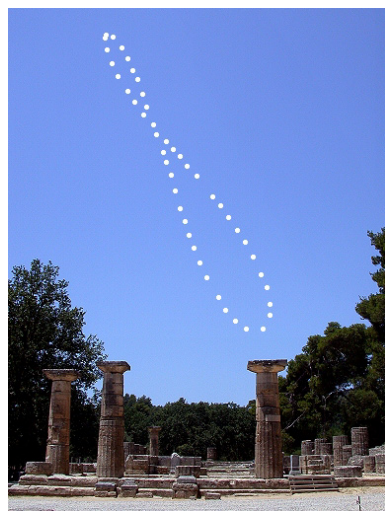




Society News

From the Chairman

There will be a partial eclipse of a blue moon on 31st December. However, only a very small area of the Moon will enter the Earth's shadow, and although there may be some shading seen across the whole of the Moon, it won't be the colour blue. In recent American parlance the term blue moon has come to mean two full moons in a calendar month. These blue moons occur about every two and a half years. The last time this happened was in June 2007 and the next time will be in August 2012.



From the Winter Solstice on the 21st December, the sunrise will move gradually northwards, the days will lengthen and the Sun will travel higher in the sky. However, on this shortest day, the sun does not actually set at its earliest, nor does it rise at its latest. This is because the solar day, the length of time between one local noon (when the Sun is highest in the sky) to the next, is

not always 24 hours (its average over a year is 24 hours). The difference between mean time noon and local noon (and that of sunrise and sunset) can be as much as +/- 16 minutes. This is known as the equation of time and can be represented by a figure eight, called an 'analemma'. Web site <http://www.perseus.gr/Astro-Solar-Analemma.htm> shows some lovely photos of analemma.

As we're nearing the end of the International Year of Astronomy, I would like to thank everyone who has been involved helping Vectis AS with our outreach projects. Over 1,000 people have looked through our telescopes this year, many seeing the rings of Saturn, craters on the moon or the moons of Jupiter for the first time. My special thanks to Brian Curd and Bill Johnston for co-ordinating the IYA projects.

Happy Winter Solstice!

Clear Skies
Dr Lucy Rogers - Chairman

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.
Tuesday, 19.30hrs	Members Only. Education evening - self-help for those on external courses, such as GCSE Astronomy, Open University etc, or for general astronomy questions.
Thursday, 19.30hrs	Members and Public. Informal meeting and observing.

Contents this Month

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Monthly Meeting Calendar 2009

Date	Subject	Speaker
Nov 27	Cosmic Casualty - Farce and Fortuity in the Exploration of Space	Doug Ellison

All details correct at time of publication.

Wellow IYA Event Report

Due to the somewhat hostile weather of late (!) it will probably come as no surprise that the Wellow IYA Stargazing Event had to be "*modified*". It had always been planned to have a slideshow and some scopes and other equipment set up in the Wellow Institute but on the night, this became the main attraction.

Bert Paice, Graham Osbourne, Paul England, Ryan and James Dimmock and I battled through the storm to get there on time to and welcome 50-60 visitors to what turned into a very successful evening.

Later I received an email from the Wellow organiser:

Dear Brian

A big thank you to you all for coming to Wellow this evening. What a fantastic collection of telescopes amongst you all, it was very impressive.

I have just popped back having put the children to bed to see whether there was anyone remaining, and typically the sky was clear with a lovely canopy of stars.... That would have been about 9.40pm, I don't know whether you managed to see a few through your telescopes or whether it was still too cloudy when you left.

Oh well, it was a good taster to see those slides and to know what is possible to view from our Island, and hopefully it has sparked some interest locally to come to your Observatory or perhaps do some of their own star gazing. Personally I love it, particularly when night sailing with the whole sky visible and not a man-made light in sight.

Please pass on our thanks to your Society members who made a big effort to come out on this wet and windy night, it was much appreciated. Perhaps we can have another go next November?

With best wishes

Joanna Minchin

Brian Curd

FOR SALE

EQ5 Equatorial Mount with Twin Motors NEW CONDITION (No Stand)

£100 ono
Bert Buckett
407319

Forest park given Dark Sky honour

Galloway Forest Park has been officially unveiled as the first Dark Sky Park in the UK. The award, announced by the International Dark Sky Association, confirmed Galloway as one of the best places for stargazing in the world.

Lighting experts were brought in to ensure the skies above the forest park were pitch black at night.

Part of the selection process involved giving a rating via a sky quality meter, which measures the darkness of the sky overhead. The higher the sky quality meter reading the better the conditions for viewing stars, with the darkest reading, such as would be recorded in a photographer's dark room, rated 24. In major cities such as Glasgow or Edinburgh, a likely reading would be about 15 or 16 on the scale. Galloway Forest Park was rated 23 on the scale, giving it a gold tier Dark Sky Park award status - the highest achievable.

Martin Morgan-Taylor, UK board member for the International Dark Sky Association, said: "Galloway Forest Park is a fantastic asset in the now international network of Dark Sky Parks.

"Such skies are rapidly disappearing and less than 10% of people in the UK can now see the Milky Way from where they live."

Excerpt from BBC News Website

This Month's Night Sky

The year is almost over and the nights are at their longest. The winter sky has something for every one, easily identifiable constellations with bright stars, showpiece deep sky objects and dazzling star clusters. This month there is even one of the year's best displays of meteors, the Geminids, a shower to rival the Perseids. You will have to dress up well to see this as it is not August now, clear nights are cold nights at this time of year.

The Milky Way arches right overhead giving us a comparison between summer and winter views of our galaxy. It might not seem like it from our polluted skies but the winter Milky Way is full of spectacular star clusters. From darker more southern skies, clusters that are only seen through binoculars now stand out to the naked eye. Using binoculars or a small telescope with its lowest magnification, sweep from the Orion Gemini border down through the Winter Triangle (Betelgeuse, Sirius, Procyon) to the east of Canis Major. We are looking out of the galaxy, not into its centre so it's not as crowded as the summer Milky Way which helps the clusters stand out.

Winter solstice, the shortest day, is on the 21st when at 17:45 the sun reaches it's most southerly point in our sky and starts to head back to the north.

Between 18:57 and 19:53 on the 31st is the second lunar eclipse of the year visible in our skies. This event is only marginally better than the first and still a disappointing event with the Moon just entering the earth's shadow.

Moon Phases

	New	1 st Qtr	Full	Last Qtr
Dec	16th	24th	2nd & 31st	9th
Jan	15th	23rd	30th	7th

Planets

Mercury makes a poor evening appearance reaching a max. of about 9° above the horizon at sunset on the 21st.

Venus is heading toward superior conjunction in mid Jan so is not visible until Feb

For all of Dec and the first half of Jan **Mars** is almost stationary between Leo and Cancer. Later in Jan it starts to move more rapidly towards Cancer as it approaches opposition in early Feb. It will increase noticeably in brightness over this period. Telescopic observers will also notice a rapid increase in size which will allow the surface features to become easily visible.

Jupiter is visible as the sky darkens for a few hours, but is rather low down in the south west and unfavourable.

Neptune is not favourable.

Saturn is in Virgo and is observable from about 4am at the beginning of the month and from about midnight during the later half of Jan.

Uranus is visible for a few hours after dark at the start of Dec, but unfavourable by the end of Jan.

Jupiter passes close by for a few days either side of the 20th. Although the bright planet will act as an easy to find signpost, **Neptune** will be much harder to spot low down in the south western sky.

Meteors

The broad peak of the **Geminids** is favourable around the 13th Dec. This is a reliable shower of bright yellow meteors with high hourly rate. Observable between the 7th and 15th the radiant is near Castor, so the best meteors will be at least a 'hand span' from the twin stars, Auriga, Taurus and the northern part of Orion are good areas to look.

The **Ursid** maximum occurs on the 24th. This year the shower is not particularly favourable, the first quarter moon is high in Gemini for the first half of the night.

On the 4th Jan the all night gibbous moon interferes with peak of the **Quadrantids** making it unfavourable.

Deep Sky Objects

M45 Pleiades RA 3h 47m Dec 24° 13' mag 1.4 - Known since ancient times as a herald of the wet season, the Pleiades is probably the most famous of all star clusters. It has something for all observers whether they are using naked eye, binoculars or a telescope.

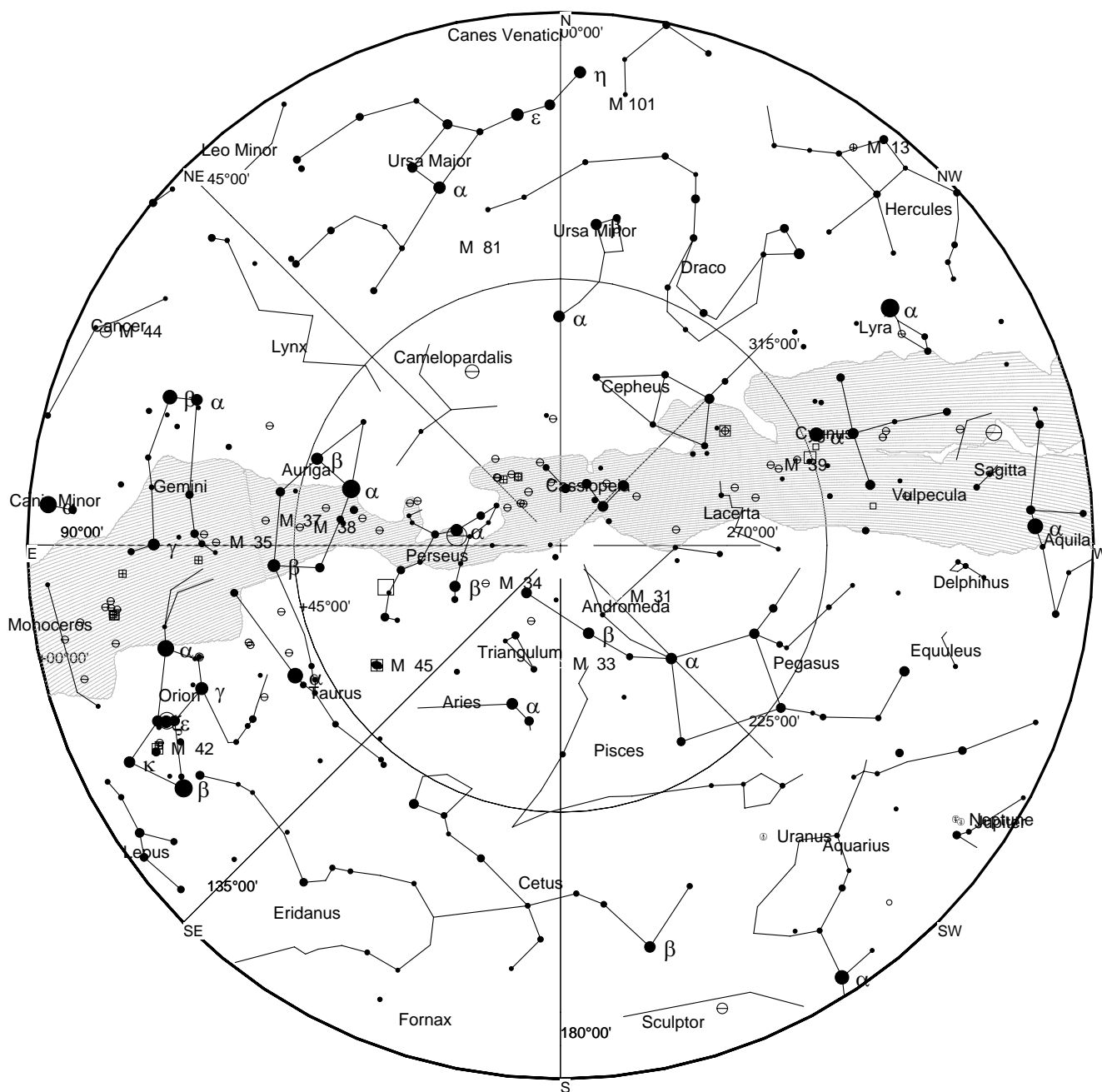
NGC752 RA 1h 58m Dec 37°41' mag 5.7 - This is an open star cluster a little larger than the full moon and just visible to the naked eye in a dark sky. Binoculars resolve up to 20 stars, and an 8" telescope with low mag. shows over 50. Some stars show as yellow or orange.

NGC457 The Owl or ET Cluster RA 1h 20m Dec 58° 20' mag 6.4 - Best viewed in large binoculars or a low powered telescope, it's visible in 10x50s but the ET outline is just a little too small, it really needs more than 10x mag, but not too much. The star Phi Cass and a close companion make the two bright eyes and two more chains make the arms and body of the stick figure.

NGC1662 Open Cluster R.A 4h 49m Dec 10° 54' mag 6.4 - About 2° towards the Hyades from the northern tip of Orion's shield is this large but sparse group of stars. About half way along the lower edge is a small diamond of 10th mag stars that along with an 11th mag outsider forms a group resembling a miniature, slightly squashed Delphinus.

Peter Burgess

This Month's Sky Map



View from Newchurch Isle of Wight UK - 2100hrs - 15 December 2009



NGC 457

NGC 457 is an open star cluster in the constellation Cassiopeia. It was discovered by Friedrich Wilhelm Herschel in 1787. It contains over one hundred stars and lies over 9,000 light years away from the Sun. The cluster is sometimes referred by amateur astronomers as the Owl Cluster, Kachina Doll Cluster, or the ET Cluster, due to its resemblance to the movie character. Two bright stars, magnitude 5 Phi-1 Cassiopeiae and magnitude 7 Phi-2 Cassiopeiae can be imagined as eyes. The cluster features a rich field of about 150 stars of magnitudes 12-15.

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Starting as a Stargazer Part 7

It rained, so I went shopping. First I bought the Philips moon map on a large folded sheet, with a gazetteer of lunar features in one corner and a good deal of miscellaneous information in the others. Book-format moon atlases are expensive, and I like sheet maps. But I suffered for this decision when I tried to use it outdoors - it flapped wildly round me and the telescope. Next day I scanned it in chunks and printed them onto A4 sheets. Much better.

Next I phoned an astronomy shop and asked innocently for an additional eyepiece for my telescope, which originally came with eyepieces of 25mm and 9mm, giving 26x and 62x magnification. According to the manual, it has a "Highest useful magnification" of x306. Although cynical about this, I wanted to see what it would really take. The parcel arrived promptly, and I was disconcerted to find a huge lump of eyepiece (Celestron X-cel 5mm, giving x130 on my scope, for those of you who want to tell me what I should have bought instead).

I tried it out, soon finding that any touch or breeze caused wicked vibrations in the image. With its small field of view, I had to centre an object well in the 9mm eyepiece, and then change to the new one. Only part of the image seemed really sharp, and trembling from any adjustment eroded observing time annoyingly. However, the 5mm came into its own with the moon. Observing with the 9mm was painful, with all the moon's light focused into my one watering eye. The dimmer image in the 5mm helped, and I could see textures and small features invisible to me before.

Looking at the moon brought home the violence of meteor bombardment. I had seen a fair number of shooting stars, looking as harmless as sparklers. But those craters are BIG. Coincidentally I was reading *Death from the skies* by Philip Plait, which considers cosmology in terms of our inevitable future destruction. The relentlessly matey tone of the book grated sometimes, but this is a good attempt at popular science and I did learn a lot. (Amazon lists the book.)

Back to the moon. In my new eyepiece I could see a sharp and even vertiginous image. The terminator had moved on and craters I had viewed two nights before were now "whited out" on the fully lit section of the moon. I scanned down the newly revealed territory, identifying landmarks, reciting crater names - Ptolemaeus, Alphonsus, Alpetragius, Arzachel - seeing dawn touching the peaks of a crater whose floor was still in darkness below. Learning the moon feels as much geography as astronomy, an aerial voyage over an exotic but not entirely alien land.

Rebecca Mitchelmore

Winter Project

Are you interested in a Messier object hunt? If so please make yourself known to any member of the Committee as it has been suggested we observe and possibly photograph as many of the Messier objects as possible this winter. If enough members would like to join in, this will become part of Thursday's regular get togethers.

Island Planetarium @ Fort Victoria

Star Gazing Evenings

Starting Friday - 13th Nov and 11th Dec
Programme

Fri evening - Finding your way around the night sky and stargazing with telescopes if clear.

Sat afternoon/ Sun morning - Visit to Island Observatory and Solar Observing if clear.

Sat evening - Observing the night sky with telescopes either live with telescopes or simulated observing using planetarium and telescope images from our library of small and large telescope pictures.

Cost £40 for VAS members

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CQ ETI CQ ETI



Part 2 Recent News and some Basic Questions

This exciting subject has huge educational potential. Already the SETI Institute provides¹ teacher training and curriculum input in astrobiology and evolution for several hundred schools across the USA. Having put together syllabuses for various university courses, I think that ETI could make a very full module on an astronomy course, or better, universities could offer a complete degree - just the radio aspect covers radio astronomy, electronics, applied maths, communications, atmospheric and space physics, contemporary history and philosophy. Above all, the subject contains the adventurous ingredient of EXPLORATION. It's also very applied, meaning that qualifications in this subject would take students to the top of the range of employability - young people, full of hope and optimism with a knowledge of history, science and technology, are needed by society, and would help prepare us for the breakthrough discovery that could happen.

Recent news: R136, once thought to be a giant superstar, baffling the theorists, turned out to be a densely packed star cluster. Contrary to the textbooks, stars such as our own Sun were born alongside other siblings within such a cluster - according to a very recent article². Then the cluster dispersed around an arc in the Milky Way. About 50 such stars should still be within 300 light-years of us, mostly in the direction in which the solar system moves around the galaxy, and in the opposite direction. Habitable planets, too, are more likely to be found in these directions, perpendicular to the line joining us to the galactic centre.

As I explore this subject, balancing objectivity with imagination, my aim is to demonstrate how much fun is involved - here are some basic questions with a mixture of answers. Feel free to send further questions and comments to the Editor and help to steer this series.

Q1. If a signal from ETI came from space, how would we recognize it? It would be recognizable because we couldn't imagine how Nature could produce such a signal. For example, consider the early type of long-wave aircraft beacon of Fig.1 emitting alternate dots and dashes switched between two dipole aerials at right-angles. If one aerial is stronger than the other, depending upon your bearing relative to the transmitter, you would hear dot dash space, dot dash space, the repeated letter A, when flying in the SW or NE quadrants. But if flying in the SE or NW quadrants, you would hear the inverse signal, space dash dot, space dash dot, the repeated letter N. If A and N merge

into a whistle you know you are on an equal strength bearing. Every minute or so, the signal is interrupted with three identifying letters in Morse. How on Earth, or rather, how in the Universe could a natural process produce such a characteristic signal without the ingredient of 'intelligence'?

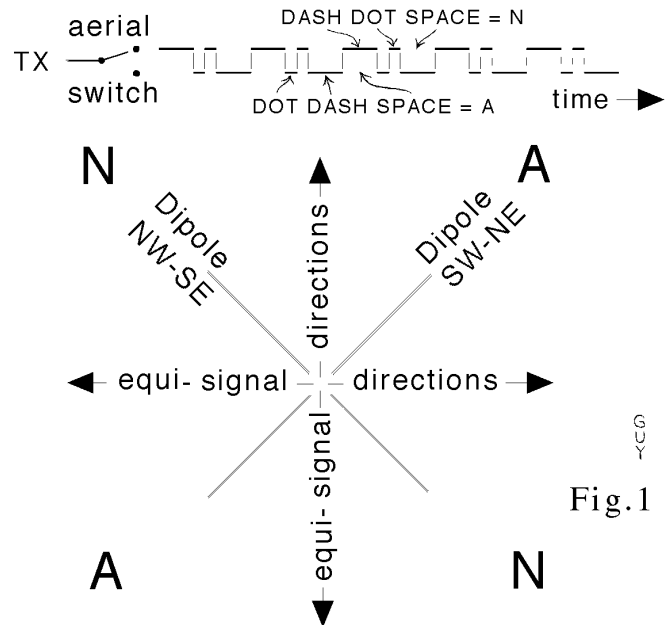


Fig. 1

Q2. But would ETI signals necessarily be so obvious or must we work harder? Radio noise, false positives, deducing the best frequencies and the types of modulation, means, yes, a lot of work must be done on this question. Much has already been done - more later.

Q3. Does consciousness have easily recognized characteristics? It can do. Take, for example, a prehistoric flint tool mixed in with pebbles of natural shapes. It seems to me that we have a natural ability to recognize things that have been shaped by fellow humans, whereas a computer would find this task difficult. The regular features of the Giant's Causeway have a natural explanation, as do even more regular things, like crystals and planetary orbits. Let's add pulsars to this list - at first called³ "Little Green Men", they were so regular that a physical explanation was soon forthcoming. A very simple and accurate repeating regularity is thus not a distinguishing feature of consciousness - even the regular 1-2-3 rhythm of the waltz shows variation, although we can make very regular repeating things like stable waves and clock pulses. Conversely, highly irregular things, like the shapes of pebbles on beaches, also have a natural explanation. Let's include thermal noise on a different list of irregular things - it is so atomically random that it, too, has a natural explanation. Thus, randomness isn't a distinguishing feature of consciousness either. In between the very regular and the very irregular, are things like flint tools. Music may be mentioned too, where consciousness expresses itself between the extremes of highly regular sinusoidal tones, and the irregularities of random noise.

Consciousness occupies a position where repeating patterns are put together in non-repeating ways, like the same letters of an alphabet can spell out different messages. If you saw an ancient tablet⁴ for the first time, inscribed with the language Linear B, it is clear enough *to us* that it has been made by beings with consciousness. Deciphering this type of message is another aspect to studying the subject of ETI - one day we might have that task with electronic messages from space.

There's an interesting problem here: take the sound of waves breaking on a beach, this natural phenomenon also combines regularity with irregularity, so it has similarities to music. So who or what is best at deciding whether consciousness is involved, when listening to the modulated sounds from space - us or computers? I would go for us. Perhaps ETI will solve the language problem by sending its most respected musical works, which we could easily pluck from the strange noises of space. But we'll also see how prime numbers and mathematics could have an important role to play in recognizing messages from ETI - I'm still trying to figure out the method...

Q4. Are there hidden dangers, like attracting an invasion by hostile flying saucers? Definitely not - the distances are too great. Suppose ETI lives 5 light-years away at the closest. This is $5 \times 300,000 \times 365 \times 24 \times 60 \times 60 = 4.73 \times 10^{13}$ km. If the most advanced rockets could travel at one million kph, then dividing the distance by the speed gives 47 million hours or 5400 yrs travel time. If ETI is like humans, then a journey like this is far too impractical. More likely, any material objects from ETI would be space probes that have wandered the heavens for millions of years - and if we're lucky, as they approach our Sun, they might pick up renewed stellar power and start transmitting again, enabling us to find them. We can have fun working out the probability of encountering such objects if we wish. Returning to the basic question, if ETI is a lot more advanced than ourselves, then it has been suggested⁵ it must have originated from a world that has not destroyed itself by war, so we would have many peaceful things to learn from ETI and this is to be welcomed.

Q5. Could ETI gain control of a natural process, giving access to an astronomically huge transmitted power? The 'easiest' process might be to modulate the light from a star. A low data rate message could be made by setting into orbit around a star, a series of large screens, like cricket screens, that alternately block and allow the light to pass, sending a few Morse characters - a very slow lighthouse beacon. I can't imagine ETI doing this and it really isn't that easy to do. The stellar wind would scatter the sheets like autumn leaves. The space environment would be altered, possibly climate too, and all with no benefit to ETI. Besides, it appears possible to outshine the parent star using pulsed lasers and filters⁶. But I do think it's worth contemplating LOW DATA RATES. Today we pursue large data rates, like broadband and TV. But getting breakthrough signals from ETI doesn't require a rapid data

link. Historically, we've always started with the lowest data rates, smoke signals, flags, semaphore, signal lamps, and then increased - and in 1684 "a modern telegraph was suggested by Dr.Hooke."⁷ (There's an exhibition on Robert Hooke at the Island Planetarium, Fort Victoria.) If we went searching for messages coming at four words per month, then Gigahertz radio strikes me as rather a high frequency to use - but of course there are strong physical reasons for searching there, like propagation characteristics, natural phenomena and radio noise. This brings me to the Aurora Borealis, a backdrop of fluctuating curtains illuminating the stage of basic questions - a hint of what's in Part 3.

References and notes

- 1 Note I'm focussing on radio, but "OPTICAL SETI" is a big subject too, see Google. The SETI Institute has Public Outreach Programs, more on <http://www.seti.org>.
- 2 "The Long Lost Siblings of the Sun" Simon F.Portegies Zwart, *Scientific American* November 2009 pp23-29.
- 3 "Little Green Men, White Dwarfs or Pulsars?" S.Jocelyn Bell Burnell, <http://www.bigear.org/vol1no1/burnell.htm>
- 4 http://en.wikipedia.org/wiki/Linear_B. Note, on the satellite Amos/Atlantic 4-5W, there's an excellent *analytical* music program "La Boite à Musicale" Jean François Zygel, France 2, sometimes on a Friday evening, details on Google.
- 5 *The Universe* Iain Nicolson, Patrick Moore, Guild Publishing London, Equinox Oxford 1985, p247.
- 6 "Amateur Optical SETI - Basic Assumptions", Dr.Stuart A. Kingsley, 1991 <http://www.coseti.org/radobs37.htm>
- 7 "Telegraphs" in *Hadyn's Dictionary of Dates*, London, 1871.

Seasons Greetings, especially from Worzel who likes to keep an eye on what's going on!



Dr.Guy Moore

The Sloan Digital Sky Survey and Supernova Cosmology

October Lecture Report

Dr. Hubert Lampeitl - Portsmouth University



The Sloan Digital Sky Survey (SDSS) is a multi-national programme involving more than 200 scientists at 30 institutions worldwide. The survey is conducted from the Apache Point Observatory in Southern New Mexico with a 2.5m, f/5 modified Ritchey-Chretien telescope. This can view 1/3 of the sky and has mapped 930,000 galaxies out to a red shift of 0.4, 120,000 quasars and 460,000 individual stars.

The science topics addressed with this data are:

- Large Scale Structure
- Galaxy Clusters
- Cosmic Distance Scale
- Galactic Structure
- Etc.

The large quantity of data has prompted the use of the internet to help classify the galaxies. Galaxy Zoo.org has been set up to allow internet users to contribute by providing their classification of the galaxies into elliptical, spiral or irregular types.

An important part of the survey has been the recording of supernova explosions. Type 1A supernovae can be used as distance indicators in cosmology since their light curves always follow the same pattern. By measuring the apparent brightness and knowing the relationship between distance

and luminosity the distance can be estimated. These supernovae only occur rarely in any one galaxy but by observing a large number of galaxies as with the SDSS, many supernovae have been recorded.

The results from the SDSS are helping to understand the structure of the universe. When Einstein developed his theory of gravitation he included a cosmological constant. Einstein always maintained that this was a mistake and should not be included as the equation indicated that the universe was expanding and the constant was necessary to maintain a steady state.

However, results from the SDSS and other experiments show that the universe is expanding and a modified gravitational constant is necessary to model the expansion correctly.

It is apparent that what we see through our telescopes is only a fraction of the matter and energy making up the universe. To account for the observed rotation of galaxies there must be some invisible dark matter present. Also the distances measured to supernovae indicate that the universe is not only expanding but that the rate of expansion is accelerating. For this to happen there must be another invisible component present that has been labelled dark energy. The observable universe – the stars and planets – account for a mere 4% of the total mass/energy of the universe. Dark matter makes up a further 26% and the remaining 70% is dark energy.

The SDSS has left many questions unanswered so a number of future projects have been proposed to explore for dark energy. These include The Dark Energy Survey (DES), a Large Synoptic Survey telescope and an International Dark Energy Cosmology Survey.

Roger Young

Notes on the discussion which followed:

There were several deep questions on the nature of gravity, finishing with “*what could gravity be made of - it must be made of something?*” Dr. Hubert Lampeitl provided a glimpse into useful analogies and things to picture, mentioning quantum gravity and gravitons. (Impressed by the quality of this discussion, Roger Hayward said to me, “*Guy, you’re very quiet!*”)

A practical question from Stephen Griffiths highlights my own lack of knowledge of astronomical basics, I didn’t note the answer by the lecturer - I was still thinking about the question which went something like this:

The Apache Point Observatory was using a 2.5m telescope, containing a camera and a spectrograph. It was used to scan the sky using the Earth’s rotation without star tracking. But the spectrograph needs an exposure of 45 minutes, and during that time, the field of view changes -

but already I think I've deviated from Stephen's original question and got involved in my own - apologies. Stephen says "that's okay for objects near the equator, when the objects travel across the sky in near horizontal lines, but as you go higher, the circular paths get tighter, and at the pole the object just rotates." But I'm thinking of the problem of taking spectrographs whilst the telescope is shifting, giving biggest fuzz for objects near the horizon...

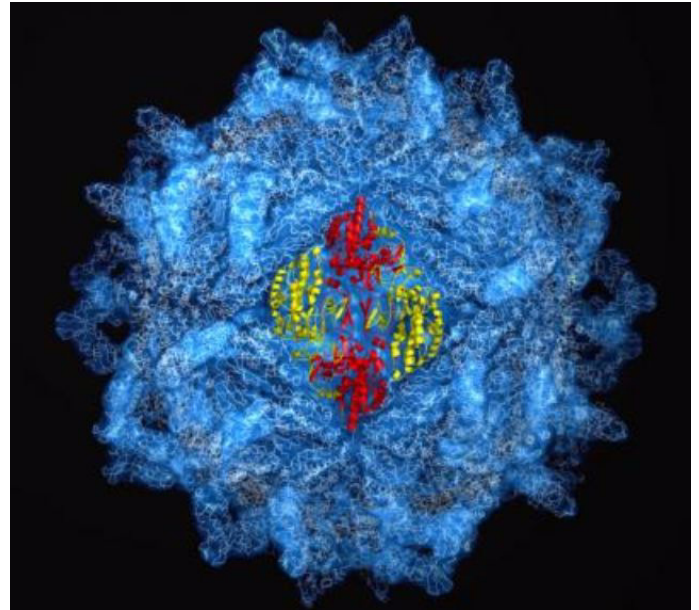
Stephen suggested coming to look at a picture on the lecturer's display laptop, where we were joined by the lecturer and the following dialogue then arose: "So do gamma ray bursters (GRB) follow the same probability distribution as galaxy clusters?" - it seems so - I'm thinking of low surface brightness (LSB) galaxies that the survey might not detect which GRBs could reveal. Already supernovae have been seen (reported in the lecture) not associated with nearby detectable galaxies, suggesting that the structure mapped in the survey might not include LSB structure... "...and what about the cosmic microwave background and the ripples, the galaxy clusters would alter the ripples, whereas it is said the ripples cause the formation of the galaxies" - the answer appears to reside "in a question of scale" "...and what was the other question?" "Why is Einstein's Lambda regarded as a constant?" - not enough time to discuss all this, but many thanks to Dr. Hubert Lampeitl for providing lots of insights. Apologies, I lost track of Stephen's question - please tell us some more if there's time!

Discussion reporter - Dr Guy Moore

Lawrence Livermore Laboratories discovers the heaviest element yet known to science

The new element, Governmentium (Gv), has one neutron, 25 assistant neutrons, 88 deputy neutrons, and 198 assistant deputy neutrons, giving it an atomic mass of 312.

These 312 particles are held together by forces called morons, which are surrounded by vast quantities of lepton-like particles called peons.



Since Governmentium has no electrons, it is inert; however, it can be detected, because it impedes every reaction with which it comes into contact. A tiny amount of Governmentium can cause a reaction that would normally take less than a second, to take from 4 days to 4 years to complete.

Governmentium has a normal half-life of 2 – 6 years. It does not decay, but instead undergoes a reorganization in which a portion of the assistant neutrons and deputy neutrons exchange places.

In fact, Governmentium's mass will actually increase over time, since each reorganization will cause more morons to become neutrons, forming isodopes.

This characteristic of morons promotion leads some scientists to believe that Governmentium is formed whenever morons reach a critical concentration. This hypothetical quantity is referred to as critical morass.

When catalyzed with money, Governmentium becomes Administratium, an element that radiates just as much energy as Governmentium since it has half as many peons but twice as many morons.

John Langley

THE VECTIS ASTRONOMICAL SOCIETY

A HISTORY 1976 — 2009

BY BRYN DAVIS

Available from Thursday 3rd September from the author
at the Observatory or any Monthly Meeting

Price £6

THE BACK PAGE

LINKS, COMMENTS AND OBSERVATIONS

News and Events

Due to events at the restaurant, the previously published Party Date was incorrect. Please see below for the correction, also announced at last month's meeting. - **You'll need to be quick to let Barry know if you are going as numbers must be known by 29th November!**

VAS CHRISTMAS PARTY

THURSDAY 3RD DECEMBER

THE BARGEMAN'S REST - NEWPORT IOW

No need to pre-order food as this is an "off menu" event. Each is responsible for their own ordering and payment

We do need to give numbers though, so please let Barry Bates know if you are attending
ebbates@btinternet.com or 01983 872979

Storms Affect Local Astronomer

Richard Flux has reported that his ex-VAS 'Coram' dome was destroyed by the gale on Saturday. Richards very stoic response - "*Such is Life!*"

Books for sale

I have the following books I am trying to sell/get rid of:

- Patrick Moore's Brilliant Stars, Astronomy Quiz book and The Sky at Night
- Stereo Star Maps by Richard Monkhouse and John Cox

Please contact Ian if you are interested. email ian.pratt5@btopenworld.com

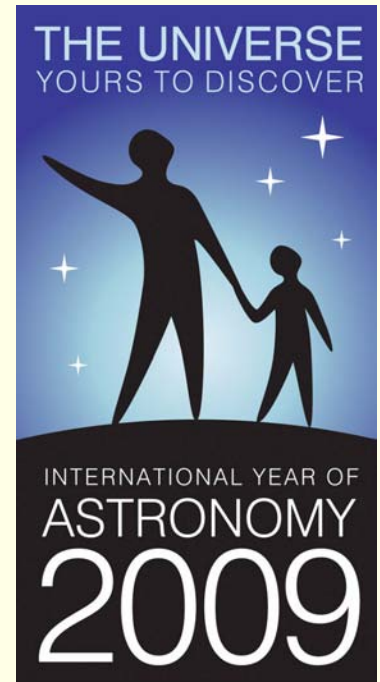
It's that time of year again

As regular readers will know, there is no NZ in January - it's the one month that the Editor gets a rest ;)

I really don't know where the year has gone! It's certainly been very busy! I hope you have enjoyed reading the New Zenith each month and look forward to seeing your contributions for Volume 18.

MERRY CHRISTMAS AND HAPPY NEW YEAR

Brian Curd



Quotations

"Why are things as they are and not otherwise?"

Johannes Kepler (1571-1630)
German astronomer

"I do not like it, and I am sorry I ever had anything to do with it."

Erwin Schrödinger (1887-1961) Austrian physicist.
Nobel Prize, 1933.
Speaking of quantum mechanics

Observatory

For your own safety, when visiting the VAS observatory, please remember to bring a torch. Also, please make sure you close the car park gate if you are the last to leave.

Articles Needed

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