

Society News

Junior Night

Nobody turned up for last month's junior meeting so unless things improve significantly, the one planned for Friday June 7th at 8pm will be the last.

Next Month's NZ Special

NZ next month will be a Dark Skies Special. The planning group, set up last year to investigate the future of VAS and astronomy on the Island, have made significant progress and are now in the process of gaining "Community Dark Sky Status" for the Island.

Getting Island wide support for this is taking a lot of time and I'd like to thank all those involved in the project for their efforts. There's still a way to go before we see the results, but I'd urge all members to spread the word about the benefits, to all of us, from this initiative and to let the committee know of anyone who supports our efforts.

Observatory Telescope

The Meade LX200 in the observatory dome will be out of action during June as it will be undergoing a service and modification. The mod. involves replacing the electronic focuser with a manual device and changing the mirror lock controls - *please contact [me](#) for the latest information.*

Pavement Astronomy

To further the Dark Sky application, we are planning several Pavement Astronomy sessions over the summer. It is likely that these will include Ventnor, Cowes, Bembridge and Ryde and volunteers, with telescopes, are needed. If you can help, please contact any Committee member.

Observatory Maintenance

The dome, in particular, is in serious need of a clean and a coat of external paint. We have the materials and just need a few members to volunteer for a Saturday/Sunday session to get the job done. If you don't like painting, and who does?, we also need help with general tidying up and a little weed-killing around the building.

*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

35 Forest Road, Winford, Isle of Wight, PO36 0JY

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

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Observatory Diary

Monday, 19.30hrs	Members Only by arrangement Telescope and night sky training. Contact Barry Bates 01983 872979
Thursday, 19.30hrs	Members and Public. Informal meeting and observing.

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Monthly Meeting Calendar 2013

Do You Know a Speaker?

If you know speaker, or perhaps you would be prepared to have a go, please contact Elaine Spear at progorg@wightastronomy.org

Check the website for up to the minute information.

Travel for our monthly speakers is sponsored by:		
		
Date	Subject	Speaker
24 May	Dark Skies - Dark Future? IW Dark Sky Status Report	Bob Mizon Chris Wood
28 Jun	Little Green Things- Detecting Life on Earth and Exoplanets	Prof William Martin
26 Jul		
23 Aug	Particle Physics, ATLAS and the LHC AGM - Start at 19.00hrs	Dr Christopher Lester
27 Sep		
25 Oct	Radio Astronomy	Dr Sadie Jones
22 Nov		

All details correct at time of publication.

Observatory Visits Booked

Visits by external groups are important to fund raising, please try to avoid using the facilities on these dates.

Day & Date	Booking Group
Thu 16 May	VAS Member's BBQ - 19.30-22.00
Fri 7 June	Junior Night - 20.00-22.00

All details correct at time of publication.

VAS Contacts 2013

Chairman	Bryn Davis chairman@wightastronomy.org
Secretary	Rebecca Mitchelmore secretary@wightastronomy.org
Treasurer	David Kitching treasurer@wightastronomy.org
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Membership Secretary	Norman Osborn members@wightastronomy.org
NZ Distribution	Brian Bond distribution@wightastronomy.org
Others	Barry Bates Mark Williams

We're getting ever closer to August and our AGM!

Be part of the future of VAS, please consider joining the Committee.

2013/14 promises to be a turning point!

Island Planetarium @Fort Victoria

The Island's Telescope Professionals

New and Used Meade Celestron Telescopes
New dealers in Skywatcher & Vixen in 2013

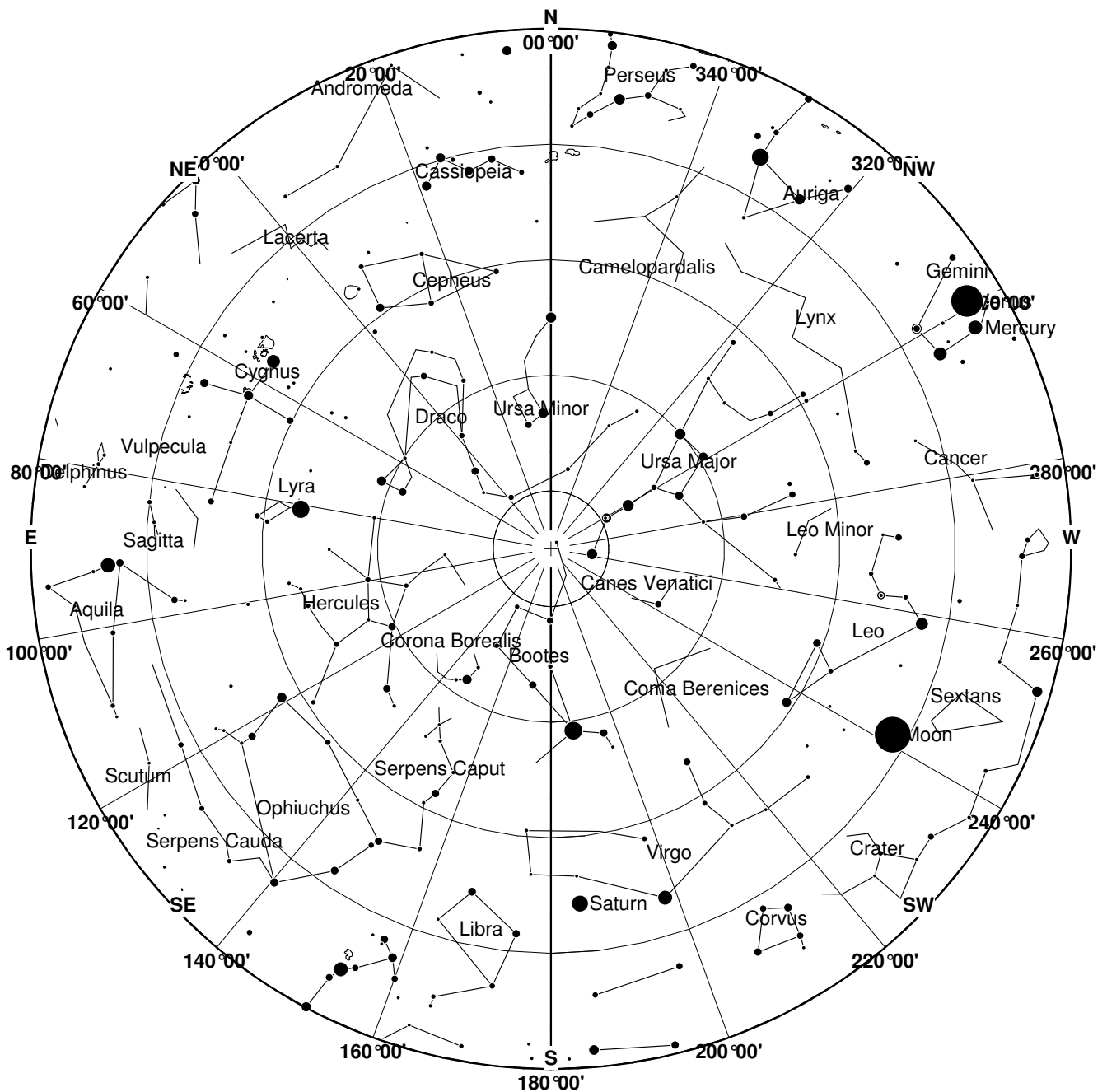
Used equipment in stock

TAL 200mm Newtonian Reflector
Skywatcher 180mm Maksutov Cassegrain
Celestron 150mm Reflector (NEW)
Celestron 120mm Refractor
Skywatcher 120mm Refractor
Various starter scopes and accessories

Discounts and deals for VAS members

Call Paul England – VAS Member
on 761555 - leave your number
if I am not there and I'll call you back
also - enquiry @islandastronomy.co.uk

June 2013 Sky Map



View from Newchurch Isle of Wight UK - 2200hrs - 15 June 2013



Messier 5 or M5 (also designated NGC 5904) is a globular cluster in the constellation Serpens. It was discovered by Gottfried Kirch in 1702. It should not be confused with the much fainter and more distant globular cluster Palomar 5, which is situated nearby in the sky.

M5 is, under extremely good conditions, just visible to the naked eye as a faint “star” near the star 5 Serpentis. Binoculars or small telescopes will identify the object as non-stellar while larger telescopes will show some individual stars, of which the brightest are of apparent magnitude 12.2

This article is licensed under the [GNU Free Documentation License](http://www.gnu.org/licenses/fdl.html). It uses material from the Wikipedia article “Messier 5”

June 2013 Night Sky

Moon Phases

New	1 st Qtr	Full	Last Qtr
8th	16th	23rd	30th

Planets

Mercury

Mercury completes the evening apparition started last month. Up until mid month Mercury lies about two fingers widths above and to the left of the much brighter Venus. During the remainder of the month it starts to fade rapidly and sink towards the horizon. Between the 17th and 21st it passes about a fingers width to the left and below Venus. By this time it will have probably faded to such an extent that it may not be visible against the bright sunset sky.

Venus

Venus remains low in the western sky after sunset not rising from the horizon significantly. It is very bright and easily seen against the bright early evening sky.

Mars

This month Mars starts to become visible again after a protracted period hiding in the glare of the Sun. From mid month it can be found in the east north east, very low down just before sunrise. It is still very small and faint so will be a challenge to find.

Jupiter

Towards the end of the month Jupiter passes behind the Sun so is not visible to us until July when it makes an appearance in the early morning sky.

Saturn

At sunset Saturn can be found in the south between the bright stars Spica and Antares. By the end of the month it sets a little after 1 AM. Take your opportunity to observe the ringed planet now; it will not be long before it fades into the evening twilight.

Uranus & Neptune

Both outer planets are too faint to be visible against the bright morning sky until late summer.

Deep Sky Objects

M13 The Hercules Cluster

RA 16h 42' Dec 36° 26' mag 5.8

On a dark night the Hercules globular can be seen with the naked eye as a fuzzy star part way down the right hand side of the keystone asterism. This is the brightest and many would argue the best globular visible from the northern hemisphere. It lies some 25,000 light years away from us, relatively close by globular cluster standards. As with all globular clusters the view improves with increasing aperture used to observe it. The view is of a sugar coated ball frozen in time, and surrounded by a flurry of sugar grains.

M92 Globular Cluster

RA 17h 17' Dec 32° 7' mag 6.5

Hercules has two magnificent globular clusters, if it were not for M13 this would be the northern hemisphere's showpiece globular. It is overshadowed by its more famous companion. M92 has a slightly smaller, more condensed core surrounded by fewer halo stars, but should be a stop on anyone's tour of the night sky.

M5 Globular Cluster

RA 15h 19' Dec 2° 5' mag 5.6

This globular cluster contains what is believed to be some of the oldest stars in the universe at about 13,000,000,000 years old. To find this group of old timers look the width of a good hand span from the bright yellow star Arcturus towards the red Antares. It is in an area of sky rather devoid of bright guide stars but can be picked out in binoculars as a fuzzy star. Although Messier was certain that the nebula contained no stars any reasonably good modern telescope should be able to resolve about 200 stars surrounding the tightly packed core.

Peter Burgess

Probe counts space rock impacts on Mars

Researchers have identified 248 new impact sites on parts of the martian surface in the past decade, using images from the Mars Reconnaissance Orbiter to determine when the craters appeared. By Jet Propulsion Laboratory, Pasadena, California, University of Arizona-Tucson, NASA Headquarters, Washington, D.C. — Published: May 16, 2013

Scientists using images from NASA's Mars Reconnaissance Orbiter (MRO) have estimated that Mars is bombarded by more than 200 small asteroids or bits of comets per year, forming craters at least 12.8 feet (3.9 meters) across.

Read more at: Astronomy.com

Answering the Biggest Questions with the Biggest Surveys. Part 2

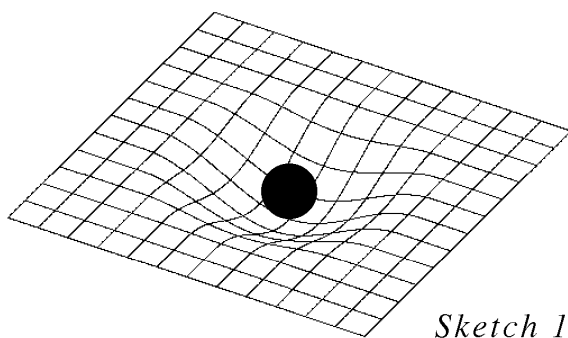
Lecture report 26 April 2013

Dr. Tom Kitching

Mullard Space Science Laboratory & UCL

David Kitching welcomed his son Tom, who had more to tell us following on from his previous very popular talk, this time mostly about PLANCK. A former young member of the VAS, Tom is now nearer to home, having moved from the RGO at Edinburgh to University College, London. He is working on the forthcoming EUCLID space mission and on dark matter mapping using weak gravitational lensing - this gives slight distortions rather than the multiple images which characterize strong gravitational lensing. Recently, having visited the ESA where "there is an impressive collaborative spirit, with hundreds of scientists from many institutions working together", there's now "a lot of information to run through". Tom's specialist work on dark matter mapping is described in more detail in Part 1 (New Zenith June 2012).

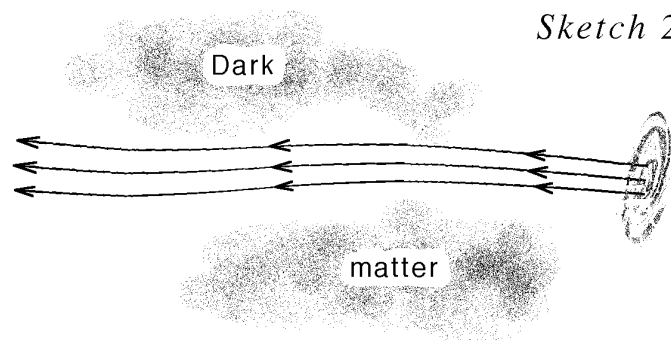
Now is a very exciting time to be doing cosmology. Explaining briefly the method of mapping dark matter which uses the effects of gravitation on light, this starts with *Sketch 1*. Here a ball sitting on a rubber sheet, makes a depression, like the mass of the Sun depresses space-time and causes light grazing its surface to be slightly deflected by its gravitation.



Sketch 1

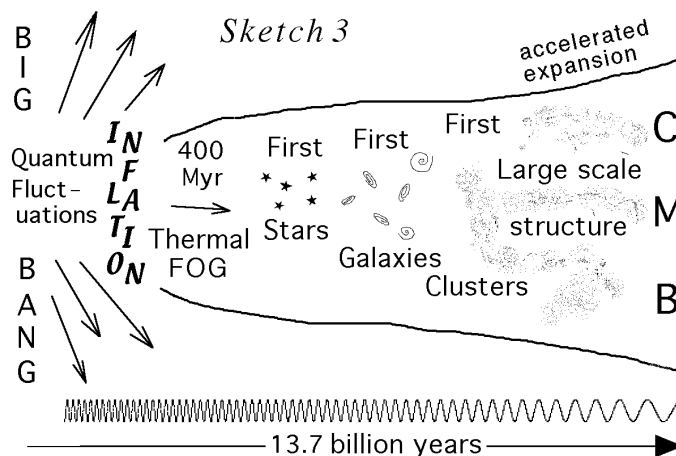
In *Sketch 2*, light from a distant galaxy deviates from a straight line, making the galaxy appear more elliptical. By measuring the shear distortions of extremely distant elliptical galaxies, it is possible to determine how much dark matter must have influenced the light rays. By measuring the redshifts of the galaxy clusters where the dark matter is located, then 3D maps are constructed. Doing this by using ground-based observations involves atmospheric complications, but this has already provided much information and experience in preparation for EUCLID, to be launched in 2019. This satellite will cover the whole sky of forty-one thousand square-degrees, to the same optical depth achievable with the Hubble Space Telescope. So far the HST has made deep field pencil-beam images covering only a few square-degrees. But big

surveys with all their statistical analysing, required to study the Universe, demand much more data which EUCLID will provide.



Sketch 2

When the Universe started out in the Big Bang, see *Sketch 3*, at an exceedingly high temperature, highly charged plasma, like inside the Sun, scattered the primordial light, as in a fog, so there's an observable limit to how far back observations can be made into this fog. After about 400 million years, the ions in the plasma combined to form atoms, causing the fog to clear, and to allow the light to travel unimpeded, but it became very stretched by the expanding universe (see the wiggly line). The light became so far redshifted, with wavelengths becoming longer by a thousand times, that it turned into the Cosmic Microwave Background. The CMB was discovered by Penzias & Wilson in 1965 winning them a Nobel prize (1978).

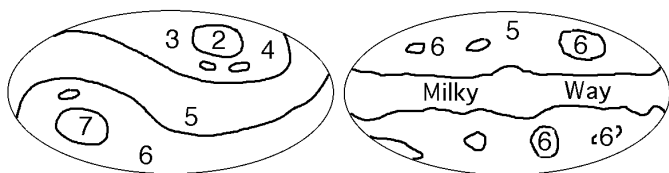
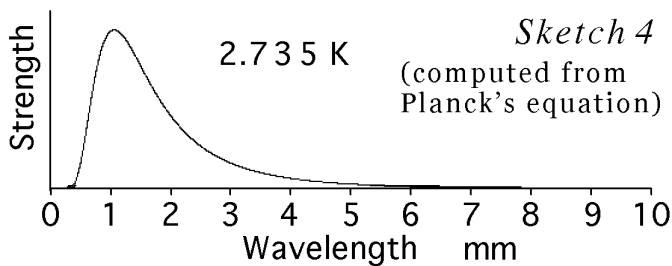


Sketch 3

The radiation follows an equation deduced by **Max Planck**, the first physicist to find that quantum theory was needed, winning a Nobel prize (1918). Planck ushered in the new epoch, saying "goodbye" in 1900 to the previous times when it was thought that all physics was known. Roentgen rays, Relativity, and Radioactivity heralded the new age. Eventually huge cosmological questions arose, such as how to link quantum physics with gravitation. Planck's equation for black body thermal radiation for the CMB is plotted in *Sketch 4*.

The early universe contained fluctuations, eventually causing matter to condense to form stars, galaxies and clusters, and large-scale structure, so the temperature varies very slightly with direction. These tiny variations,

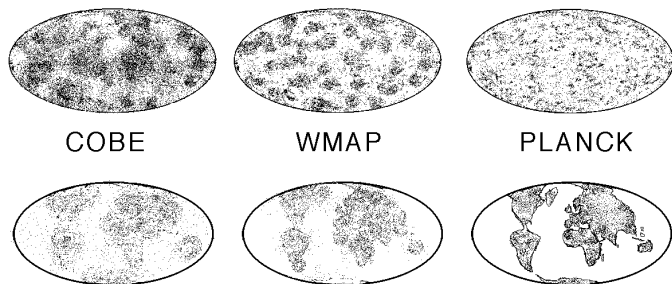
“the dinosaur’s footprint on the early universe” announced as “the ripples” in 1992, were detected using the Cosmic Background Explorer, COBE satellite, launched in 1989. It mapped the sky using three frequencies with a differential radiometer, at 31.5, 53 and 90 GHz. At first, the maps looked like *Sketch 5*, on the left, with a hot blue zone in the direction of solar system travel around the Milky Way (including the peculiar galactic motion) with a cooler red zone in the opposite direction. In these maps, the plane of the Milky Way runs down the middle, just like the Equator on a terrestrial map, with galactic north at the top, and south at the bottom. Subtracting the motional effect of the Solar System gives the (approximate) map on the right with the Milky Way contribution then becoming apparent.



2=red 3=orange 4=yellow
5=green 6=blue 7=violet

Sketch 5

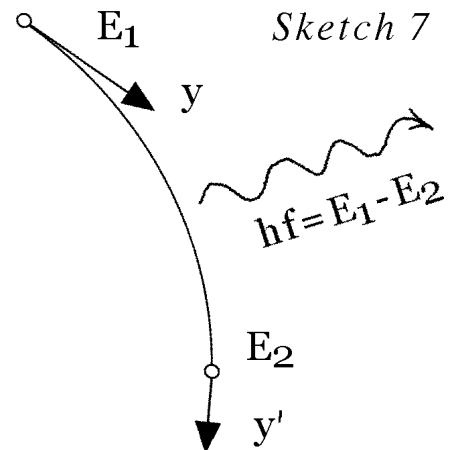
COBE, WMAP, and PLANCK have produced temperature maps, with the Milky Way contribution removed with improving accuracy. Below each picture in *Sketch 6*, are similar maps of the Earth, same projection, to illustrate the relative resolutions of the three satellites. With COBE, only fuzzy continental shapes would be seen, with WMAP, Britain would be seen, but with PLANCK details like the Isle of Wight would be visible.



Sketch 6

In 2003 WMAP used more frequencies than COBE, (23, 33, 41, 61 and 83 GHz) enabling the Milky Way contribution to be subtracted more accurately. Well-known physics is involved in this process (see arxiv: 0302209 & 0301158 astro-ph), like the radiation emitted from charges moving in curves, see *Sketch 7*. The nine frequencies (*Sketch 8*) used by PLANCK, launched in 2009, give

different features in the sky at each frequency, enabling a complete subtraction of the Milky Way contribution, producing a CMB map at the “cosmic variance limit”. This means it cannot be done any better, there is no further information. The map is limited by the Universe, not by the instruments. It is the best picture we will ever see. To see the full map, Google “Planck Map Wikipedia”. The map shows the primordial Universe when it was one hundred-thousand years old. The latest data was released by the Planck Consortium on 21 March 2013 and twenty-nine papers were upgraded too.



Magnetic Field map

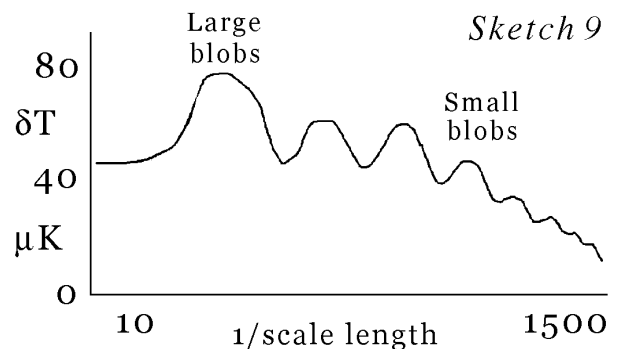


Primordial afterglow map



Sketch 8

Dust map



Sketch 9

The method of determining the blob scale sizes was illustrated in the talk by drawing straight lines of constant lengths on the maps, so if the blobs are large, then a short line would show little difference of temperature between its ends. But if the blobs are small, then small-scale blobs

would produce significant differences even for short lines. This enables graphs to be plotted, like *Sketch 9*, in which blob sizes are correlated to their frequencies of occurrence.

Several such figures were seen showing the improvements made in past years (Google “Partridge Wilkinson Isotropometer”). The large peak indicates the speed of sound in the primordial plasma. The range to a blob can be obtained from the angle across it, and using Pythagoras, gives its age as well. The smaller-scale blobs forming a smooth curve (right) are uncorrelated.

The achievement of PLANCK is to realize with improving accuracy, that six quantities can specify the Big Bang model of the Universe relating to:

- ordinary matter
- dark matter
- dark energy
- expansion rate
- initial amplitude of quantum fluctuations
- distribution of the fluctuations.

Of these, only ordinary matter is really understood, and there are **anomalies**, such as some non-random features of the PLANCK map. The CMB itself is also lensed, a simulation with and without gravitational lensing was seen which can only be done with PLANCK. If cosmology is correct, there should be a filamentary structure too.

The next PLANCK update will be temperature and polarization data. More data is needed on the large-scale structure which will come, for example, from more gravitational lensing studies using EUCLID, promising more clues concerning how to answer these questions.

Discussion topics included:

- Map projections: one square-degree in the sky, gives the same area on the map irrespective of its position (Hammer-Aitoff projection).
- Rotating universes and the multiverse.
- The Oort cloud and its trillions of icy bodies might affect the microwave map. It is known that there is some correlation with the Zodiacal cloud.
- In the middle of the map there appears to be no loss of accuracy concerning the blob pattern, despite the signals having crossed the Milky Way through its dense centre. There may be more hidden galaxies in this direction, (Dwingeloo 1 and 2 were only recently discovered.)

- It was pointed out that one of the small-scale blob patterns appears to form the letters “SH”, the initials of Stephen Hawking.
- Assumptions are involved which might later change. For example, it was once assumed that radio galaxies were about 1 arc-minute across, whereas very unexpected unknown objects (quasars) were later found 1 arc-second across. The SDSS has found 200,000 quasars, and a tenth of them should be emitting radio. Perhaps the distribution of quasars may make a contribution to the map, or unknown features might later be discovered necessitating alterations. A satellite with a bigger dish and narrower beam width might be able to produce an even better picture.
- There is evidence for N-S asymmetry in the map.
- Uncertainties due to background galaxy clustering can be modelled.
- Perhaps anomalies in the map arise in the Milky Way subtraction process.
- Different teams completely agree with each other in constructing the PLANCK map.

Google “Mullard Space Science Laboratory” for more.

Dr. Guy Moore

Scientists shape first global topographic map of Saturn's moon Titan

The result now gives better understanding of the moon's slopes to those studying Titan's surface and climate. By Johns Hopkins University Applied Physics Lab, Laurel, Maryland, Jet Propulsion Laboratory, Pasadena, California — Published: May 17, 2013

Titan is Saturn's largest moon — at 1,600 miles (2,574 kilometres) across, it's bigger than planet Mercury — and is the second largest in the solar system. Scientists care about Titan because it's the only moon in the solar system known to have clouds, surface liquids, and a mysterious thick atmosphere. The cold atmosphere is mostly nitrogen, like Earth's, but methane on Titan acts the way water vapour does on Earth, forming clouds, falling as rain, and carving the surface with rivers. Organic chemicals, derived from methane, are present in Titan's atmosphere, lakes, and rivers and may offer clues about the origins of life.

Read more at: Astronomy.com

H P Lovecraft - Part 2

Lovecraft never used astronomical reference to baffle the reader, instead he uses it to embellish the reality of his stories. Part of Lovecraft's infamy was mixing the real with the invented. It has been the bane of booksellers decades over, dealing with requests for Dee's translation of the Necronomicon, or De Vermis Mysteriis because he would drop the names of these dreaded text alongside real books such as The Witch-cult in Western Europe or The Golden Bough.

The inclusion of the astronomical appears briefly in The Shadow Out Of Time and it is in this story that he goes too far. The narrator, a college professor of economics is selected by alien minds in Earth's pre-history to swap bodies. The alien mind is flung future ward to explore 1920s America and the captive mind of the professor is held in past and urged to write down the history of his own time. Later in the story, bodies are swapped again and the tale is about piecing together of what has happened during his own absence. Nightmares reveal to him something of what happened to him in captive times.

'When - very rarely - the night sky was clear to any extent, I beheld constellations which were nearly beyond recognition. Known outlines were sometimes approximated, but seldom duplicated; and from the position of the few groups I could recognize, I felt I must be in the earth's southern hemisphere, near the Tropic of Capricorn.'

As well being a professor of economics, our character is thoroughly 'dull' and it is the family that comes to realise that something is amiss. The parasite mind has not gone unnoticed. He is suddenly able to remember details about Roman society and can recite Pi to a thousand places. When the personalities are swapped back our 'hero' recalls past experiences during dream and waking nightmares. It is amusing then, that despite being an utterly prosaic character, he is still able to pluck constellations from aeons past, and a southern hemisphere. These are abilities beyond your 'average Joe'. Lovecraft perhaps forgets that not everyone is educated to point of recognising constellations.

Lovecraft however wasn't beyond subscribing to some outdated notions. The tentacle covered Great Old One, Cthulhu is able to stalk the Earth, albeit briefly because

When the stars were right, They could plunge from world to world through the sky; but when the stars were wrong, They could not live.

Whether for the purposes of the story or not, he was supporting the idea of a universe that ran on a grand clock mechanism.

Another interesting anachronism is found in the biological, geological and astronomical epic, At The Mountains of Madness. Upon examining the delicate murals of the Elder Things in their long abandoned one discovers the following;

They seemed able to traverse the interstellar ether on their vast membranous wings - thus oddly confirming some curious hill folklore long ago told me by an antiquarian colleague.

Here Lovecraft is using the ether in the classical sense, the Elder Things are plunging between worlds on the aether. The antiquarian in question however in none other than Professor Albert Wilmarth of 1931 tale, The Whisperer in Darkness. Asides dealing with such unpleasant races as the Mi-Go, human minds imprisoned in canisters and local who are both cultist and collaborators, the story was written at the time of the discovery of Pluto. For the purposes of the tale, Pluto is known as 'Yuggoth', outpost of the Mi-Go. Lovecraft wrote to a friend at the time;

"Whatcha thinka the NEW PLANET? HOT STUFF!!! It is probably Yuggoth"

Lovecraft further gushes to Elizabeth Toldridge;

"Incidentally-you have no doubt read reports of the discovery of the new trans-Neptunian planet.... a thing which excites me more than any other happening of recent times. Its existence is no surprise, for observers have long known that one or more such worlds probably exist beyond Neptune; yet its actual finding carries hardly less glamour on that account. Keats (thinking no doubt of Herschel's discover of Uranus in 1781, or perhaps of the finding of the earlier asteroids) caught the magic of planetary discovery in two lines of his Chapman's Homer sonnet, & that magic is surely as keen today as then. Asteroidal discovery does not mean much - but a major planet - a vast unknown world - is quite another matter. I have always wished I could live to see such a thing come to light—& here it is! The first real planet to be discovered since 1846, & only the third in the history of the human race! One wonders what it is like, & what dim-litten fungi may sprout coldly on its frozen surface! I think I shall suggest its being named Yuggoth! Reports make it smaller than Uranus & Neptune, but larger than the earth. I shall await its ephemerides & elements with interest. Probably it will receive a symbol & be treated of in the Nautical Almanack - I wonder whether it will get into the popular almanacks as well? Probably the future 200-inch reflector to be set up in California will tell more about it— & perhaps even help in locating still more distant planets. There is still quite a bit of interest in the limited solar system despite the diversion of astronomers' chief notice to the larger problems of the stellar universe. Another thing that pleases me is that the newcomer came to light at the Lowell Observatory, & from Lowell's own calculations.

Poor chap! His better known observations & speculations never fared well in the scientific world; but now, thirteen years after his death, it is possible that his calculations may win him a major place among astronomers."

Other than the short stories that Lovecraft produced, his energies lay in two other arena. Personal correspondence, which the estimates of scholars like S T Joshi think may have run to 120,000 letters during his forty eight years, and the Amateur Press Movement of the early twentieth century. It was for Pawtuxet Valley Gleaner he wrote:

"The Heavens for August", "The Skies of September", "Is Mars an Inhabited World?", "Is There Life on the Moon?", "An Interesting Phenomenon", "October Heavens", "Are There Undiscovered Planets?", "Can the Moon Be Reached by Man?", "The Moon", "The Sun", "The Leonids", "Comets", "December Skies", "The Fixed Stars", "Cluster-Nebulae" and finally "January Heavens"

It has been claimed by some authorities that energies expended on Press and correspondence were at the detriment of his writing career. Lovecraft died in poverty with cancer of the small intestine, in constant pain and borderline malnourished on March 13, 1937. In his own lifetime he didn't enjoy the success he deserved, but in death was saved from obscurity by August Derleth, Penguin Books and the RPG scene of the late '70s. In closing I shall leave the last words to the man himself.

"...astronomy has always been my favourite science, followed assiduously since I was twelve years old."

H.P. Lovecraft to Clark Ashton Smith, 25 March 1923

Luke Burton

Horsehead Nebula: Herschel telescope images astronomical classic

One of the classics of astronomy, the Horsehead Nebula, has been re-imaged by Europe's soon-to-retire Herschel space telescope.

Europe's Herschel space telescope has imaged one of the most popular subjects in the sky - the Horsehead Nebula - and its environs.






The distinctively shaped molecular gas cloud is sited some 1,300 light-years from Earth in the Constellation Orion. It is in a region of space undergoing active star formation - something Herschel has been most keen to study.

Read more at: bbc.co.uk/

The Brian Cox Effect

Are we using it to our advantage?



INTERESTED IN COSMOLOGY?	
	The Vectis Astronomical Society meets every 4 th Friday, and, in very colourfully visual form, explores the latest developments made possible by emerging technology.
	Want to come along?
	I go regularly (and enthusiastically!) in my 7-seater people carrier, and you are welcome aboard (!) - free of course - on a first come first served basis.
	Please telephone Bob Russell on 01983 740403
	

It saddens me when I look around at the astronomy meetings at the Parish Centre in Newport, and, with certain notable exceptions, consider the comparatively advanced age of most of the members present; I include myself in this, I will be 70 next birthday, 24th January, in case anyone wants to buy me a present!!

Considering the very professional and usually jaw dropping nature of the wonderful facts and imagery, which we are privileged to witness, I sometimes wonder:

How many people within a 5-mile radius are watching telly and:

Where are all the young people?

Readers of this newsletter cannot fail to have noticed that astronomy has suddenly become something of a craze. Well here is an opportunity for us to bring other people on board on this tide of enthusiasm.

Here is one idea for you: A couple of years ago, I pinned a series of A4 posters to our Brightstone village notice board and those of Brook and Shorwell. My friend Roger responded and now comes regularly, so I gained a new friend and the Vectis Astronomy Society gained a new member. A gentleman who saw the notices and has just retired, rang me the other evening, asking me to refresh his memory as to when and where the meetings are and I hope to bring him along to a meeting in the near future.

Some of you may have other ideas: an article waxing lyrical about the Society in your local parish newsletter, or an approach to sixth formers via your local school's Head of Science... One thing's for sure - we cannot let this opportunity pass us by.

Bob Russell

THE BACK PAGE

LINKS, COMMENTS AND OBSERVATIONS

Planet-hunting Kepler spacecraft in trouble

NASA's \$600 million Kepler space observatory – launched in 2009 with the goal of discovering Earth-like planets in distant solar systems – is in trouble. NASA reported the problem yesterday (May 15, 2013): a malfunction in the part of the spacecraft that enables it to aim precisely toward distant stars, in the planet search. Spacecraft controllers learned on Tuesday that Kepler had gone into a safe mode. The reason was that the #4 reaction wheel needed to orient the spacecraft would not spin, despite repeated attempts from Earth to prompt it to continue spinning, according to Associate NASA Administrator John Grunsfeld.

He told reporters at a press conference yesterday that NASA engineers are trying to figure out whether they can get the balky part back into service or whether they can resume control by another method, adding,

“We’re not ready to call the mission over, [but at roughly 40 million miles from Earth], Kepler is not in a place where I can go up and rescue it.”

Read more at: <http://earthsky.org/space/planet-hunting-kepler-spacecraft-in-trouble>

South Africa's New Radio Telescope Reveals Giant Outbursts from Binary Star System

May 16, 2013 — An international team of astronomers have reported the first scientific results from the Karoo Array Telescope (KAT-7) in South Africa, the pathfinder radio telescope for the \$3 billion global Square Kilometre Array (SKA) project.

The results appear in the latest issue of the international astronomical journal Monthly Notices of the Royal Astronomical Society (MNRAS).

Using the seven-dish KAT-7 telescope and the 26 m radio telescope at the Hartebeesthoek Radio Astronomy Observatory (HartRAO), astronomers have observed a neutron star system known as Circinus X-1 as it fires energetic matter from its core into the surrounding system in extensive, compact ‘jets’ that flare brightly, details of which are visible only in radio waves.

Circinus X-1 is an X-ray binary (or two-star system) where one of the companion stars is a high-density, compact neutron star (a neutron star is an extremely dense and compact remnant of an exploded star and only 20km in diameter.) The two stars orbit each other every 16.5 days in an elliptical orbit. When the two stars are at their closest the gravity of the dense neutron star pulls material from the companion star. A powerful jet of material then blasts out from the system.

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Read more at: <http://www.sciencedaily.com/releases/2013/05/130516105236.htm>

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

“Research is the process of going up alleys to see if they are blind.”
Marston Bates

Quotations

“The cure for boredom is curiosity.”

There is no cure for curiosity.”

Dorothy Parker

“Most scientists - no matter what they’re doing, good or bad - never get any attention at all.”

Marc Abrahams