



Society News

From the Chairman

Astronomers at the Isle of Wight Star Party were again lucky to be able to observe on all four nights, even if the seeing was not as good as we know it can be on the island. Some of the visitors from the mainland have been kind enough to allow us to reproduce their reports from page 8 onwards, and we also have a report from a non-astronomer islander. Many thanks to those who helped out and took part - a full report will appear in the next issue.

Saturn and its moons were one of the easy targets at the IOW Star party - although even through a 20 inch Dobsonian, the views were not quite as good as those provided by the Cassini space probe. Cassini will be flying close to three of Saturn's moons in April: On the 5th, it will fly about 4,500 miles above the moon Titan to perform high resolution observations. On April 7th it will fly within 350 miles of Dione, a small moon, almost 700 miles in diameter which orbits Saturn every 2.7 Earth days. Instruments will try to determine if Dione is actively spewing particles. On April 28th, there will be a 65 mile high flyby of the moon Enceladus to determine the nature of the interior right under its hot spot, which ejects plumes of vapour.

April marks the 40th Anniversary of NASA's "successful failure" - Apollo 13. What was to have been the third manned moon landing, was aborted when an explosion onboard the spacecraft changed the course of the mission and threatened the lives of crew members Jim Lovell, Jack Swigert and Fred Haise. After a joint rescue effort by the astronauts onboard and mission control back home, the crew returned safely back to Earth.

Clear Skies
Dr Lucy Rogers - Chairman

VAS will be revisiting the Wellow Institute later this year, probably late Oct - mid-Nov time. Despite being rained out last year we had plenty of enthusiastic visitors and, assuming good weather, we will do even better this year!

If you can help, contact Brian Curd for up to the minute details on this event.

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.

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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.

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Monthly Meeting Calendar 2010

The lecture programme is looking a little fuller this month - thanks to the efforts of Lucy and Richard. Please keep an eye on the website for up to the minute information.

Travel for our monthly speakers is sponsored by:		
		
Date	Subject	Speaker
Mar 26	Lunar Impactors	Graham Bryant (Hampshire AG)
Apr 23	How Astronomy Has Changed	Dr Lilian Hobbs (Southampton AS)
May 28	What's Wrong With the Sun	Stuart Clark
Jun 25	TBA	Robin Gorman
Jul 23	TBA	Mark Sullivan
Aug 27	TBA	Greg Smye-Rumsby
Sep 24	Around the Universe in 45 mins	Grant Privett
Oct 22	The Lunar Imaging World Record Attempt	Ninian Boyle
Nov 26	The Big Questions In Cosmology	Stephen Serjeant (Open University)

All details correct at time of publication.

Observatory Dome

There is a problem with the operation of the dome at the moment.

Corrective work is in hand and will be done ASAP.

In the meantime, its electrical supply has been isolated and cannot be used.

Call Brian for the latest news.

Your Society Needs You!

In August, a few members of Vectis Astronomical Society's committee will be standing down from their roles. Please consider standing for a place on the committee. We need to fill the posts of:

- Chairman
- Treasurer
- Observatory Director
- Program Organiser and
- Observatory Outreach Co-ordinator

It would be great to see some new faces on the committee. We now hold the committee meetings on a Tuesday evening, so if you couldn't make the previous Friday committee meetings, I hope you will consider these new arrangements.

Clear Skies
Dr Lucy Rogers - Chairman

VAS Summer BBQ



A date for your diary - and with plenty of warning:

Fort Victoria

Saturday 26th June

Mid afternoon onwards

Bring your own food and drink

Paul has booked 3 BBQ's and is happy to open the Planetarium etc.

The BBQ is open to all Fort Victoria shops.

This Month's Night Sky

Moon Phases

New	1 st Quarter	Full	Last Quarter
14th	21st	28th	6th

Planets

Mercury - Mercury continues this spring's evening apparition. For the first week of the month it sits in the western sky side by side with the much brighter Venus; just a few degrees separating them. During the second week they draw further apart and Mercury dips back toward the Sun dimming as it goes. Any small telescope should show its crescent shape as it overtakes us on its inside track orbit. During the third week the crescent will have become so thin and dim that Mercury will disappear from view until its reappearance in the morning sky during May.

Venus - Venus continues its evening apparition. The moon passes close by for a photo opportunity on the 16th.

Mars - Throughout the month Mars retraces its path eastward across the constellation of Cancer. It has a close encounter with M44, the Beehive cluster on the 16th. It is still well placed for observation though it is getting smaller and less bright every night; setting at about 2am at the end of the month.

Jupiter - Jupiter is only 10° above the horizon by the time the Sun rises making it rather too low down for observation this month and almost lost in the bright pre dawn sky.

Saturn - As the sky darkens Saturn is already well up in the southern sky and well placed for observation until the early hours of the morning.

Uranus & Neptune - Both of the outer planets are low down in the sky at sunrise and lost in the bright dawn sky.

Deep Sky

Leo Triplet M65, M66, NGC3628 RA 11h 20m Dec 13° 14' - Just under the loins hind legs in an area not much larger than the full moon are three spiral galaxies. Using a low power all three can be seen in the same field of view. Each is about half way between edge on and face on so appear as an oval smudge with a bright core. Why NGC3628 is the largest of the three and the faintest, just (mag 9.5), why it doesn't have its own place in the Messier catalogue we will never know, perhaps it says something for the quality of 18th century optical equipment.

Leo Triplet M95, M96, M105 RA 10h 46m Dec 12° 8' - Continue towards the loins front legs and you will encounter another triplet of galaxies. This time spaced

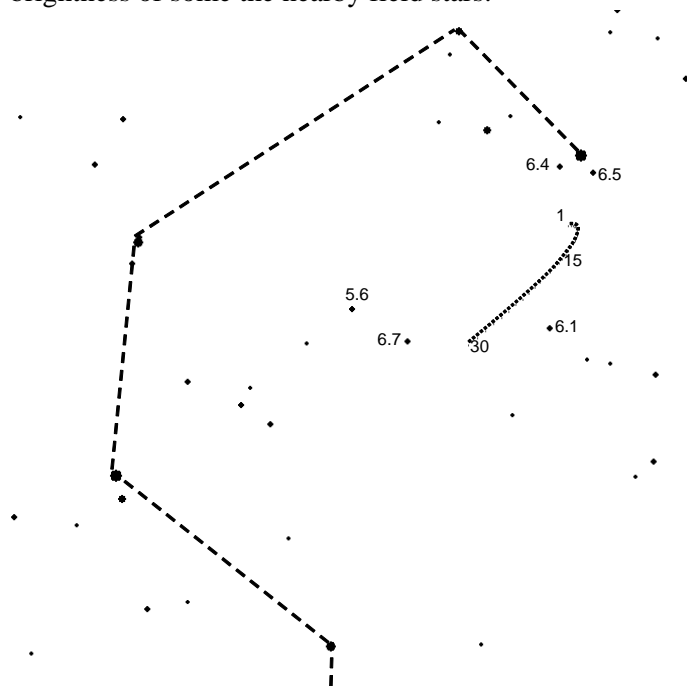
further apart but still visible in the same field of view, these galaxies are a little fainter and smaller and are nearer to being face on. A large telescope is needed to spot the barred spiral and ring structure of M95. While observing M105 look for NGC3384 & NGC3389 making yet another close spaced triplet with M105.

NGC3521 Galaxy RA 11h 6m Dec -0° 6' mag 10.0 - Still in Leo but much further to the south, between Virgo and Sextans is to be found this compact spiral. As with most galaxies a large telescope is needed to glimpse any structure in the spiral arms and dust lanes, but even small 'scopes show it to have an oval shape with a bright core.

Meteors & Asteroids

Lyrid meteors, leftovers from comet Thatcher are visible from the 17th to 26th with the peak on the 21st/22nd. The Zenith Hourly Rate, the number of meteors per hour visible, at the peak of the shower, under ideal conditions if the radiant is directly overhead is 18. Unfortunately this year the moon is waxing gibbous and will interfere with the display.

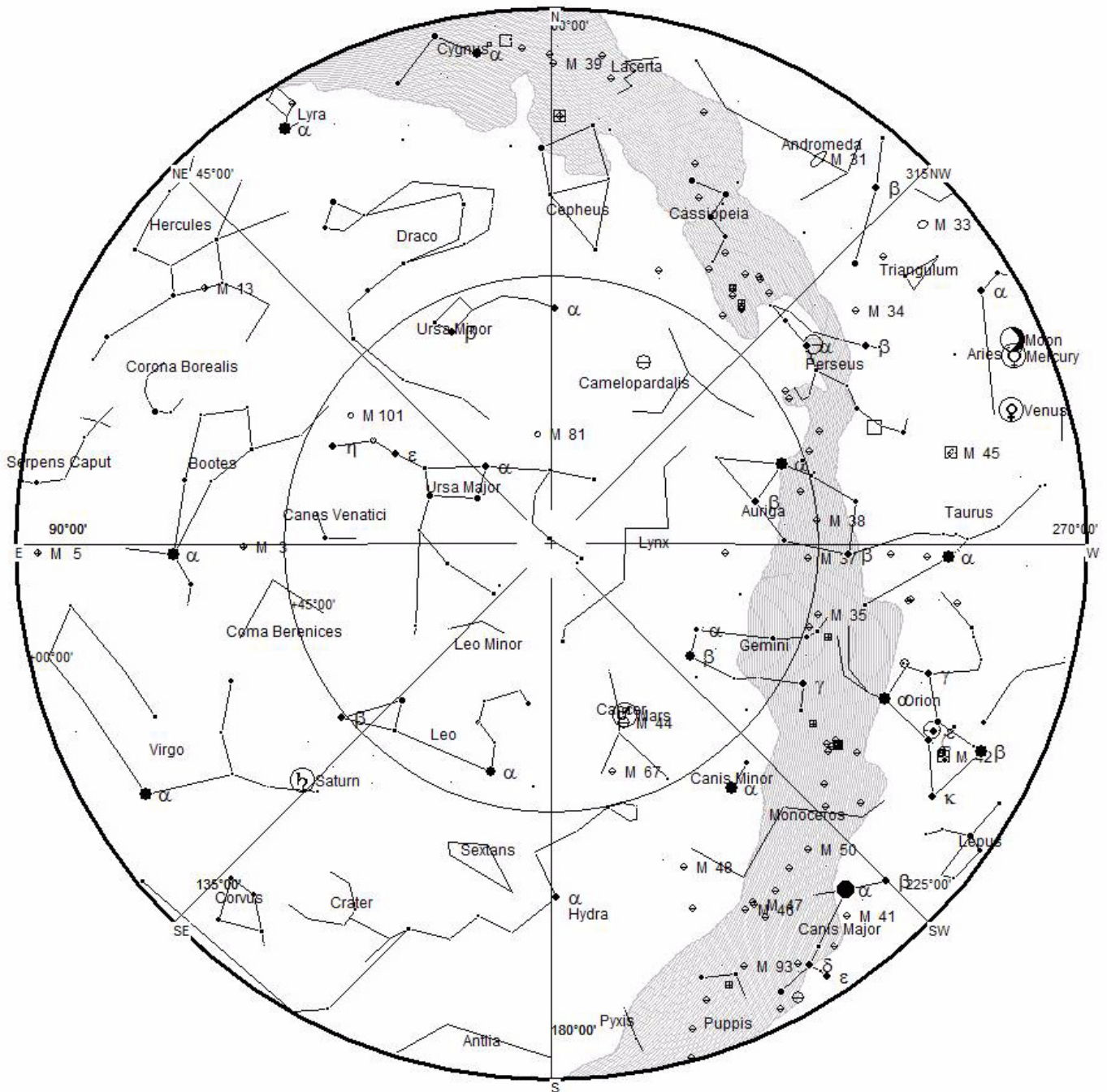
Asteroid Vesta is still visible crossing the sickle of Leo. For the first part of the month its motion is quite sedate but it gathers pace in its easterly track during the last fortnight. Its brightness slowly fades from magnitude 6.1 to 6.4. If you have never seen an asteroid before now is a good opportunity, Vesta is quite bright and in a well known area of the sky with few stars of similar brightness making identification relatively simple. The finder chart shows progress throughout the month and also indicates the brightness of some the nearby field stars.



Asteroid Vesta crossing the sickle of Leo during April

Peter Burgess

This Month's Sky Map



View from Newchurch Isle of Wight UK - 2100hrs - 15 April 2010



The Lyrids are a strong meteor shower lasting from April 16 to April 26 each year. The radiant of the meteor shower is located in the constellation Lyra, peaking at April 22—hence they are also called the Alpha Lyrids or April Lyrids. The source of the meteor shower is the periodic Comet C/1861 G1 Thatcher. The Lyrids have been observed for the past 2600 years.

This article is licensed under the GNU Free Documentation License. It uses material from the Wikipedia article "Lyrids"

Starting as a Stargazer - Finalé?

After my first year as a stargazer, I am summing up its pains and pleasures.

Down among the pits has been the weather, of course: weeks of ceaseless rain, or, maddeningly, fine days which end up in cloudy nights. Equally annoying: headlights, bathroom lights and overpowerful porch lights. The site can be frustrating, with houses, trees, radio masts, telegraph poles and chalk downlands taking up the sky, so that sometimes I seem to be peering at the universe through a keyhole. Then there are the gadgets, including the mount which quivers neurotically in the slightest breeze, the red dot pointer which mysteriously vanishes and comes back if it feels like it, and the Sky Align goto which quite unreasonably expects me to know what the time is. And goodness, my bones get cold.

So what's kept me out there? First, the pleasure of seeing for myself, finding my way around the sky and using the available equipment to its best. I want more sessions like one I had in August, a long observation of Jupiter and its moons on a night of good seeing, when with my small telescope I could not only see the moons' transits, but even begin to distinguish cloud patterns on the planet and the different surface colours of Ganymede and Europa.

But there are other, sometimes surprising, pleasures. Some plants like pittosporum seem only to have a scent at night, and even roses smell different. I've seen bats and newts and a fox and weirdly nightflying birds. I also failed to see some creature that stomped and snuffled through the garden one night sounding like a small horse (I might have seen it, but I started to giggle and it hid).

Observing Saturn is always special, too - for me it's the actor with stage presence, the scene-stealer, the one you look at first and remember longest. And then there is the darkness, silence, one in the morning. And summer dawns.

What am I thinking about for my second year? Telescopes: their shapes are intriguing, their possibilities tantalising. I ruminate about buying the next one, itching for a better image of things which are just not *quite* visible with my baby scope. Should I be worried? Am I already struck with aperture fever? But it's quite reasonable really. After all, I haven't even seen all the planets yet, or had the chance to look through a solar telescope. I've never seen the Cassini division, the Red Spot, or the International Space Station, and hardly any nebulae or galaxies. I may even learn to love globular clusters - at present I think of them as the muchnesses of astronomy, but perhaps they will grow on me one day.

It's all out there. I just have to put in the hours.

Rebecca Mitchelmore

Garlic Festival

Members of VAS have helped with marshalling at the annual **IOW Garlic Festival** for quite a few years now. The event is one of our largest fund raising opportunities as we are paid for our efforts.

This year's Festival is on the weekend of the **14th and 15th August**

and Richard Flux is keen to hear from members who can help at any time over the weekend.

Please contact Richard at treasurer@wightastronomy.org

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Part 5 Understanding Arecibo

I would imagine that if you worked at the Arecibo telescope, you could easily become so absorbed in this fantastic project that the terrestrial world would shrink in significance. Despite being near to the coast in tropical forest 12 miles from Arecibo, this is the Mount Everest of radio telescopes.

Size: Searching the IoW with dividers set to 305 metres on an OS map, I found that the Arecibo dish would fit snugly between the rocks each side of Freshwater Bay, Fig.5.1. Its diameter is about half the length of Ryde pier. Since the speed of light is 300 metres per microsecond, the dish is close to 1 light-microsecond across.

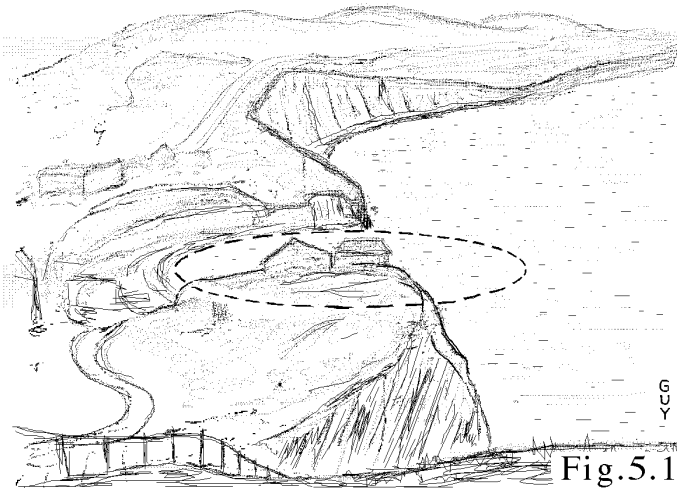


Fig.5.1

Location: Since Puerto Rico is at 18N and the cosine of 18 is 0.96, then the Arecibo telescope whirls around a longitude circle 0.96 of the diameter of the Equator with speed 441 m/s. (Cape Kennedy at 28N adds 410m/s to the easterly velocity component when launching satellites.) Arecibo is in the northwest of Puerto Rico, an island four times longer than the IoW. San Juan the capital has a large expanding university.

Engineering: Faith Jordan is correct - you notice things when you sketch - it's also an essential practical scientific skill. Looking at many pictures¹, I wondered - have I put enough geometric data into Fig.5.3, to draw a ray diagram? (yes, shortly). 1µS is a long time in electronics, and given the physical size of the dish and cable attenuation, the receivers need locating close to the suspended aerials near to the dish focus. There's a 1 Megawatt radar transmitter up there too, for bouncing pulses off planets, asteroids, comets and the Moon, demanding a heavy electrical substation. The platform, weighing 900 tons, is supported from three towers by cables. This radio telescope, built between 1960 and 1963,

is perhaps the most usefully enduring memory of the 'swinging sixties'. Looking at the construction photos¹, I peered at some blackboard sketches in a site hut where engineers are clearly up to the eyeballs solving tricky problems *on the spot*.

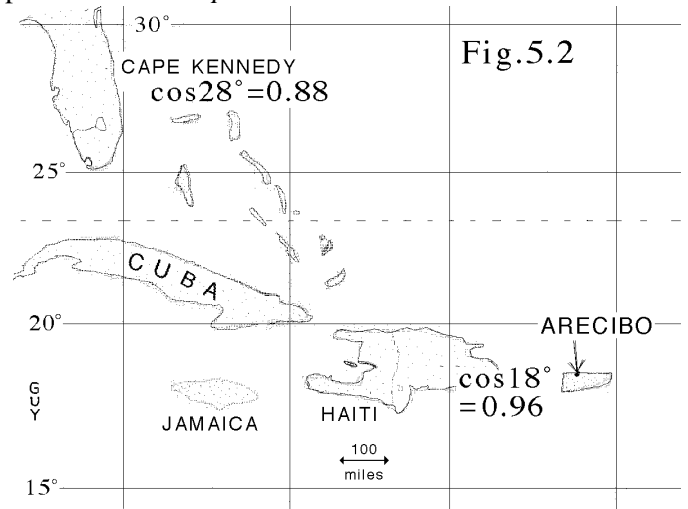
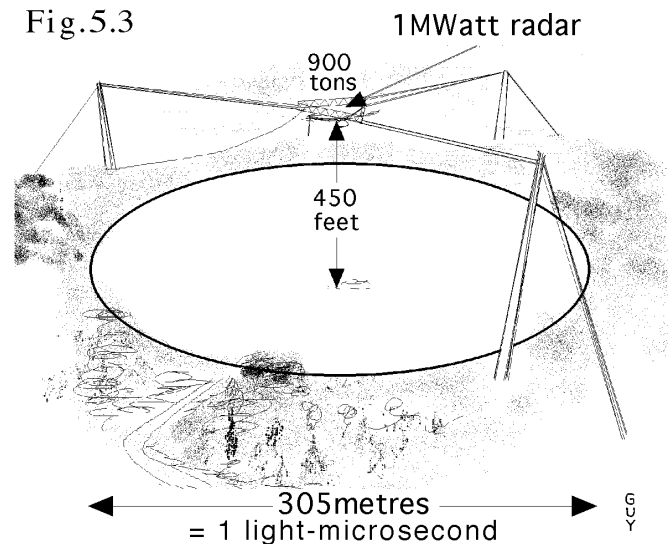


Fig.5.2

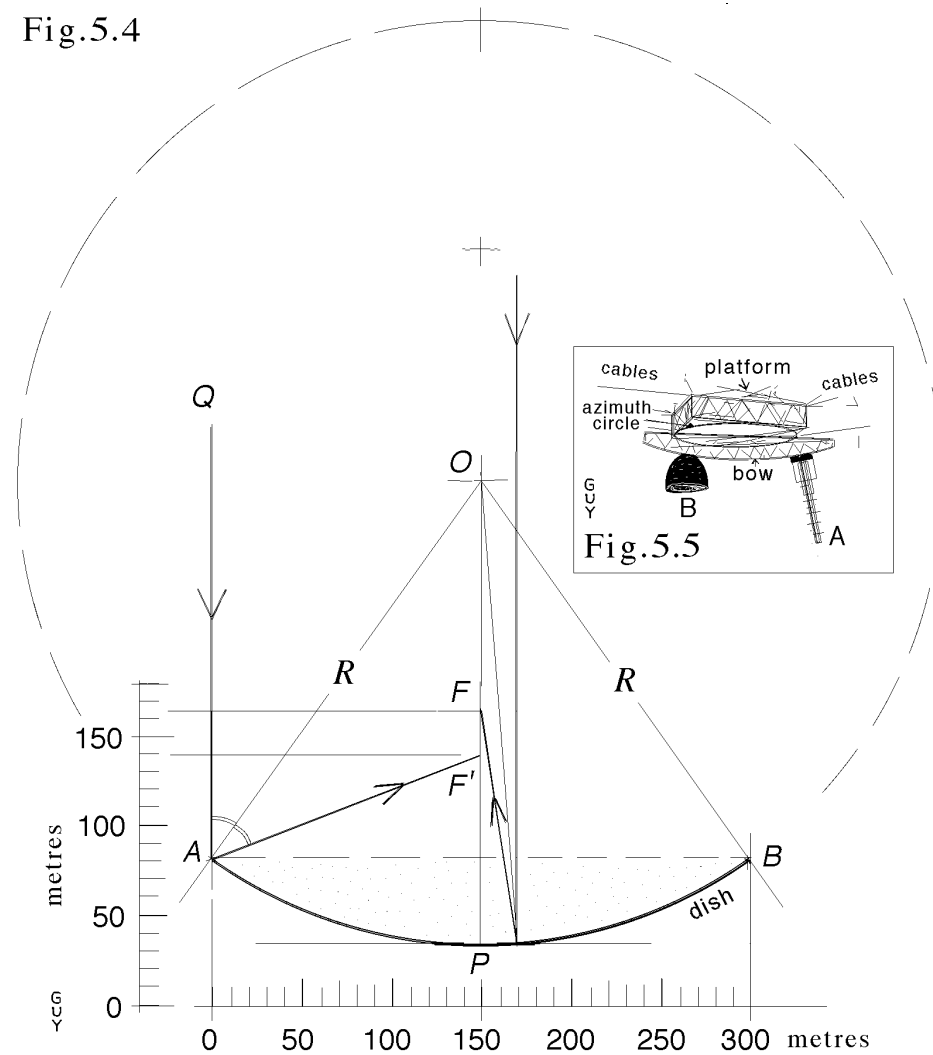
More questions: So what happens when the Sun comes out, the heated cables lengthen and the platform descends? - this challenging problem is solved by 3 vertical cables, from the triangular platform's corners, to servo-jacks - they must be constantly chattering - attached to concrete blocks beneath, maintaining platform height to 1mm accuracy. The fairly horizontal suspension cables, of consequent huge tension, must be to combat sideways wind forces. A pedestrian walkway leads up the service cables, similar to cable walkways on suspension bridges. I wonder about any radio side-lobes of the dish caused by stray reflections and how these can be minimized, and what happens if a flock of geese flies through the waves.

Fig.5.3



Ray diagram: The surface of the dish is spherical, not parabolic, so the received beam is steerable ±20 from the vertical by moving the suspended aerials sideways (more details below). Radio obeys the reflection rules of optics, so the focal length of the spherical surface is half the radius of curvature *R*. The platform height of 450 feet, must be close to half of *R*, so in Fig.5.4, I've marked a dashed circle

Fig.5.4



of radius R , centre O . P is the dish mid-point and F is the focal point for the vertical ray close to OP .

The vertical ray QA reflects at A , the dish edge, passing through F' about 20 metres below F . This amounts to 'appalling spherical aberration', but radio allows things to be done, impossible in optics.

Wave collection: Everybody must be familiar with the yagi TV aerial, made of several rods. Slung beneath the Arecibo platform is a huge bow shaped girder (328 feet long, it would just span the Medina ferry crossing at Cowes), it turns on an azimuth circle, see Fig.5.5 (inside Fig.5.4, deliberately small otherwise there's far too much to discuss!) After aiming a radar pulse at a celestial target, obviously the aerial is adjusted as the Earth turns, ready to receive the reflected pulse, possibly hours later.

Attached to the bow, I see two aerials, labelled A and B in Fig.5.5. Aerial A looks like a giant yagi - but of course it's different because you wish to receive signals from the whole dish, not just from a patch - how would I solve this problem?

In Fig.5.4, place a half-wave dipole aerial, 10cm long (tuned to the hydrogen line at 1420MHz) at point F where it receives signals focussed from the bottom of the dish. A similar dipole at F' , 20m below, would receive signals focussed from the edges of the dish. Now take a fibre-glass pole of length FF' , attach more dipoles along it, parallel to the axis, each with a feed cable, to receive signals from intermediate parts of the dish. Cut the feed cables to the correct lengths to bring all the signals into phase and combine the lot at the receiver - signals arriving from space as a parallel and fairly coherent beam are now picked up from all over the dish, adding up in strength.

You can't do this with optics at this scale, light isn't coherent. With optics you're adding amplitudes without thinking too much about phases, like a lens focusses the Sun's rays onto tinder to start a fire.

What about polarization? - okay, mount the dipoles perpendicular to the fibre pole, add another set at right-angles, shift the phase by 90 degrees (by adjusting feed cable lengths) and combine the lot to make circular polarization, preferably including

polarization measurement. This is *how I imagine* the system basically works. Now another puzzle...

The 'Gregorian Puzzle': Arecibo is referred to as 'Gregorian'. Checking the optics books, this refers to a system where rays from the primary mirror meet at the focal plane, diverge beyond the focus and are reflected by a *concave* secondary mirror. A Cassegrain telescope has a convex secondary mirror the light being reflected before coming to a focus. But the bow in Fig.5.5 is *convex* - I'm not sure what's going on, I'm still looking at it - you can always say **there's a lot more to a radio telescope than meets the eye!** But perhaps I've supplied enough basic gen to answer why there are three supporting towers and not four at Arecibo - this led to a discussion about 'levelling screws' with my brother Richard and earthquake protection - he showed me an optical system using four.

Reference

1. <http://www.naic.edu>. The Arecibo Observatory is operated by Cornell University in cooperation with the National Science Foundation.

Dr. Guy Moore

2010 Star Party Reports

The Ranger...

The Ranger was privileged to get an invitation to a special party on the Isle of Wight this weekend.

Astronomy enthusiasts from across the south-east of England know that the south-west part of the Isle of Wight has some of the darkest skies in the region - and because of the nice weather it also has the advantage of a good chance of a clear sky.



Leo Triplet from iowstarparty with Televue Genesis

© Richie Jarvis @richiedeepsy

See full size image here - worth looking at

Brightstone holiday camp on the south-west coast has a great outlook over the unlit English Channel, and the bulk of the downs to prevent the light from the mainland leaking over. It really is pretty dark down there so I was delighted when Dr Lucy Rogers of the Vectis Astronomical Society used Twitter to invite me to come and see this important part of the Island's natural resource for myself. This was no public meeting either, a star party is where the astronomers are on their own territory - so as a neophyte I was lucky to get such a well-qualified guide to introduce me to this extraordinary event.

I brought along as companions Cat and the junior Rangers Bill and Jack, all of whom like me were intrigued to find out what it was about. We'd had strict instructions about how to arrive without our headlights shining over the fields, and when we did roll up we were amazed to see the whole holiday camp was in darkness, except for a very few dim red lights scattered about. As our eyes adapted we realised that there were many dozens, if not hundreds of

people there, with a huge variety of astronomical equipment pointed up at the sky. Astronomers obviously learn soon enough the etiquette of social interaction in near-darkness, and the vital importance of not tripping over guy-ropes and tripod stands. We were in sore need of such instruction, so luckily our hosts soon came over and explained how it all worked: then an amazing tour began.

It's hard to describe the excitement and mystery of a star party. Doubtless seasoned astronomers take it all in their stride but to me there was a delightful element of the theatrical in this twilight world. Having not seen the site or met the people in daylight, we had no idea what or who to expect. Dr Lucy and her partner Stephen proved to be the ideal guides - we felt very privileged to be given the VIP treatment as we were taken round to meet the astronomers set up around the camp, and picked up a few other Twitter-based visitors as we circulated. We also got some top-class astronomical coaching from talented science writer Dr Lucy who had an uncanny ability to enthral her little audience without even being able to see them. Several times we had to be called away from some exposition of hers for the inconvenience of actually looking through a telescope to see the real thing. At the risk of starting the sentence with "I've seen things you people wouldn't believe" I saw with my own eyes the glowing dust clouds in the Orion nebula, four moons of Saturn around their beaming parent, the arc of the Milky Way and much more.

Later on we visited the 'imagers' - astronomers who use long exposures and careful tracking to take pictures of things the eye cannot see, such as the massive pinky-red Rosette nebula and the three galaxies in the constellation Leo known as the Leo Triplet - the very image we saw being created by imager Richie Jarvis is at the top of the page.

Eventually the younger members of the party began to succumb to the cold, and maybe the thought of a cosy bed; so we had to reluctantly drag ourselves away. As we picked our way carefully through the darkened camp young Jack - who within 5 minutes would be sound asleep in the warm car - was still talking excitedly about Saturn. "That was the most amazing thing I have ever seen!!" he said, without hyperbole. We older ones were too cool to speak so plainly - but he was right. Here's an entire arena of the natural world that can rival any biodiversity for the 'wow' factor - and as ever, the best place to see it is right here on the Isle of Wight.

This article is posted with permission from:

http://naturenet.net/blogs/index.php/2010/03/15/the_isle_of_wight_star_party

Richie.....

First - I must say a huge thank you to Stephen, Lucy, Bill, Clive and Sue for once again exceeding our expectations and providing a truly wonderful Star Party venue and skies - great job guys and gals!

What a week though - a great holiday - clear skies every night (although Thursday and Friday clouded over) - great people, great scopes and a fun time. It was a shame Emily didn't get to come over, but lifes like that sometimes. Gini coming over was also a real bonus as well - spending time with my beautiful wife AND doing Astronomy at the same time - thats my idea of heaven :)

Highlights of my week?

It was truly a week of firsts for me. Owen's 20" Obsession has to take top spot - actually seeing M104 inc dust lanes with my own eye - fantastic! My first ever non-goto find of Messier 51 with Tony's Meade, and then sketching it - never done that before - it didn't even take me long to find it either (about 20 seconds - I was lucky!) Seeing Dan's grin after he got his guiding working - I think he didn't stop grinning for the rest of the holiday! That solar prominence as well - it was incredible - really glad Gini got to see it too - thanks v much to Stephen Green for setting up his Lunt.

Imaging wise, I was pleased with the results of the M65/M66/NGC3628 image - and it got retweeted by Maggie Philbin as well - how cool is that, eh? Talking of Twitter - that was taking news of the IoW Star Party worldwide, so it was a great outreach tool for all of us. Added to which, Iain, Stephen Green and I stayed up until dawn on Sunday/Monday - from about 20:00 when the skies clear until 06:00 - thats a first for me at least - seeing the sun coming up the next morning! Probably why I feel so tired this morning I suspect :) Still - I managed to get 3 hours on NGC281 (Pacman Nebula) and just over 3 hours on NGC6888 (Crescent Nebula) - always pleasing objects, and it was nice to update my catalogue with data from the Televue Genesis. I've uploaded the images to my flickr.com stream, so you can have a look there.

Crescent Nebula:

<http://www.flickr.com/photos/richiejarvis/4438206540/>

Pacman Nebula:

<http://www.flickr.com/photos/richiejarvis/4437430021/>

Leo Triplet:

<http://www.flickr.com/photos/richiejarvis/4438207114/>

Messier 51 Sketch:

<http://www.flickr.com/photos/richiejarvis/4438226658/>

Stupid things...

Well - ripping off the lead on my guidescope dew-heater in the door when I came out of the chalet - lesson learnt, I will take the time to put the dew band plugs further up the cable (so I no longer have trailing cables) - Telling MaximDL the wrong position for the Sii filter (so the NGC281 image is actually Ha/Oiii/Hb instead of Sii/Ha/Oiii - oops!) Ah well - can't have it all I guess :)

Right - and now the 'day after'... Ouch - tiling today - I promised Gini I would get on with the Bathroom whilst I recovered.... oops :) Still - not feeling too bad right now after a good nights sleep (I turned into a pumpkin at about 22:00.... and slept through until 09:00)

It was great to see old friends again, and make new ones - I think we have a lovely little family growing there, and I am proud to be part of it!

See you next year (if not before...) - Don't forget to listen to the next episode of 'Under British Skies' on Astronomy.fm - 21st March 2010 at 20:00 GMT - you might even hear yourself!!!

Richie Jarvis

Faith.....

I would just like to say a big thank you to everyone for a great weekend. I enjoyed myself (apart from nearly freezing to death in my tent!) and will be back - in a chalet!!! - next year.

Special thanks are due to Richie, for help with my tent in the rain and for making me a cup of tea and for the loan of the cable, Iain for the heater and for letting me crash on the floor on Sunday morning and to Owen for letting me share the Obsession. And, not forgetting the organisers, Lucy, Stephen and Bill.

Ok, before this starts to read like an Oscar acceptance speech, the highlights were seeing M42 in detail I have never before seen and seeing the Horsehead for the first time. There were no downsides, apart from my disastrous domestic arrangements - solely a result of my own stingeiness and bad planning.

As soon as 2011 calendars are available, IWSP will be pencilled in for next year.

Faith Jordan

Tim

A big thanks to all of you at the Isle of Wight Star Party 2010.

This was my first ever Star party and was delighted at the warm welcome from both the organisers (Lucy, Stephen and Bill I think) and fellow astronomers. Being a beginner with probably the cheapest telescope there (Skywatcher 130p on SynScan Alt/Az mount) didn't make any difference. There was plenty of welcome advice and the opportunity to look through other people's scopes. I was 'chuffed' at the positive opinion of my beginner's gear and found my self demonstrating my scope's GoTo to a party of people being shown round by Stephen on Saturday night. I now realise what a dark sky really means!

The talks, Bring 'n' buy and trade stands all added up to a brilliant, if chilly, weekend with a great bunch of people.

Tim Blackburn

Owen..... (Part 1)



Photo Credit: Faith Jordan

Just a note of what objects that were seen with the 20" despite its attempt to scupper things by getting tangled up on Sunday night. Most if not all of these observations were made with the 8mm, 13mm and 21mm Ethos giving powers of 318x, 195x and 121x

Solar System

Mars – well seen on Thursday night as the seeing was steady with the Polar cap being easily visible as well as dark markings. I felt the seeing was not so good on the other nights as Mars was more of a fuzzy ball

Saturn – the rings are opening slowly but again Thursday night saw the best views with bands on the planet and the ring shadow as well. There were lots of moons but I did not track down which ones were seen

Comet C 2007 Q3 (Siding Spring) – despite being in the light pollution in the North this was pretty easily seen with a brighter nucleus and some semblance of a tail

Comet 81/P Wild – This was quite cute although low down and showed a distinct elongation that I am going to assume is a tail

Diffuse nebulae

M42 – awesome views of M42 and M43. I am not sure if I have seen the striations on M43 that clearly before

NGC 1275 – running man obvious nebulosity seen early before Orion sank into the murk

M78 – again fine views of this reflection nebula with the main nebula showing structure and the associated NGC nebulae showing up as well

NGC 2174/5 nice cluster with nebula. Lots of detail in seen in the nebula

NGC 2261 – Hubble's variable nebula showed up well

Rosette – stunning as always with lots of detail
 NGC 2359 – Thors helmet. Both parts of the helmet visible but only glimpses of IC 468 below it
 Veil – poor as was too low and in the murk

Clusters

Not my forte but we saw some nice open and globular clusters

M35 and N2158 nice views but M35 really too large for 20

M47 - again not really small enough for 20"

M3 – one of my favourites and a nice view

M5 – again stunning

M13 – there more as a comparison shot

Palomar 4 – finally!! This one has eluded me for sometime but on the Saturday night was quite easy

Planetary nebulae

Where to begin!

In Orion I looked at NGC2022 which was a nice disk but I did not really put the power up enough and J320. This is a small and pretty much stellar object.

Gemini

NGC 2392 lots of detail with the parka and face showing well. One day I need to learn to draw to capture the detail

NGC 2371/2 – also known as the Peanut nebula this one showed a strong double lobe but no other obvious structure

J900 – another stellar PN but this showed slightly more of a disk with the 8mm

Abell 21 – this was a nice view of this classic planetary with the upturned bowl shape showing stronger than I have seen it before. Need OIII filter

Pup

N2438 in M46 this one looked extremely nice, even without a filter. I should perhaps have tried for Mink 1-18 nearby

Hydra

N3242 – this is a fine PN with lots of internal detail

Abell 34 – skunked again

Lyr

Early in the morning this rose enough to have a look at

M57 – always good although I was too tired and it was a bit low to find the companion galaxy

N6765 – often overlooked this PN appears as a faint streak rather than a disk

Minkowski 1-64 – this was a lovely little disk with the filter in. One of my favourite objects

Lyn

Jones-Emberson 1 – also known as the headphone nebula this was good in the sense that it was visible but not the best I have seen it. Needed OIII filter

UMa

Yes its M97 time again. The view with the 13mm was particularly good and I believe I saw both eyes

Vir

Skunked by IC972 – too low and I needed to wait up until it got higher but I had to drive home the next day

Although this seems a lot and is when you take into account part 2 on galaxies this is all helped by using the Argo Navis as digital circles so it is easier to find than by star hopping. Note: a number of these objects were of course seen multiple times as people drifted by and requested them.

Owen Brazell

Owen..... Part 2

Obviously being galaxy season most of the time was spent observing galaxies. Amongst the highlights were observing M83 between the chalet roofs (not really but not far off).

M65 and M66 were good but the detail in 3628 impressed me more with the dust lane showing a distinct warp. N2903 in the top of Leo also showed great detail. I was very impressed with the number of galaxies in the N4005 group. This one has significance to me as it was one of the first objects I saw at TSP 20 years ago. I also observed Hickson 57 and counted at least 4 galaxies in the group and possibly 5, I should have used higher power I think.

M51 was as always staggering when this high although I was disappointed with M101 (I think it never left the light pollution of Portsmouth)

M10 and M106 were also fine as was the Whale and calf (4631 and 4627) The nearby Hock Stick galaxy also showed why it was called such (n4656) with the curve showing very well.

Abell 1367 was also seen well with many galaxies. I tried for Abell 2065 (CrB Cluster) and believe I saw it with a graininess in the field that tied in with images of where the galaxies are.

A request to look at N2683 showed a nice edge on spiral and although no detail was visible in terms of arms it did have a much thicker middle and looked to me more like a lenticular galaxy.

Virgo was a treat and I spent a lot of time just following chains of galaxies out from M84 and M86 as well as investigating the area around M49. It is very easy to get lost in that area and I think a decent finder chart is needed to identify all the galaxies seen.

The antenna in Corvus (N4038/4039) was also observed although it was quite low the distinct double lobed shape was easily seen. I did track down M100 but it was a relatively disappointing view just seen as a haze with no spiral structure.

I did miss off from the first report that we also saw the Horsehead in Orion early using the 21mm and a H-Beta filter. It was relatively easy to see if you know what you were looking for but faded into the murk quite quickly over the observing run. This meant that n2024 and 2023 were also seen in the general area.

Owen Brazell



PST View by John Axtell

James.....

I very much enjoyed the IOW star party and finding numerous galaxies and the two comets, and being able to see so much detail in them.

Some of the galaxies were; M81,82,108 and 109 plus NGC 3077, 2976, 4036 and 4041, 2841, 3184 in UMr. M101 was dissappointing as is so often the case.

Leo trio was superb as is NGC2903. Also 3607/8 found when doing the 'wrong' star hop to Leo trio early on.

Found couple of bright blobs hunting the sliver of light that is NGC4565 in Coma. Think they were NGC4725 and 4559. M64 was bright with a dark 'bruise' under the core.

The antennae galaxies in Corvus were the best I have ever seen and the top one (viewed through the eyepiece) looked like a tadpole with the other much thinner, longer and curved.

First view ever of M83 although I have attempted it many times.

M63 in CnV showed mottling away from the core and the Whale 4631 and hockeystick were impressive.

The sky quality allows us to see much more structure in these objects than my usual observing sites and it only serves to fuel my enthusiasm for hunting faint fuzzies.

M13 was just visible naked eye, proving the quality of the sky here. Also nice to see the winter milky way dropping well below Sirius, with the naked eye.

I am not so well versed in planetaries and Globulars but the view of M68 with the planetary in the foreground in the 20" was simply awesome.

James Gordon

Stephen.....

I think I've just about caught up on things after this years event - thanks to everyone for attending and I'm glad that everyone enjoyed themselves. Some of the pictures and comments we've had back make it worthwhile putting the time and effort into it. There must still be more photos out there though - post them in the photos section or somewhere where we can all see them please (and yes, I'm guilty of it - I haven't posted mine up yet!)

I was on site today talking to Sue about this years, and next years events. I'm still amazed at the time it takes arranging these things - but we have the dates - 3rd to the 7th of March 2011.

The place looked quite empty without astronomers everywhere and the other night when I drove past it looked like Crystal Palace - okay they had half a dozen lights on - but it wasn't dark as it is for the event.

If you are thinking of going to the Isle of Wight Star Party 2011, because it's now becoming so popular you may find it better to book with a friend and share the room - I don't know how we'll allocate the accommodation next year - or how much there will be. For the past three years we have simply asked for expressions of interest - which doesn't commit you to anything, before passing them on to Brighstone in January and letting you know you can book. You then have about a week before they're opened up to everyone else. I expect we'll keep a similar arrangement for next year, but you'll be helping us to help you if you go with a friend and share a twin room (or a double ;-)).

If you are interested in going next year email your details and what you're after tent, double/twin room with shower, double/twin self catering for two people, four people or six people to bookings at iowstarparty.org and we'll add you the list. It makes it easier for us to find requests that way (searching through one email address - not three) - Bill, Lucy and I have enough to do with real jobs as well. If you could add if you're an imager or a visual observer it would be interesting for us to see the split please - or anything else you think we'd be interested in knowing.

Thanks again, Stephen Griffiths

Raffle Results

Thank you to everyone who bought raffle tickets, and many thanks again to the companies that supplied the prizes. The raffle was drawn on Sunday 14th March, and the winning ticket numbers are below, if you've won, and don't yet have your prize (there are a couple of you!), email me and I'll get it to you.

Prize	Donated by	Ticket
VMC95L Catadioptric Scope	Opticon/Vixen	Or. 227
Revelation Photo-Eyepiece & Filter Set	Telescope Planet	Bl. 980
20 x 80 Binoculars with tripod	Astronomia	Or. 91
Eyepiece set - in Orion waist case	Widescreen Centre	Or. 112
10x50 Binoculars	John Clark Observatories	Or. 122
10x50 Binoculars		Bl. 942
Subscription to Astronomy Now Mag.	Astronomy Now	Or. 107
Hubble Reborn Book		Bl. 986
The 3D Universe Book		Bl. 974
Mounting Rings	Astroparts	Bl. 915
Shrouds of the Night	Springer Books	Or. 150
The 6 inch Lunar Atlas		Or. 175
Telrad sighting scope	BCF/Meade	Or. 164
Digital compass		Or. 218
Red multi-LED torch		Or. 88
10x50 Binoculars	David Hinds/Celestron	Or. 145
Filter Set	Orion Optics	Bl. 933
<i>Tickets: Or=Orange Bl=Blue</i>		

Clear Skies, Lucy Rogers

**Hopefully we will have
more images from the
Star Party in next
months NZ**

Deep Sky Observing & Sketching

by Faith Jordan, member of the VAS
Lecture Notes of 26 February 2010

Lucy Rogers opened the meeting, introducing the speaker. Not 'till Wednesday did Faith suddenly remember she's giving a talk on Friday. Faith apologized in advance if the talk lacked polish or became rambling - on the contrary, we were guided on an entertaining personal tour of the universe with sketches made in Australia, Texas and the IoW.

Seeing in the dark: This is really about "learning to see in the dark". If you make sketches, you appreciate things in a different way from imaging. "You can really get into an object and see things which you wouldn't normally notice. It's fun, it's easy, doesn't cost much and you don't have to be a Rembrandt," says Faith.

The equipment is a telescope or binoculars, a sketch pad or paper sheets on a clip board, pencils from HB to 4B in softness, a 'smudging stick' (costing 99p), and something circular. Imaging is not Faith's cup of tea - however, a cup of coffee with a lid provides a device for drawing a circle three inches in diameter, representing the field of view. Within this field, selected patches of the universe spring to life using pencil on paper, illuminated with a red torch so the eyes retain their dark adaptation.

Filters: For planetary nebulae, an "oxygen filter" helps - nothing to do with oxygen on our planet - distant nebulae contain doubly-ionized oxygen atoms, emitting light at a particular wavelength revealing structure which the filter lets you see. An ultra high contrast (UHC) filter gets rid of sodium street light. A more specialized filter helps when sketching the Horse's Head nebula in Orion. Faith uses sky atlases like the *Sky & Telescope Pocket Atlas*, or the *Night Sky Observer's Guide* in two volumes.

Work begins: The main stars in the field of view are marked in the sketch, and then work begins on the object which could be a planetary nebula, an edge-on galaxy, a galaxy cluster, or a dark nebula seen against brighter light. M13 contains "what looks like a ship's propeller" - so as your pencil marks the shadowy shape, it becomes a challenge to make the drawing duplicate what you see. An 'eraser shield' allows selected alterations as you match the sketch to reality. If the night is dark and your optics very clean, Pleiades exhibits nebulosity. One galactic patch of scattered light contains a "mysterious footprint". Galactic dust lanes give lots of rewarding pencilling experiences.

Personal notebook: Added to the fun of sketching, is a notebook, not only for recording essentials, like date, time, location, cloud cover and state of the Moon, but other things too - like if an inquisitive fox joined in the fun. And so the notes keep alive memories of distant places, like a Texas evening with wonderful people. Despite the recent bad weather, 33% of the nights here on the IoW this year have been suitable for sketching, but sometimes this data comes just from glimpsing the heavens when letting the dog out. When humidity is high, light from the Moon is

scattered more here than in dryer places like Australia. In Texas, through a 48-inch telescope, Faith studied a planetary nebula containing greys, blues and greens, with pink edges. Whether an object has fuzzy or sharp edges, or if the stars can be resolved and are granular, like spilt sugar, or compact like smoke wisps, are recorded too. Another item is 'sky steadiness' and 'transparency', judged by glimpsing our local planets and their shimmer.

Books and Websites: Faith recommended various books and websites:

Night Sky Observers Guide, Kepple and Sanner.

Deep Sky Wonders, Walter Scott Houston

The Deep Sky, an Introduction, Philips Harrington

Deep Sky Observer's Guide, Neil Bone (particularly)

www.cloudynight.com

www.perezmedia.net/beltofvenus

www.andreas-domenico.de

Catalogues: Faith discussed the Messier catalogue, constructed as 110 objects *to avoid* when studying comets, but Messier is remembered more positively because "they make very easy deep sky observing". Faith uses the NGC catalogue too, plus more advanced catalogues giving Hickson galaxy groups, Abel planetaries, the Arp peculiar galaxy and so on.

The sketches Faith makes are negatives, pencil on white paper, but can be scanned into a computer and inverted in 'Photoshop'. "One picture can be worth a thousand words", says Faith. Her final simple rule is - "HAVE FUN!"

Summarized discussion:

Q: "The apparent size of an object depends upon equipment - so how do you specify size so comparisons can be made with other persons making sketches?"

A: "We record our equipment, like an 8-inch scope with 25mm eyepiece. On 'televue.com' you can enter telescope data and it gives the magnification."

Q: "How do you record brightness?"

A: "From the known star magnitudes nearby we can make comparisons."

Q: "What does 'Deep Sky' mean?"

A: "Everything beyond the heliopause, roughly everything outside the solar system."

Q: "In Australia and sketching Omega Centauri, how long did the sketch take and did you experience eye strain?"

A: "About an hour, and no, not really."

Q: "Looking at a dark nebula, how do you know you aren't looking through a hole into black space beyond?"

A: "Woof - good question - from the catalogues!"

Faith is currently doing a project into how much you can see with 8x42 binoculars and is working on a **new edition of her book** on deep sky observing and sketching.

Dr. Guy Moore

THE BACK PAGE

LINKS, COMMENTS AND OBSERVATIONS

News and Events

Under British Skies

A view of British Astronomy, with News, Views and Interviews. Third Sunday of every month at 20:00. at <http://www.astronomy.fm/radio/under-british-skies>

This month we will be discussing the UK Star Party scene. Dr Lucy Rogers from the Vectis Astronomical Society will be telling us all about the Isle of Wight Star Party. Iain and Richie will be talking to the Astronomers at the Isle of Wight Star Party to see if the weather was kind, and what we got to see.

Also, Dr Stuart Clark will be giving us an update on the recent Mars Express flyby, and not forgetting Nick Howes new feature Kit Bits.

You can catch us on Astronomy.FM on the 21st March at 20:00 GMT - come along to the chat room during the show and join in! Alternatively, you can download the latest Under British Skies episode from the Astronomy.FM website

Richie Jarvis - www.astronomy.fm

Black holes may hint at the nature of dark matter

About 23 percent of the universe is made up of mysterious dark matter, invisible material only detected through its gravitational influence on its surroundings. Now two astronomers based at the National Autonomous University of Mexico (UNAM) have found a hint of the way it behaves near black holes.

In the early universe, clumps of dark matter are thought to have attracted gas, which then coalesced into stars that eventually assembled the galaxies we see today. In their efforts to understand galaxy formation and evolution, astronomers have spent a good deal of time attempting to simulate the buildup of dark matter in stars.

The UNAM astronomers, Xavier Hernandez and William Lee, calculated the way in which the black holes found at the centers of galaxies absorb dark matter. These black holes have anything between millions and billions of times the mass of the Sun and draw in material at a high rate.

The researchers modeled the way in which black holes absorb dark matter and found that the rate at which this happens is very sensitive to the amount of dark matter found in a black hole's vicinity. If this concentration were larger than a critical density of 7 Suns of matter spread over each cubic light-year of space, the black hole mass would increase rapidly, engulfing such large amounts of dark matter that soon the entire galaxy would be altered beyond recognition.

"Over the billions of years since galaxies formed," Hernandez said, "such runaway absorption of dark matter in black holes would have altered the population of galaxies away from what we actually observe."

Their work therefore suggests that the density of dark matter in the centers of galaxies tends to be a constant value. By comparing their observations to what current models of the evolution of the universe predict, Hernandez and Lee conclude that it is probably necessary to change some of the assumptions that underpin these models — dark matter may not behave in the way scientists thought it did.

<http://www.astronomy.com/asy/default.aspx?c=a&id=9686>

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.



Quotations

"Science is simply common sense at its best that is, rigidly accurate in observation, and merciless to fallacy in logic"

*Thomas Henry Huxley
(1825-95) English biologist.*

"Those who are not shocked when they first come across quantum mechanics cannot possibly have understood it."

*Niels Henrik David Bohr
(1885-1962)
Danish physicist.*