

Society News

Garlic Festival Report

The Garlic Festival was a great success for VAS this year. For the first time, this year we had our own stand, and this enabled us to pass information to the many visitors who came to see us.

The donation of a telescope, which we offered as the prize in a £1 per ticket raffle, raised over £200 in addition to the payment for our member's marshalling services (hopefully another £900-£1000).



Matthew with his new telescope

The raffle prize was won (with ticket number 179) by Matthew from Sandown Road in Shanklin who says he is keen to introduce his son to the hobby. Sorry to those who didn't win the prize - perhaps you would like to try your luck next year!

All in all, the weekend was a great success and both I and the VAS Committee would like to thank all those who helped over the two days. Special thanks are also due to RAYNET IoW for the tent.

Thanks are also due to all those who have served on the Committee for the last year, and particularly to Richard Flux who, having completed an unbeatable 35 years(!) in various roles, has decided to take a well earned break. Richard will still be our *Curator of Instruments* but will relinquish his Committee duties.

Clear Skies!
Brian Curd
Observatory Director

VAS Website: www.wightastronomy.org

Submissions or letters to New Zenith are always welcome and should be sent to:

The Editor New Zenith
35 Forest Road
Winford
Sandown PO36 0JY

Tel: 01983 864303 or email: editor@wightastronomy.org

Material for the next issue by the 6th of the month please.

VAS Registered Office

Castle Haven Cottage, Castle Haven Lane, Niton Undercliff, Isle of Wight, PO38 2ND

The Vectis Astronomical Society and the Editor of the New Zenith accept no responsibility for advice, information or opinion expressed by contributors.

Registered Charity No 1046091

Observatory Diary

Monday, 19.30hrs	Members Only. Telescope and night sky training.
Thursday, 19.30hrs	Members and Public. Informal meeting and observing.


Contents this Month

<i>Society News</i>	1
<i>This Month's Sky Map</i>	3
<i>This Month's Night Sky</i>	4
<i>Book Review</i>	5
<i>Pluto</i>	6
<i>Spinning the Moon</i>	7
<i>Why it is dark at night?</i>	8
<i>The Back Page</i>	10

Monthly Meeting Calendar 2011

Check the website for up to the minute information.

Travel for our monthly speakers is sponsored by:



Date	Subject	Speaker
26 Aug	Image Processing Techniques for the Amateur Astronomer + AGM	Dr Jon Whitehurst
23 Sep	Discs round Stars and Galaxies	James Fradgley
28 Oct	Glow Bows and Haloes	Richard Fleet
25 Nov	An introduction to visual observing and equipment	John Slinn

All details correct at time of publication.

New Members

A very warm welcome to VAS for our new member:

- Graham Smart



Following the success of our recent Thursday evening barbeque, we have decided to hold more!

As well as providing a welcome distraction from yet another cloudy evening, the friendly glow promised to provide both warmth and food for hungry Autumn/Winter astronomers - with careful positioning I'm sure we can avoid any excessive stray lighting as well.

Stargazing Live 2011

Wed 21st September 2011 at the Observatory, Watery lane, Newchurch

Following on from the success of our previous Stargazing Live event (even though it was cloudy) we are hosting another open evening.

Can you bring your own telescope or binoculars?

Can you help to point out constellations?

Can you help marshal the crowd?

Or just help in any way

Please contact Elaine Spear if you can come along and help in any of the ways mentioned above - or if you have any other suggestions.

Elaine Spear

Programme Organiser

progorg@wightastronomy.org

Telescope for Sale

I have a Meade 8" LX90 LNT Autostar, smartfinder, used approximately 3 times, for sale. Comes with field tripod and Phillips webcam and adapter. May make a good club instrument. Would you know of anyone who may be interested. Comes in homemade wooden case

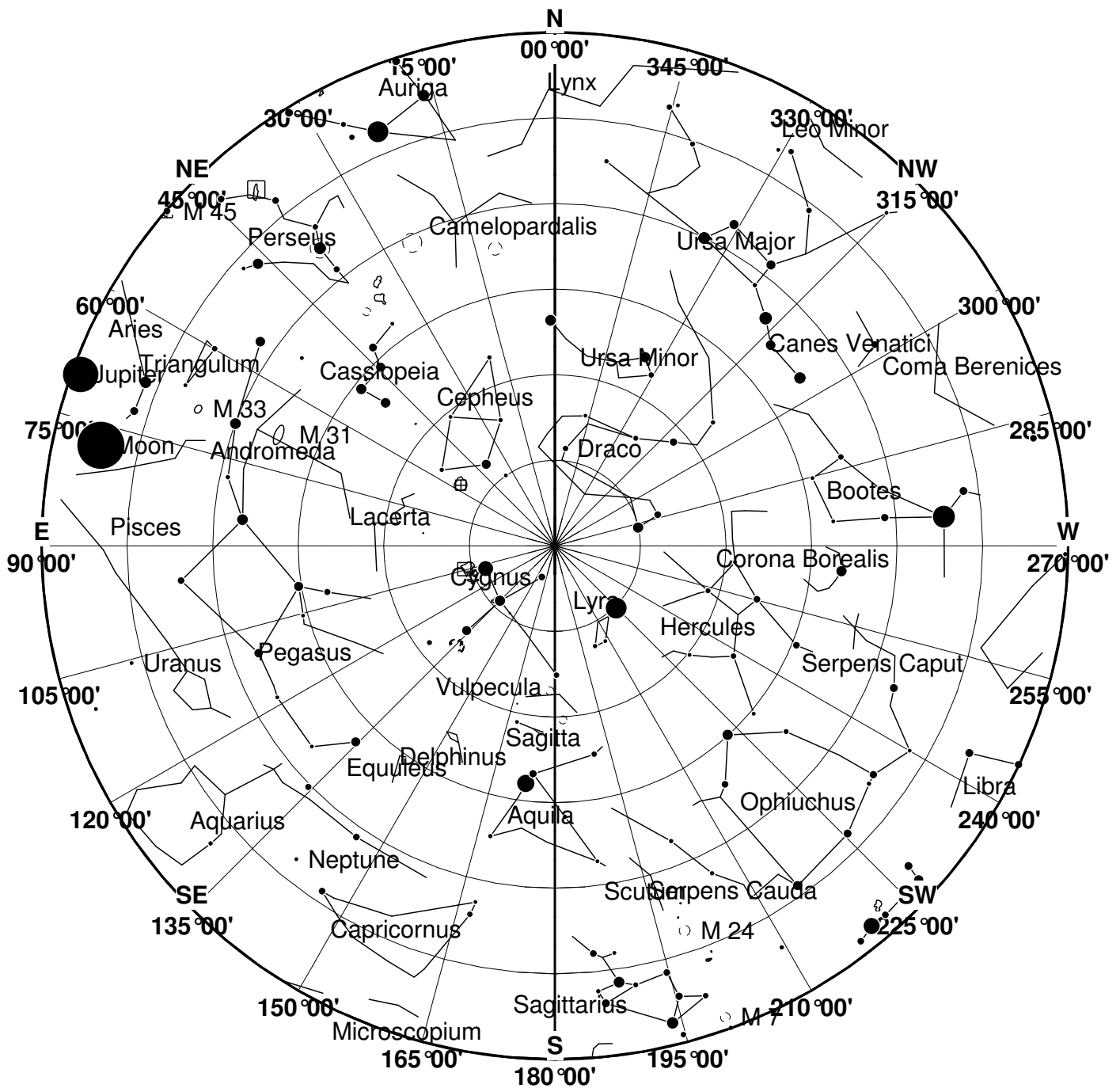
Offers £700, as the telescope is as new

Contact

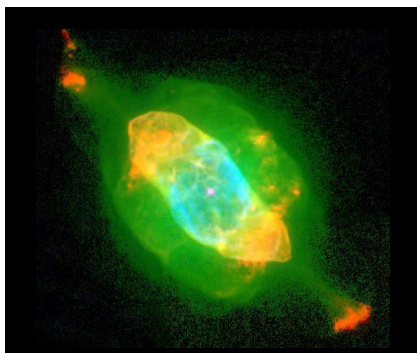
Keith Chivers

k.e.chivers@talktalk.net

This Month's Sky Map



View from Newchurch Isle of Wight UK - 2100hrs - 15 September 2011



The Saturn Nebula (also known as NGC 7009 or Caldwell 55) is a planetary nebula in the constellation Aquarius. It was discovered by William Herschel on September 7, 1782, using a telescope of his own design in the garden at his home in Datchet, England, and was one of his earliest discoveries in his sky survey. The nebula was originally a low-mass star that transformed into a bright white dwarf star of apparent magnitude 11.5. The Saturn Nebula gets its name from its superficial resemblance to the planet Saturn with its rings nearly edge-on to the observer. It was so named by Lord Rosse in the 1840s, when telescopes had improved to the point that its Saturn-like shape could be discerned. William Henry Smyth said that the Saturn Nebula is one of Struve's nine "Rare Celestial Objects."

*This article is licensed under the [GNU Free Documentation License](https://www.gnu.org/licenses/old-licenses/fdl.html).
It uses material from the Wikipedia article "Saturn Nebula"*

This Month's Night Sky

Moon Phases

New	1 st Qtr	Full	Last Qtr
27th	4th	13th	21st

The Autumnal equinox, the time at which the Sun is directly above the equator on its passage south is on the 23rd at 09:05. At this time day and night are of equal length.

Planets

Mercury

For the first few weeks of the month Mercury continues its morning apparition. During the first week its brightness increases from magnitude 0 to -1 where it remains for the rest of the time.

Date	Time	Az	EI
1st	05:50	80	10
5th	05:50	80	10
10th	06:00	81	9
15th	06:10	82	6
20th	06:20	84	2.5
Mercury - Azimuth and elevation for September			

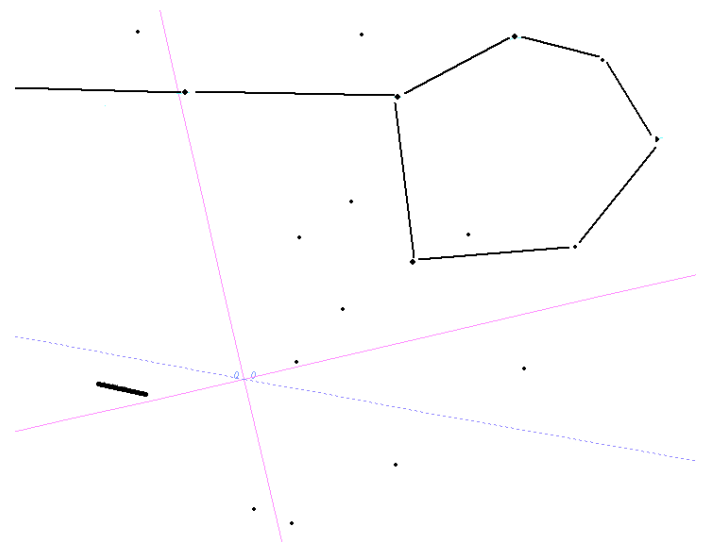
Venus - Venus is still too close to the Sun to be seen.

Mars - Mars at a relatively dim magnitude 1.3 slides from Gemini in Cancer during the month and passing through M44 during the first two days of October. A good photo opportunity.

Jupiter - Jupiter is approaching opposition and is very well placed for observation for most of the night. Compare its brilliance at almost magnitude -3 with that of Mars.

Saturn - Saturn is now too close to the Sun for observation it has set by the time the sky darkens.

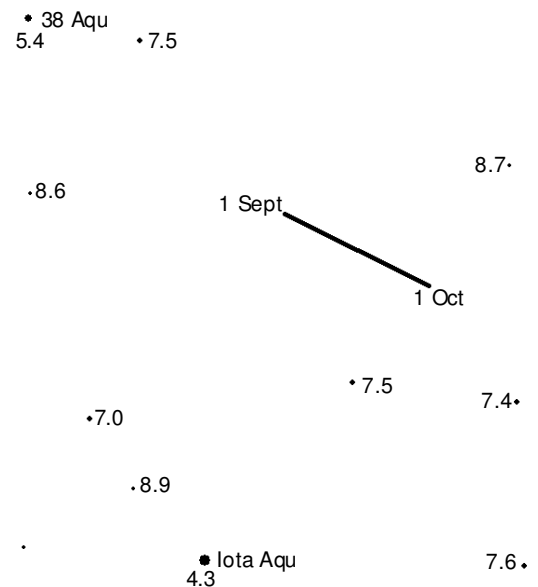
Uranus - Uranus lying against the rather undistinguished stars of Pisces is at opposition this month. Although it is in what could be regarded as an interesting part of the sky. It lies very close to the first point of Aries, the point at which the Sun crosses the equator at the spring equinox, there are few bright stars in this part of the sky making star hopping a little challenging. The finder chart shows the circlet of Pisces and the surrounding stars down to magnitude 6 about the same brightness as Uranus.



Finder Chart For Uranus

Neptune

Neptune is now passed opposition but is still very well placed for observation. Like Uranus its star background is also rather dim making finding it equally challenging. The nearest bright star is the third magnitude Deneb Algiedi that represents the tail of Capricornus. About 5 degrees to the left and a little higher in the sky is the Iota Aquarii, noticeably dimmer at magnitude 4.3. Neptune is about three moon diameters above. Neptune's brightness is magnitude 7.8; as the finder chart shows there are several stars of about the same brightness nearby.



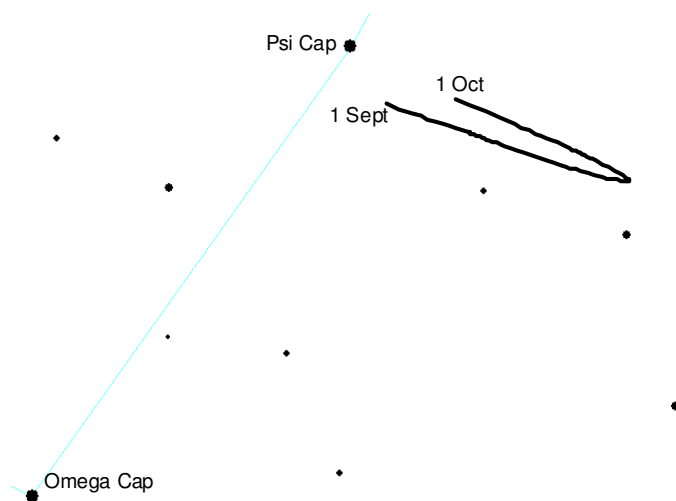
Finder Chart For Neptune

Asteroids

Vesta

The asteroid Vesta is still easily visible in the constellation of Capricornus. It is close to the fourth magnitude star Psi Capricorni at the bottom of the rather sprawling triangular group of stars that make up the outline

of this constellation. At about magnitude 6 Vesta will be significantly dimmer than either Omega or Psi Capricorni, but will be brighter than most of the surrounding stars. At mid month it slows its westerly motion and returns to travelling eastwards against the star background.



Finder Chart For Vesta

Deep Sky Objects

M72 Globular Cluster RA 20h 54m Dec -12° 31' mag 10.0 - Visually a rather small globular but it can be forgiven its apparent size when you consider that it is on the other side of the galaxy from us. It can be just seen in binoculars and a small to medium sized telescope with some magnification is needed to resolve any of the stars. It is not as tightly packed in the core as many globulars.

M73 Star Cluster RA 20h 59m Dec -12° 36' mag 9.0 - This is a grouping of just four stars that form a Y pattern or perhaps a lambda depending on which way up it appears. The stars can be resolved in the smallest of telescopes used today and shows no sign of nebulosity. This is perhaps another pointer to the quality of some optical instruments being used in Messier's time that he mistook this object for something that looked like a comet. It is not known if this is just a chance alignment of stars or whether they form a true cluster.

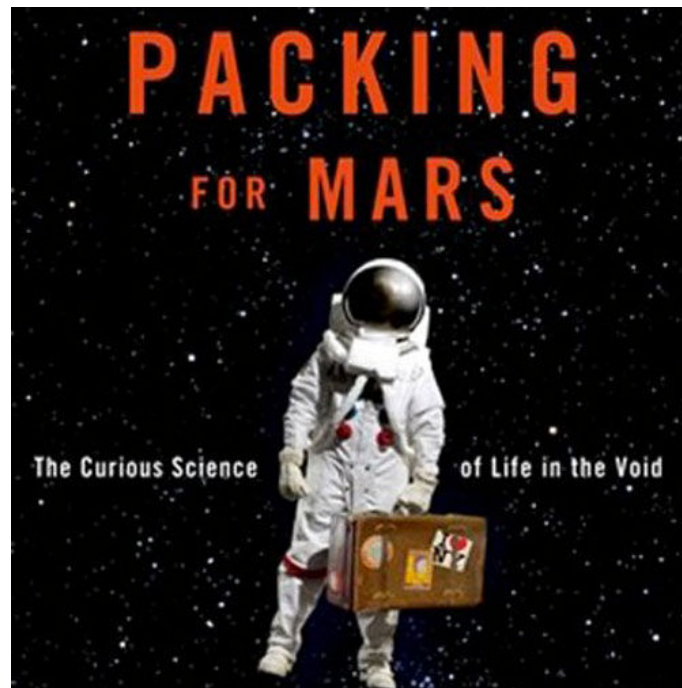
NGC7009 The Saturn Nebula RA 21h 5m Dec -11° 20' mag 8.3 - Originally discovered by William Herschel in 1782 and named by Lord Rosse who saw its elongated shape for the first time. This tiny nebula is one of the few that can show some hint of colour, usually reported as light green. The high brightness allows the use of fairly high magnification and being so small this is needed if the Saturn shape is to be seen.

Peter Burgess

Book Review

Packing for Mars: The curious science of life in space by Mary Roach

2010 Oxford Oneworld



Packing for Mars, by Mary Roach, considers the practical problems of sustaining humans in space. She rather avoids the engineering technicalities of temperature control, oxygen supply, irradiation and so forth; her interest lies in the response of brains, bones and bowels to their extraordinary situation. And it is interesting, especially if you still cherish a small corner of your ten year old self and his or her love of toilet humour. I obviously fall into this category, as I sniggered throughout.

The chapters about astronauts in space are fun, with a predictable emphasis on nausea and pooping, but in some ways the sections about background research are even more riveting. When designing life support systems, for example, what allowances should be made for washing water? See Chapter 10, entitled 'Houston, we have a fungus: Space hygiene and the men who stopped bathing for science'.

This isn't another version of men staring at goats. The book is underpinned by the serious science of anatomy and physiology needed to send humans into space with a sporting chance of them returning in a functional condition. Along the way, enjoy the low comedy and a few moments of pure voyeuristic horror.

Rebecca Mitchelmore

Pluto

Greg Smye-Rumsby

22 July 2011 Lecture report

Here's a lecture which transforms a scarcely visible slowly moving dot in the starry sky, into a special new world harbouring many secrets about our solar system. No facts can be boring when the story of how they fit together is so well presented. The near-audience sky shimmered under the drama of Pluto, planet or not a planet, told with an amazing vocal versatility, from an exploding massive star making heavy elements, to the velvet sci-fi whisper, mysteriously clear even in the back row, emphasizing the peculiarities of the subject. Informative material, often amusing, went straight into our subconscious minds for later recall. A lover and designer of graphics and illustrations, we saw plenty, with a style combining old and new, which you really need to see to appreciate this lecture.

After comments that our calendar doesn't really work, it was suggested, "If I give you a banana but call it an apple, it's wrong, but it's okay - you get your banana. But if I call Pluto a planet, is that really so 'okay'?"

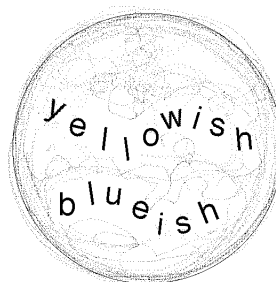
The views of astronomers can change. Predicted from orbital perturbations of Uranus and Neptune, Pluto with a mass thought to be about that of Earth, was spotted in 1930 by **Clyde Tombaugh** at Flagstaff's Lowell Observatory. But **Gerard Kuiper**, using the Palomar telescope, reckoned Pluto's size as half that of the Earth, giving it an unimaginably high density, more than platinum. By 1943 these figures had changed, and by 1978 Pluto was smaller than our own Moon. So what is the place really like? There are magical things about diameters - a slight variation in the diameter of our Earth would vary the gravity, giving more water and scarcely any land, or loads of land and less water. As the solar system evolved with its four large gaseous planets, they acquired rings, with their moons forming later. Jupiter migrated towards the Sun, scattering planets around it. Our knowledge of how the solar system plays out, itself takes time to evolve, Uranus was discovered in 1781, Neptune in 1846, **but planet X has yet to be found!** The planets acquired particular sizes, Mercury has a large core, Mars's core is relatively small, somehow Pluto fits into the evolving picture, ending up with its own magical number for its diameter (near to 2300 km), having a considerable bearing on its physical state. **What is Pluto going to tell us?**

If Pluto had continued as a planet, then, with objects being spotted in bigger numbers, especially after 1978 when telescopes suddenly started getting better, **there were going to be a lot of planets!** Greg, doing an illustration for a book concerning how planets form, contacted members of the IAU. We are still not

comfortable with theories of planetary formation. Close to a star, the detritus of gas and dust settles down, when the particles are just touching, they cohere, forming a very light breeze-block substance, but with a density of very light ash. Further from the Sun there is more ice, including carbon particles containing aromatic hydrocarbons, like the sort found in black toast. It's quite a mixed picture!

Interest in Pluto centred on various features such as whether it had a ring, and on its precise orbit. In 1978 at the U.S Naval Observatory, **James Christy** observed a blob on the side of Pluto, perhaps it was a large mountain, appearing and vanishing as a kind of 'snowman', every six and a bit days. But studying more images from the records, this turned out to be a moon, 19,000 km from Pluto. He named it Charon, pronouncing it like his wife's name 'Sharon'. It is half the size of Pluto.

A young lad is involved somewhere in this story, and this concerns using Charon to make images of Pluto. Rather like the principle in **Baird's scanning system of television**, over a particular period of time, Charon passed across the face of Pluto, effectively scanning the face in several revolutions. As Charon blocked some of Pluto's reflected sunlight, what remained was subtracted from the total light of Pluto, enabling an approximate picture of Pluto to be made.



The Hubble Space Telescope, aimed at Pluto, has not only given a resolved picture of Charon, but discovered the smaller moons, Nix and Hydra. Then within the last few weeks [1], another suspected moon P4 was confirmed, making, so far, four in all. Pluto has some colour, bluish and yellowish foggy patches, something like this sketch.

Although Pluto orbits the Sun and is spherical, with the discovery of Sedna, at nine times the range, and other bodies too, if Pluto had continued as a planet rather than becoming recognized as a special new world, this, the largest of the '**Plutoids**', might have gained less attention. Planets are really only planets when it has been found out what they are, and Pluto is very different, regularly crossing the orbit of Neptune. Pluto has a very dramatic season. If brought here to our orbit, Pluto would be a comet. Pluto has a strange atmosphere which snows out on the far frosty side, bulking up on the sunny side, stretching to a height of 3000 km.

Pluto's constitution is, of course, puzzling. The solar system contains mysteries such as, why don't dense metals, such as gold, sink into the Earth's interior during formation and vanish? - yet we can find grains of gold

washing along in rivers. Gold is only made in very big stars. At the top of the Periodic table is hydrogen with atomic number unity written '(1)' (this is the number of protons in the nucleus) and helium (2). Carbon (6) "makes friends", combining with many other elements as well as itself. Nitrogen (7) doesn't do quite so much, but very reactive oxygen (8), essential for life, eventually catches up with us in the end. As the atomic number of the elements formed in a star like ours increases, we reach iron (26), and iron kills stars stone dead, ending the process. Yet we find lots of heavy elements like gold (79) on Earth, so how did it get here?

The answer is that gold and other heavy elements are made in massive short-lived stars, and when they explode, they seed the cosmos with hyperfine granules. Eventually as asteroids formed, they collected up the gold, and during the late heavy bombardment, asteroids, crashing into Earth, delivered the gold. **The solar system is a clever brilliant machine!**

But the dust of the solar system raises questions. Collected on aerogel from space, although the dust constitutes the icy tails of comets, at some stage, each dust particle during its life has mysteriously been heated to a remarkable 5000 degrees! Is this dust typical or is it like this all over the solar system?

Pluto will tell us more. In January 2006, Pluto was a planet, but with the biennial IAU meeting that year, by August, it was a planet no longer. At last recognized as an amazing object in its own right, it's the biggest of the 'Plutoids'. To investigate Pluto and other objects beyond, the *New Horizons* spacecraft was launched, on 19 January 2006, on an Atlas-Centaur rocket travelling so fast, it cleared the gantry in moments and passed the Moon's orbit in nine hours!

And now, heading towards this strange world, this spacecraft is **eating up one million kilometres per day**. The craft was launched without software aboard - they have got years in which to program it. **Dr. Alan Stern** is the Principal Investigator, seeking answers to many questions. It will arrive 15 July 2015. One problem concerns the orbital rendezvous, requiring additional navigational information as Pluto draws near. It is essential that Pluto is in the field of view of the camera at the right time as *New Horizons* passes by at the correct range, a volunteer from the audience assisted with Greg's navigational demonstration. Already a couple of craft with cameras at the ready have crashed into their visual targets. With only a small antenna, the detailed pictures with a resolution of tens of metres per pixel, will take several days to transmit back to Earth, along with the data relating to energetic particles, magnetic fields, dust properties, the infrared telescope, the ultra-violet imaging spectrometer, and a radio occultation to think about not only in terms of not

losing data, but also in providing more information on Pluto's atmosphere.

The lecture finished with **looking ahead to 2015**. The Olympic games comes in 2012, the end of the world on 21 December, followed by champagne the day after. A show of hands on who, if they had the chance, would wish to go to Mars, yielded at least a dozen enthusiasts. But if the project only takes you one way, bearing in mind there are no pubs on Mars, and no rabbits, who would want to go? One enthusiast remained in the counting. This very popular lecture, much enjoyed, will be long remembered, and with such factual coverage, few questions remained to be asked. "...and yes - it will be disappointing if we don't go back to the Moon."

[1] "Pluto's small wonder" *The Times*, 21 July 2011, p.33.

Houston: according to NASA, the fourth moon is 8 to 21 miles wide.

Dr. Guy Moore

Spinning the Moon

Bad Astronomy: *The Moon only shows one face to us because it is not rotating.*

Better astronomy: *The Moon only shows one face because it is rotating, once every time it revolves around the Earth.*

Best astronomy: *The Moon does not appear to rotate in the reference frame where the Earth-Moon line is fixed in direction, but it does rotate as seen by an outside observer.*

Island Planetarium @ Fort Victoria

The Island's Telescope Professionals

New Celestron & Meade Scopes and Accessories.
Other makes also available, just ask!

At least 10% discount on SRP for VAS Members

In stock demo and used scopes,
Celestron GOTO Starters and up to 8" SCTs

Call 761555, leave number if not there,
and we'll call you back.

enquiry@islandastronomy.co.uk

Why it is dark at night?

(Part 2 - the 20th Century onwards)

Evidence for a better estimate of nebulae positions was not found until start of 1920s - a great unsung hero of astronomy, Henrietta Leavitt, counted and catalogued stars from pictures sent to her from all around the world - hundreds of subtle features of stars were then noted. She came up with an ingenious idea - she found an objective method of finding the true brightness of a star. Leavitt discovered that Cepheid variable star brightness was directly related to the rate at which they blinked. Leavitt had found a method to measure the true distance of stars which was way beyond the capabilities of parallax. Using this method the Milky Way was now proven not to be the extent of everything.

Leavitt was not allowed access to observatory telescopes as these were exclusively the domain of men. Only the young Edwin Hubble using the new Hooker telescope at Mt Wilson LA changed the view of the universe by using Leavitt's discovery. In 1923 Hubble discovered a Cepheid variable in Andromeda which unlocked the whole problem of how to work out how far Andromeda was away. Using Leavitt's method, this variable star showed Andromeda to be millions of light years away, way outside our galaxy. Andromeda is in fact an island universe - over 2.5 million light years away, our nearest galactic neighbour.



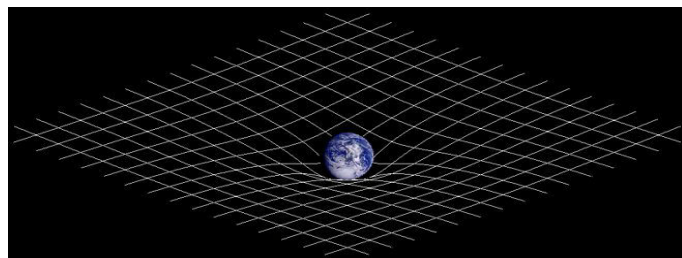
Today we now estimate Andromeda contains over a trillion stars and is only one of many galaxies scattered throughout our universe.

Up to 1923 the Universe was Milky Way in size, by 1924 the space around us had been found to be billions of times bigger. Hubble pushed back the boundaries of the universe but he had not found the edge of space yet. More than just observations were now needed. Special new maths was now needed, observations were not enough. A string of new mathematical ideas are appeared. These were to be very weird and appeared 200yrs before Einstein

formulated them. This produced another revolution in the understanding of the space around us.

What is space? Is it defined by walls or if it only has stuff in it? Does the gap between two objects exist if the objects are removed. Does space in itself have form or structure or shape or is it just the place where things happen? Euclid first tried to describe the properties of space in his work "The Elements" - a set of logical rules called "Euclidean Geometry". A usual room has Euclidean properties, as does any triangle you draw - all angles in a triangle always add up to 180 degrees. For 2000yrs it was thought this was always how things were, that these rules were a true statement about physical reality - parallel lines always will be parallel. But in fact this is not always true - 250yrs ago the very original mathematician Gauss appeared. He speculated that the rules of Euclid were not absolute. He saw that in curved space other types of geometry exist. On a sphere, triangle angles add up to more than 180deg. Gauss' great achievement was to give a cunning curvature measurement method - "the Remarkable Theorem". For example - the globe walk - on a globe, stand at the N pole - from there walk S to the equator, there, still face S then shuffle sideways along equator, then at some point shuffle back to N pole still facing the same direction. On return to the N pole you now you face a different direction than at the starting point. This gives us a way of understanding the curvature of a surface without ever leaving it.

Bernhard Reehman applied these 2d ideas to 3d space - this seemed at first absurd and outlandish - but in June 1854 at legendary lectures he detailed Gauss' ideas in curved surfaces and generalised them to the curvature of space in any dimension. How? Gauss talked about curved 2d surfaces. We can visualise a sheet of paper curved - this is 2d embedded in 3d space. To curve 3d we need a 4th dimension. How? We always seem to be stuck in 3d. Reehman stated we can do it from the inside. For Reehman this would always remain a purely mathematical theory. Only Einstein was able to adapt the apparent random ramblings of these and other mathematicians to show how different geometries are possible. Einstein revealed how we live in the strange curved worlds of Gauss and Reehman, thanks to his "General Theory of Relativity".



Einstein takes the mathematical methods of Gauss and Reehman and uses them to show that the Geometry of space around us is not always flat and Euclidean, but is

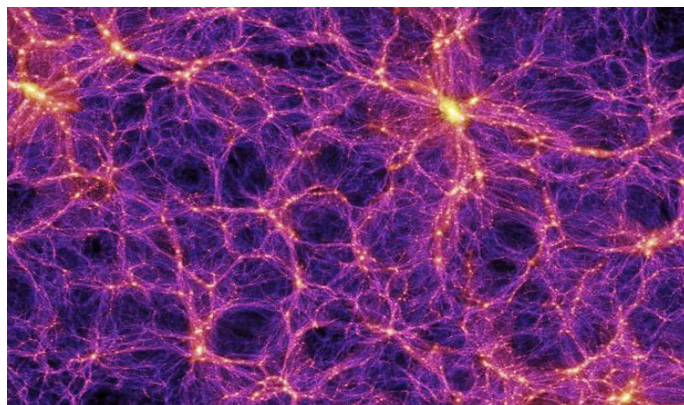
bent. But if this is so, surely we must be able to observe this. Einstein showed that space being flexible and bendy gives rise to gravity. Since Newton and his apple, gravity was thought to be a force. Einstein says gravity appears to be a force but is actually due to the curvature of bent space. His General Relativity equations revealed that the presence of mass causes space to distort. Earth bends space around it causing gravity.

Einstein's theory revealed that space and everything wasn't just large but had a structure and everything could be bent and warped. Gauss, Reehman and Einstein between them had now described how space and time were not fixed but could be warped. Soon the General Theory was applied to everything, physicists were now able to imagine how the universe might be behaving in its entirety. Dramatically, the equations suggested something ridiculous - an expanding universe. This was even a difficult prediction for Einstein. So the "Cosmological Constant" was devised to try to stabilise the universe in his original equations. Hubble then revealed the truth - after discovering our galaxy is one of many, he studied the ways other galaxies were moving. He adapted the red shift principle to show all distant galaxies were all moving away from us - and that the further away the galaxy, the faster it was moving away. Hubble's observations and Einstein's theory now agreed. In fact it is the fabric of space between galaxies that is expanding. The universe in its entirety is getting bigger.

Why was space expanding like this? Hubble and Einstein agreed that it meant that previously the universe was smaller even to a point of a beginning of the universe - a moment of creation. But many scientists were not convinced - they thought this a leap too far. One piece of evidence would convince them - there must be a point at which a flash of light would fill the universe. As all the cosmos expanded it filled with this light, but due to red shift as space expanded this light eventually stretched to become microwaves. Remarkably this relic of the big bang fireball is visible on TV - one per cent of TV static is the microwave afterglow of the big bang. Using reverse red shift calculations on this microwave background gives an estimate of the age of the universe to be 13.7 billion years.

This answered Diggs question of 400yrs ago - why it gets dark at night. The further away a star is, the longer it takes for the light to get to earth. If the universe is static and has been around forever, then all the light from all the stars would have had time to reach us by now and the night sky should be ablaze. But suppose when an expanding universe was much younger, a beam of light started out from the edge of the universe - as space expands the distance the light has to cross gets bigger and bigger - the distance light has to go gets bigger and bigger so the light will never reach us. We can only see the light from stars which has had time to reach us - these stars are said to be in the "observable universe". There are not enough stars in

the observable universe to light up the night sky... we only see the light which is from nearby stars that has been able to reach us - that's why it gets dark at night.



So, incredibly, using only our imagination we have come a long way in understanding everything. Over time we have become ever more skilled at creating pictures of everything. Computer simulations can now show how the force of gravity has moulded everything and shows how everything in the universe develops in time into what looks like a "cosmic web" - space will contain vast filaments of galaxies each with trillions of stars - light will take 10 billion years to cross just a fraction of this space. Sadly, in the distant future the universe will become incredibly bleak and desolate. In 1998 supernova studies found that the speed of universe expansion to be accelerating ever faster - this rate of expansion is thought to be driven by a mysterious force - called "dark energy" - pushing everything apart. Disturbingly, if this continues our visible universe will empty - eventually expansion will be so rapid light cannot get out to anywhere - approx 100 billion years in the future we will look out into space and only see stars in the Milky Way - we will be alone in a vast dark empty expanse.

This article was inspired by Prof Jim Ali-Khalili's BBCTV programme "Everything" see:

<http://www.bbc.co.uk/programmes/b00yb59m>

Further reading:

http://en.wikipedia.org/wiki/Jim_Ali-Khalili

http://en.wikipedia.org/wiki/Olbers'_paradox

http://en.wikipedia.org/wiki/Henrietta_Swan_Leavitt

http://en.wikipedia.org/wiki/Cepheid_variable

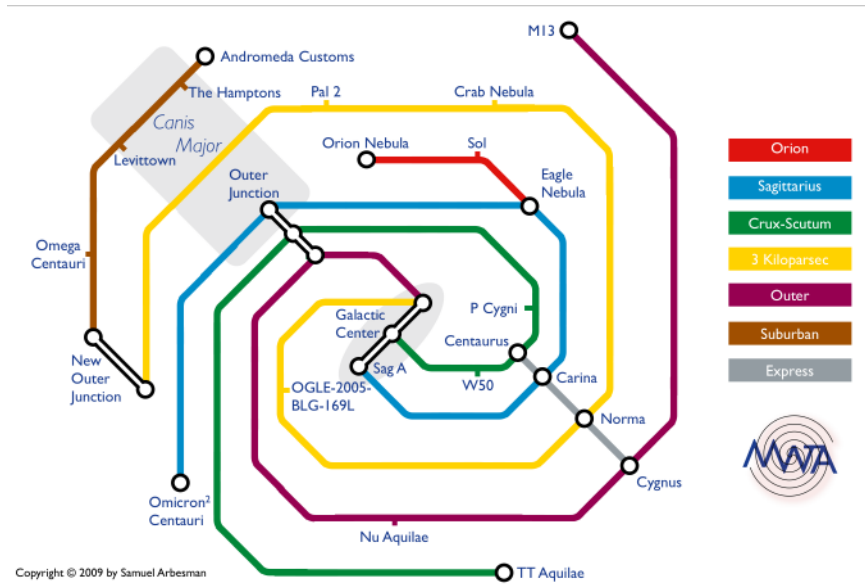
http://en.wikipedia.org/wiki/Observable_universe

Chris Wood

THE BACK PAGE

LINKS, COMMENTS AND OBSERVATIONS

Milky Way Transit Authority



More info at <http://arbesman.net/milkyway/>

Is There Life on Mars?

The soil on Mars may be more capable of supporting life than previously thought, a new study suggests.

Researchers have long suspected that the Martian surface is packed full of oxidizing compounds, which could make it difficult for complex molecules like organic chemicals — the building blocks of life as we know it — to exist. But the new study, which analyzed data gathered by NASA's Mars Phoenix Lander, suggests that's not the case.

"Although there may be some small amounts of oxidants in the soil, the bulk material is actually quite benign," said lead study author Richard Quinn of NASA's Ames Research Center and the SETI (Search for Extraterrestrial Intelligence) Institute in Mountain View, Calif. "It's very similar to moderate soils that we find on Earth."

More at <http://www.space.com/12695-mars-soil-life-support-study.html>

VAS 35th Anniversary Dinner

Thursday 3rd November 2011

The Isle of Wight College, Medina Way,

Newport, Isle of Wight, PO30 5TA

Further details as we get closer to the event

Observatory

For your own safety, when visiting the VAS observatory, please bring a torch. Also, please make sure you close and lock the car park gate if you are the last to leave - if you need the combination to the lock, please contact a member of the committee.

Articles Needed

New Zenith welcomes letters, articles or pictures related to all aspects of astronomy. Contributions to the Editor at the email or postal address on the front page.

"With every passing hour our solar system comes forty-three thousand miles closer to globular cluster 13 in the constellation Hercules, and still there are some misfits who continue to insist that there is no such thing as progress."

Ransom K. Ferm

Quotations

"When you look at the stars and the galaxy, you feel you are not just from any particular piece of land, but from the solar system."

Laurel Clark

"We are probably nearing the limit of all we can know about astronomy."

Anon 1888