and Kate has a very friendly atmosphere.



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 last month

April 2017

Saturday 1st April Public Outreach Meeting

The start of another month and it's a Saturday so we are at the cafe. The weather is not bad, the Sun is out and there are some really nice sunspots to be seen.

Most of the afternoon was taken up with showing people the sunspots and explaining exactly what they were looking at as well as a well placed warning that it is very dangerous to look at the Sun without the correct filters.

Gill was busy with the JAC & Gill club teaching the children about astronomy and many of the children also got to see the



Sunspots Saturday 1st April 2017

Sunspots - with the help of a small step or chair to help them reach the eyepiece of the telescope.

Wednesday 5th April AGM Meeting

This was our AGM, the meeting was planned in two parts. The first part, before the tea break, was the formal AGM and the second part was for the members to have a general discussion about the past year's successes and what we plan to do in the future.

The AGM started with the usual greetings/apologies and was followed by the confirmation of the previous year's minutes then the reading of the Chairman's, Treasurer's, Secretary's and Membership Secretary's Reports. The minutes were accepted and the reports were adopted.

The meeting then moved on to the election of the executive committee. The meeting was passed to the vice chair, Sheila, while the chairman was elected.

The chairman then proposed that all the remaining posts could be voted for "on block" if the members agreed. This was the case and all existing posts were re-elected.

The remaining business of the AGM was then conducted and the formal business of the AGM was completed.

After the tea break there was a very useful discussion with the members about plans for the future and how the group could best serve the needs and wishes of its members.

During this discussion it was decided that, along with the Radio Jove project (voted on earlier), we would use some of the group funds to purchase a solar scope to enable more day time astronomy and that this would be a real bonus at the Saturday afternoon outreach meetings. It was pointed out that we would be able to both look at the Sun in the Hydrogen Alfa band (with the solar scope) and White light (with our existing filters) whilst listening to the Sun's radio emissions (with the Radio Jove project). It is hoped that this will spark loads more interest in our astronomy group.

What we did last month

April 2017

Saturday 8th April Public Outreach Meeting

This was a very sunny day and the West Bay Cafe was overflowing with people. It's this type of day that puts our outreach meeting out there among so many people and allows us to find those that are interested in astronomy.

Today, someone that had been watching our meeting for about a year decided to come and chat to us, along with many other people.

JAC & Gill had several children all playing together and learning about astronomy through their play.

Saturday 8th April Stargazing and Viewing Evening

This evening was a real success.

We had so many people turn up that we broke into smaller groups.

During the evening we had planned to look at some “easy to see by eye” constellations to help our newer members to recognise some of the constellations. Some harder objects were also looked at with the huge number of telescopes that were set up.

We used the laser pointer to help identify the stars in many constellations, some of which were Ursa Major and Minor, Cassiopeia, Orion, Taurus and Gemini.

We also looked at several asterisms (these are recognisable groups of stars), “The Winter Triangle” consisting of the 3 alpha stars from the constellations Orion (the star Betelgeuse), Canis Major (the star Sirius) and Canis Minor (the star Procyon).

Two other well known asterisms are “The Plough”, part of the constellation Ursa Major and “Orions Belt”, the 3 stars in the middle of the constellation of Orion.

Another very popular object was the planet Jupiter.

We were able to show the planet and its main cloud bands and its 4 Galilean moons (Io, Europa, Ganymede and Callisto)

Our last target of the evening was, of course, our own Moon. How could we leave that out?

Many people were totally amazed at the detail that could be seen through the larger telescopes and many were shown how to control the telescope so they could look around the surface of the moon under their own control.

There were a few other objects that we missed, either due to time or the haze close to the horizon, but everyone had an amazing evening and the last people went home at gone 10pm having seen more than they had expected.

More on this evening and pictures on pages 14 and 15

What we did last month

April 2017

Saturday 15th April Public Outreach Meeting

One of the nicest days of the year so far. No George W today as he was off with a bad cold. There were lots of members and regulars who turned up to help with the people asking questions and looking at and through the telescopes.

As it was sunny we had several telescopes focused on the Sun but, alas, no sunspots today!

Gill was very busy as usual teaching the children and arranging some time on the larger telescopes for them look through.

One of the main topics of the day was Astro Photography and specifically how the different ways you can attach a camera to a telescope work. Also how you could get a camera to reach focus when there was not enough travel on the focuser.

Wednesday 19th April Asteroid 2014 JO25 and Jupiter viewing evening

This evening we all turned up at the usual location to attempt to catch a glimpse of Asteroid 2014 JO25, a 2,000 ft wide asteroid, at a little over 1,000,000 miles.



The four Galilean moons Io, Europa, Ganymede and Callisto.

This was expected to be difficult due to the size, distance and the very “poor seeing”. We did not find the asteroid but did take a lot of pictures of the area and I intend to have a good look at the pictures when time allows. We may have “caught” the asteroid in one of the pictures.

Jupiter was our other target for the evening and we all got to have a long look. We took several photos of Jupiter and its four Galilean moons, Io, Europa, Ganymede and Callisto.

More on this evening and pictures on pages 14 and 15

What we did last month

April 2017

Saturday 22nd April Public Outreach Meeting

A really nice day with many people of all ages. Most of us were dealing with questions and requests to look through the telescopes (especially at the sun spots). Gill was busy with the children in the JAC & Gill group.

We also had a lot of requests for help from people that have bought a telescope and are having trouble putting it together and using it.

We always invite anyone that needs help to come to the Saturday meeting and bring their telescope so we can teach them how to assemble and use it!

Saturday 29th April Public Outreach Meeting and Wedding

Today was the first day since we started Thanet Astronomy Group that all the committee members have missed the Saturday outreach meeting.

But we had a really good reason! One of our committee members and one of our members that met at our group got married as we are all at the wedding.

! Wedding Day !

The meeting was staffed by some of our members that regularly attend and help at the Saturday meetings.

Apart from there being less telescopes available, the afternoon was spent answering questions and helping people understand a little more about astronomy.

Danny.

Members' Viewing Nights

April 2017

This has been a lucky month for us as we have managed to arrange two viewing nights within one month due to the clear skies!

The first was on Saturday 8th April 2017 and was by far the most successful Stargazing Night we have ever had! About 50 people turned up at West Bay cafe, including 12 Junior Members, and were treated to stunning images of the Moon and Jupiter with four of its moons, as well as the following...



The Junior club

Northern Circumpolar Constellations

Ursa Major	(Asterism- The Plough) (Double Star)
Ursa Minor	(Polaris – The Pole Star)
Cassiopeia	(Pointing towards Perseus and the Andromeda Galaxy)
Cepheus	(The Garnet Star)
Draco	(Double Star)

Winter Triangle SW	Main star/s	Direction
Orion	Betelgeuse	SW
Canis Major	Sirius	S
Canis Minor	Procyon	S

Constellations	Main star/s	Direction
Bootes	Arcturus	E
Leo	Regulus	E
Virgo	Spica	E
Cancer	Tarf	SE
Gemini	Castor & Pollux	S
Taurus	Aldebaran	W
Pleides	Alcyone	W
Aries	Hamal	W
Auriga	Capella	W
Perseus	Mirphak	W

As an added bonus for the Easter Holiday viewing night, the Juniors had a go at hunting for the Easter Bunny, Lepus! He could be found just below Orion heading into the horizon and safe from the Hunter!

Members' Viewing Nights

April 2017

Asteroid Viewing Night 19th April 2017

The second viewing night should have been just as spectacular, as we were hunting for a near Earth Asteroid called 2014 JO25 which was 2000 feet wide...the size of the Rock of Gibraltar!

The peanut shaped asteroid (nicknamed “The Rock”) was due to make its closest approach to the Earth in 400 years on the night of Wednesday 19th April.

It was 1098,733 miles away which is 4.6 times the distance to the Moon.



Some of the asteroid hunters

However, although we arrived at 9pm as the dusk was falling, there was a slight haze in the sky which made it difficult to see the stars clearly at first. As it got darker, things improved a little but not enough to find the asteroid precisely in the position we were looking in.



We were directing the telescopes at a point between the end of the handle in Ursa Major, Coma Berenices and Canes Venatici which is just above the constellation of Bootes.

Not surprising we missed it as it was travelling at 75,072 mph!!!

Oh well...better luck next time as it will be passing close by again in 500 years!

Clear skies, everyone!

Gill

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Book Review

Stargazing with Binoculars

By Robin Scagell & David Frydman

Stargazing with binoculars is a book first published by Philip's in 2007. I have the 2010 edition bought for £7.99. This is a 208 page compact 7 ¾ " X 5" pocket size book. It has many illustration in both colour and black and white.

The book is separated into 6 chapters...

1.) Introduction

This short 8 page chapter introduces you to the many reasons why you should consider using binoculars in the field of astronomy. I, and most astronomers, would agree that, especially while you are learning to find your way around the sky, binoculars are an essential piece of kit.

2.) Learning the sky

Now that you have an appropriate piece of kit to help you, this chapter takes you through the sky covering scale, the Sun, Moon and the planets.

It covers how to use star maps, constellations, computer applications (like Stellarium), followed by a full set of star maps (from Stellarium) showing the sky looking south and north for the Northern and Southern hemispheres. This for each of the 12 months of the year.

3.) The binocular observer's year

This is the largest chapter in the book and is packed full of really helpful information. In simple terms, this chapter takes you on a tour of the night sky month by month, through the year. It shows you all the very best targets to look at with binoculars and includes loads of illustrations to help you understand what you are seeing. Amazing !!!!

4.) The Solar System

This chapter is a little shorter than chapter 3 but only because its scope is smaller. As the title suggests, it takes you through the Solar System covering the Sun, Moon and the seven planets. It also includes Asteroids, Comets, Meteors and Satellites.

5.) Choosing binoculars

This is a very important chapter and I recommend that you definitely read it at least once before you even consider buying a pair of binoculars.

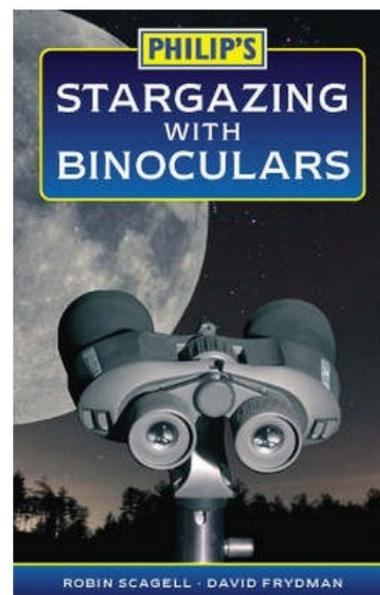
6.) Using binoculars

Do not overlook this chapter thinking you know all there is to know about looking through binoculars. There is a huge amount of important information in this chapter. I really don't know why these last two chapters are tucked away at the end of the book.

There is also an Appendix listing all of the constellation, a Glossary that will help you when you get stuck on some of the terms used in the book and an Index to help you find all the information you need on a given subject.

Conclusion ... this book is a must and everyone should read it if they want to learn their way around the night sky !!!

Danny.



What's in the sky this month ?

May 2017

The Constellations by the Moon

Constellations (Gemini, Cancer, Leo, Virgo, Libra) **Planet** (Jupiter)

What you can see at 22:00 (10pm) on the 30th April, 2nd, 4th, 7th & 10th May 2017 in the West

I know that many people have some degree of trouble locating many of the constellations. I know this because I also have this problem.

One object I don't have a problem locating is the Moon. So I was thinking that I could make a guide to the constellations using the Moon. Before I start on this track, I know that the Moon is a very bright object and that it will not make it easy to see any stars that are close to it.

To try to lessen this effect I have chosen this month, May, because not only is the Moon in the West (right outside the West Bay Cafe) but it is also a new Moon and that will make it a lot less bright.

30 April 2017 Moon in Gemini

So, we start on 30th April at 10pm. Looking exactly West 270° you will see the Moon. The constellation surrounding the Moon will be Gemini.

If the moon is blocking your view due to its light, as you follow this viewing instruction over the next few days, the Moon will move into the next constellation but the previous night's constellation will remain almost exactly where it was on the nights before.



The Moon in Gemini

Look for the two brightest stars in Gemini, Pollux and Castor. They mark the two heads of the twins. Then, using basic binoculars, you should be able to find most of the other stars forming the constellation.

2 May 2017 Moon in Cancer

Tonight we need to look a little towards the South of West at about 243° and a little higher in the sky. We will again see the Moon but tonight it will be in the constellation of Cancer.

Most of the stars in this constellation are not very bright so you will have to get your binoculars out again. Have a look up and to the right of the moon to see if you can find the



The Moon in Cancer

two centre stars of Cancer, Asellus Australis (magnitude 3) and Asellus Borealis (magnitude 4.6).

What's in the sky this month ?

May 2017

The Constellations by the Moon

4 May 2017 Moon in Leo

Tonight the Moon has moved on to the constellation of Leo at about 213°.

There are a lot more bright stars in this constellation, so tonight will be much easier. This goes to show that the reason most people have trouble finding constellations is down to the brightness of the stars.

You should easily see the bright alpha star of Leo, Regulus, and all but two of the other stars.

The Moon in Leo

The three bright stars across the back of Leo, from left to right, are Denebola (magnitude 2.1), Zosma (magnitude 2.5) and Algieba (magnitude 2.2).

7 May 2017 Moon in Virgo (conjunction with Jupiter)

Tonight is a double value night, with the moon in Virgo at about 165° and a conjunction of the Moon and Jupiter.

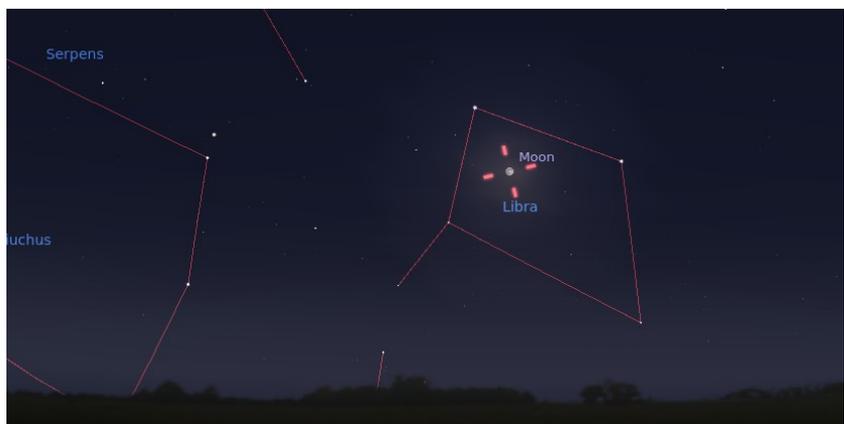
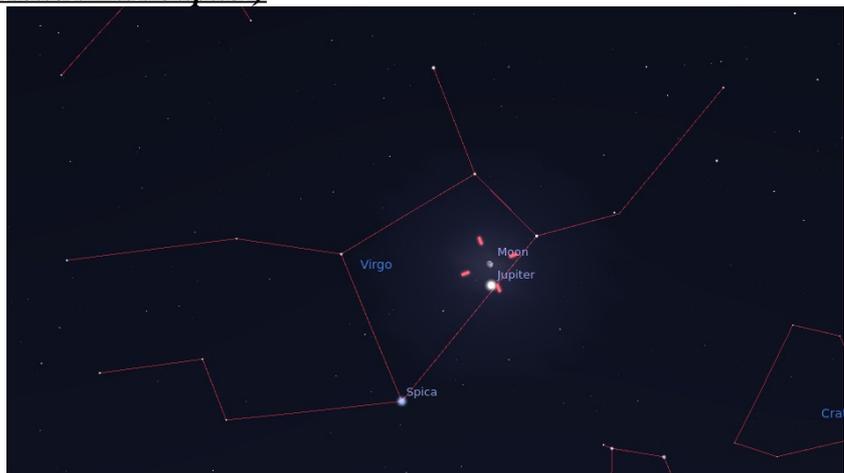
The alpha star of Virgo is Spica (magnitude 0.9), a very bright star! There are many other stars in Virgo but they are much dimmer. As there is a conjunction with Jupiter tonight, I suggest you make a mental note where this

constellation is. Then come back in a few nights, when the moon and Jupiter have moved on, and look for the other dimmer stars with your binoculars.

Tonight is the night to look at the Moon and Jupiter!

10 May 2017 Moon in Libra

Our final constellation in this set is Libra. Looking at about 135° the Moon will be in the middle of Libra. As this constellation does not have any really bright stars, have a go with your binoculars but you will have more success on the 12th when the moon has set at this time of night. Danny.



Members' Page

Women Astronomers

Over the years, many women have played a vital role in astronomy but are rarely remembered or indeed known to most astronomers.

For instance, how many female astronomers can you name! ...Exactly.

I would like to draw your attention to some of these ladies who have made significant contributions to astronomy.

Henrietta Swan Leavitt (1868-1921) was an American astronomer born in Massachusetts USA. She attended the Harvard College Observatory where she studied photographic plates, (these women were known as computers). Her job was to measure and catalogue the brightness of stars, known as Cepheid Variables. Her discovery led to our being able to measure the distance of stars from Earth. Her work enabled Edwin Hubble to go on and develop his ground breaking theory on the expanding universe.



Henrietta Swan Leavitt

By Unknown - From here. Taken before 1921 (year of death), see also [1]., Public Domain, <https://commons.wikimedia.org/w/index.php?curid=1491349>



Computers : By Harvard College Observatory - http://bookhistory.harvard.edu/takenote/sites/default/files/attachments/Computers_1890.jpg, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=10392913>

On the right is a picture of the Leavitt family monument in Cambridge Cemetery, Massachusetts USA. At the bottom of the side shown is an inscription :-

HENRETТА SWAN LEAVITT

BORN JULY 4, 1868.

DIED DEC. 12. 1921.

George Ward.

The picture on the left shows a group of “computers” assembled by Harvard astronomer, Edward Charles Pickering.

Can you pick out Henrietta in the group ?



By ArnoldReinhold, monument is from before 1922. - Own work, CC BY-SA 3.0,

<https://commons.wikimedia.org/w/index.php?curid=42900530>

Did You Know ?

Stars

If you were to count at a rate of one star per second, it would take you 12,675 years to count all the stars in the Milky Way.



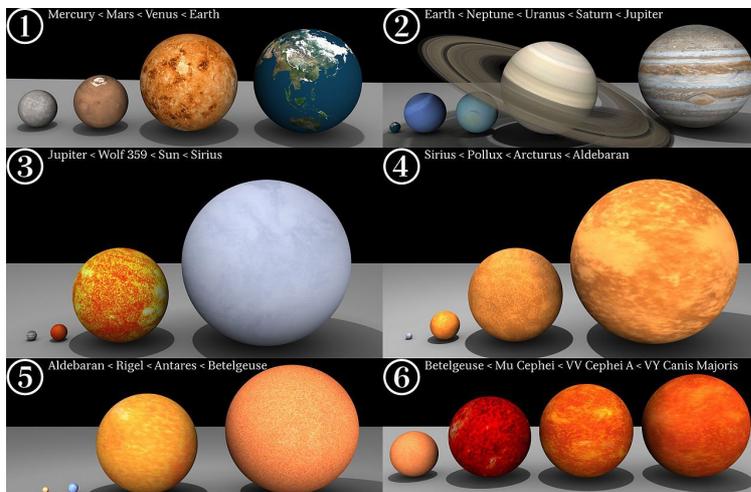
This is the Milky Way, the Galaxy we belong to. At the centre of the image two bright objects are visible.

The brightest is the planet Jupiter, while the other is the star Antares.

By ESO/Y. Beletsky - <http://www.eso.org/gallery/v/ESOPIA/Paranal/phot-33a-07.tif.html>, CC BY 3.0, <https://commons.wikimedia.org/w/index.php?curid=7398904>

Herschel's Red Garnet Star

The largest star visible to the naked eye is Herschel's Red Garnet Star, or to give it its proper name, Mu Cephei. This star can be found in the constellation Cepheus. It has a diameter thought to be about 1.4 billion miles, which is 1,650 times the width of our Sun. It's a supergiant and shines 100,000 times brighter than our Sun and is big enough to hold a billion of our Suns.



Relative sizes of the planets in the Solar System and several well-known stars, including Mu Cephei.

By Dave Jarvis (<http://www.davidjarvis.ca/>) - Own work, CC BY-SA

3.0, <https://commons.wikimedia.org/w/index.php?curid=5932805>

George W.

Junior Astronomers' Club (JAC & Gill)

April 2017

JAC and Gill News

My visit to the Science Museum

For my 7th birthday, I went to the Science Museum in London. We saw lots of robots and they showed us how stuff works. Me and my sister Betsy were pretending to be robots and said...

“I... AM...A... RO...BOT!”

I saw Tim Peake's spacecraft which he came back to Earth in. We stood next to it. It was as big as a medium sized car. It was all black because it was burning hot when it came back through the Earth's atmosphere. It only had one window to look out of.



Me, Betsy & Tim Peak's Spaceship

There was a Tim Peake virtual reality experience but I was too young to do it because the headsets were only for teenagers to use. So we went on the 4D Apollo Space theatre experience instead. We sat on chairs which moved from side to side and forwards and backwards and made me feel as if I was in a real space rocket!



Hi I'm Dacey

Betsy saw a picture of a dog in the Space Exhibition and wondered why he was there. The dog was the first animal in Space to orbit the Earth! Her name was Laika and she was Russian.

I also stood next to a Russian spacesuit. It was too big for me to fit into. There were two layers so that the astronauts were protected.



Me & the space suit

I got a Neil Armstrong space cup and got to try some space food. It was Neapolitan ice cream but it wasn't cold...it was strange!

For my birthday, I also got a space T shirt, a NASA hoodie, a space rocket projector and a make-your-own Solar System out of yarn!



Me, Betsy & the Spacesuit



I also saw this very old telescope. It was made by Sir William Herschel for his sister Caroline in about 1795.

Reach for the stars!

Dacey Drury (Aged 7)

Adult Word Search

ASTEROID

BINOCULARS

CALLISTO CASSINI

CASSIOPEIA

ENCELADUS

GEMINI OCEANS

ORION

SATURN

SUNSPOT TAURUS

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

Danny.

Junior Word Search

APOLLO CAROLINE HERSCHEL
LAIKA LONDON MUSEUM
SCIENCE TELESCOPE WILLIAM

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

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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