

Society News

I am sorry that this month's is a smaller NZ but I have been extremely busy with work and a few other diversions. We are down to just eight A4 pages this time but I hope to be back to the usual twelve next month. If you have something to say about VAS or astronomy in general please let me know and I'll do my best to include it.

Observatory Changes

Work on the observatory (detailed last month) continues, at a slower pace than perhaps we had hoped, but the Acro props will be going up and the steel lintel will be fitted very soon. Then all that remains is to remove the old partition wall, add some plasterboard and make good. Sounds so simple when written but unfortunately, all this is happening around the start of Easter which is my busiest period at work so, sorry but delays are inevitable!

Recent Outreach Work

The observatory has recently been host to two groups from the Ist Northwood Beavers and there is another "colony" (*collective noun for beavers!*) due this Saturday at 17.00. Their ages range from about 6 to about 10 but, so far, they have been among the most attentive groups - last week's were the first ever to all know the order of the planets out from the Sun - in fact they treated me to a perfect group rendition when asked.

Mars Marathon

There was no tape draped across a finish line, but NASA is celebrating a win. The agency's Mars Exploration Rover Opportunity completed its first Red Planet marathon on Tuesday - 26.219 miles (42.195 kilometers) – with a finish time of roughly 11 years and two months.

"This is the first time any human enterprise has exceeded the distance of a marathon on the surface of another world," said John Callas, Opportunity project manager at NASA's Jet Propulsion Laboratory (JPL) in Pasadena, California. "A first time happens only once."

The rover team at JPL plans a marathon-length relay run at the laboratory next week to celebrate.

Read more at: <http://www.nasa.gov/>

VAS Website: 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

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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

Contents this Month

Society News	1
April 2015 Sky Map	3
April 2015 Night Sky	4
Has anyone got access to... ..	5
Search for extraterrestrial intelligence	6
Street Lights in Cowes	7
The Back Page	8

2015

Date	Subject	Speaker
27 Mar	Stars over the Nile - Ancient Egyptian skylore and observing	Bob Mizon BAA
24 Apr	Our Dynamic Sun	Helen Mason
22 May	Are We Alone?	Stephen Tonkin
26 Jun	TBA	Haley Gomez
24 Jul	Light - Astronomical Applications of Spectroscopy	James Fradgley
28 Aug	Astro Photography and AGM	Simon Plumley
25 Sep	Photographing the Aurora	Elizabeth Cunningham
23 Oct	EUCLID and the Expanding Universe	Tom Kitching
27 Nov	TBA	James Fradgley

Please check wightastronomy.org/meetings/ for the latest information

Telescope Training

Any member who would like training on the observatory Meade LX200 should contact **Barry Bates on 872979**

Observatory Visits Booked

None

It would be appreciated if members could avoid using the observatory at these times.

**VAS Contacts 2014/15**

President	Barry Bates president@wightastronomy.org
Chairman	Bryn Davis chairman@wightastronomy.org
Secretary	Vacancy secretary@wightastronomy.org
Treasurer	David Kitching treasurer@wightastronomy.org
Observatory Director	Brian Curd director@wightastronomy.org
Programme Organisers	Elaine Spear + vacancy progorg@wightastronomy.org
NZ Editor	Brian Curd editor@wightastronomy.org
Membership Secretary	Norman Osborn members@wightastronomy.org
NZ Distribution	Brian Bond distribution@wightastronomy.org
Others	Mark Williams & Nigel Lee

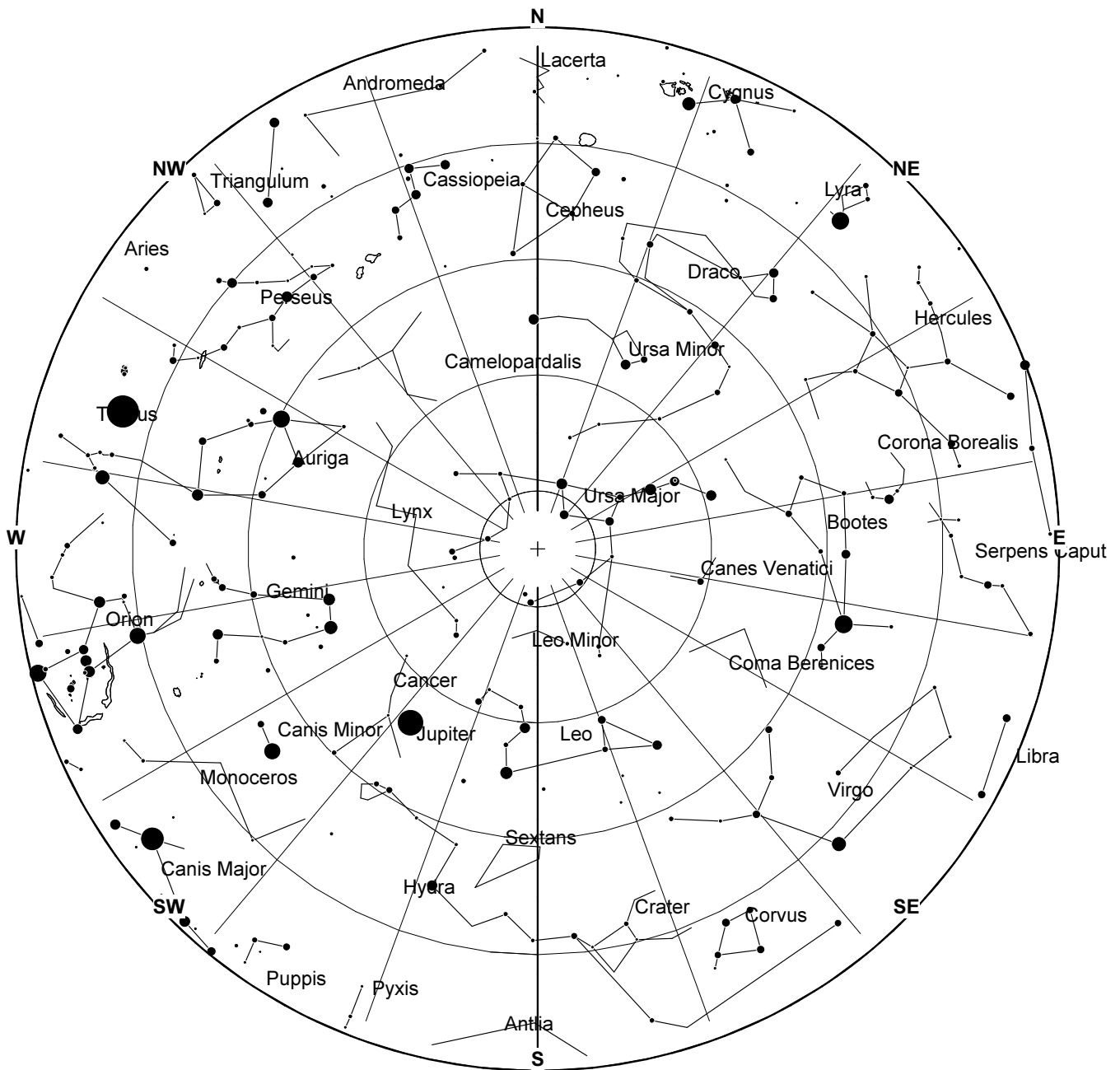
Important

Members using the observatory outside normal Thursday meetings **MUST** enter a line or two in the Observatory Log Book.

On several recent occasions, lights, heaters and the Meade LX200 have been left on!

When you leave the observatory please ensure it is secure and all lights, heaters and telescopes are **TURNU OFF.**

April 2015 Sky Map



View from Newchurch Isle of Wight UK - 2200hrs - 15 April 2015







NGC 5195 (also known as Messier 51b or M51b) is a dwarf galaxy that is interacting with the Whirlpool Galaxy. Both galaxies are located approximately 25 million light-years away in the constellation Canes Venatici. Together, the galaxies are one of the most famous interacting galaxy pairs.

The two galaxies are listed in the Atlas of Peculiar Galaxies as one of several prominent examples of a spiral galaxy with a companion galaxy. The system was also the subject of very early theoretical investigations into galaxy interactions. The two galaxies are connected by a dust-rich tidal bridge. The dust in this tidal bridge can be seen silhouetted against the center of NGC 5195. This demonstrates that NGC 5195 appears to lie behind the Whirlpool Galaxy

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It uses material from the Wikipedia article "NGC5195".

April 2015 Night Sky

Moon Phases

New	First Qtr	Full	Last Qtr
			
Apr 18th	Apr 26th	Apr 4th	Apr 12th

Planets

Mercury

Towards the end of the month Mercury starts its best evening apparition of the year. Look low down in the west northwest just after sunset, Mercury can be quite bright but is seen against a darkening, but still relatively bright sky.

April	Az	Alt	May	Az	Alt
20th	288	6	2nd	286.5	16.5
22nd	288	8.5	4th	286.5	17
24th	288	10.5	6th	286.5	17.5
26th	287.5	12.5	8th	286.5	18
28th	287	14	10th	287	18
30th	287	15.5	12th	287	17.5
Azimuth & Altitude Of Mercury At 20:30					

Venus

Venus can be easily seen in the west as soon as the sun leaves the sky. If you know where to look and the sky transparency is good it can be seen before sunset, but if you try, take not to damage your eyes, the safest way, which also helps to reduce the glare, is to make sure that you are in the shade and can not see the Sun.

Around the 11th Venus passes about 2° under the Pleiades star cluster.

Mars

Mars is too close to the setting sun to be visible. It will appear again in the morning sky later in the autumn.

Jupiter

After sunset Jupiter can be seen high in the southern sky and is available for observation for the rest of the evening.

Saturn

Saturn can be seen low in the south at about 4am. It is about the same brightness as the red giant star Antares.

Uranus & Neptune

Both the outer planets are too close to Sun to be visible until later in the year.

Deep Sky



NGC2903 Galaxy
RA 9h 32m Dec 21° 28'
mag 9.6

When comet hunting Charles Messier did not find all the fuzzy objects that could be mistaken for these elusive visitors to our skies.

There are many relatively bright galaxies that he could have put into his catalogue if his telescope had happened upon them. NGC2903 is one of these; commonly regarded as one of the best NGC objects for small telescopes it is a large almost face on barred spiral galaxy. This is a young galaxy with a much higher rate of star formation than our own Milky Way. In larger telescopes this activity can be glimpsed in the spiral arms which have a mottled appearance when viewed with averted vision.



M51 The Whirlpool Galaxy
RA 13h 30m Dec 47° 10'
mag 8.0

M51 together with its companion NGC5195 are one of the most famous galaxy pairs in the sky.

The spiral nature of nebulae was first observed in this galaxy by Lord Rosse with his Leviathan telescope.

The pair are easily seen today in small telescopes, and thanks to the intense star formation a medium sized telescope easily shows that spiral structure.



NGC5866/M102 Spindle Galaxy
RA 15h 7m
Dec 55° 44' mag 10.5

Is this really M102? Did Messier ever see this galaxy or was it all a great mistake, and just a duplicate observation of M101, perhaps we will never know.

An almost perfectly edge on galaxy, visually it lives up to its name, small telescopes show it as a silvery spindle of light against a hopefully dark background. Larger scopes may, if the seeing is good enough show a thin dust lane cutting through the central bulge.

Peter Burgess

Wight Science

As well as monthly lectures arranged by VAS, there are other organisations on the Island holding regular events which may be of interest to members. We are hoping to provide a calendar of any such events each month so, if you know of anything which you think should be included here, please let me know.

Not for profit events only please.

Cafe Scientifique	<p>Monday 13th April 2015 7pm Shanklin Conservative Club – Regency Suite The Standard Models in Particle Physics Professor Steve F King, High Energy Physics theory group of the School of Physics and Astronomy, Southampton University</p>
<p>Cafe Scientifique details are at: http://cafescientifique.onthewight.com/</p>	
<p>IET details are at: http://mycommunity.theiet.org/communities/home/173#.VHOvQlusXwM</p>	

Still Available SkyWatcher SkMAK90 EQ/TA

Tabletop telescope



Complete with:

25mm & 10mm eyepieces, Barlow lens, diagonal, tabletop tripod, carry case & Full instructions

Offers around £80

Contact Mark 551154

Has anyone got access to...



Photo credit: <https://www.sbig.com>

As part of our ongoing work towards International Dark Sky Status we need to take some all-sky photographs around the Island. We have some choices:

1. Buy a full-frame digital SLR camera plus a 180° fisheye lens. Cost around £2300.
2. Buy an All-Sky camera. Cost, around £2000
3. Hire someone with the equipment to do it for us.
4. **Find a volunteer, with the equipment, to help.**

Of course I would like to adopt method 4. if at all possible as it is the lowest cost option So if you can help please let me know!



**Island Planetarium
@Fort Victoria**

The Island's Telescope Professionals

Serious Stuff

TAL 200mm Newtonian Reflector OTA
180mm Maksutov Cassegrain OTA
EQ 5 mount and drives

Various Used ETX 's

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Discounts and deals for VAS members

Call Paul England – VAS Member
on 761555 - leave a message if I am not there
Or - [enquiry @islandastronomy.co.uk](mailto:enquiry@islandastronomy.co.uk)

Search for extraterrestrial intelligence extends to new realms

Astronomers have expanded the search for extraterrestrial intelligence into a new realm with detectors tuned to infrared light. Their new instrument has just begun to scour the sky for messages from other worlds.

“Infrared light would be an excellent means of interstellar communication,” said Shelley Wright, an Assistant Professor of Physics at the University of California, San Diego who led the development of the new instrument while at the University of Toronto’s Dunlap Institute for Astronomy & Astrophysics.

Pulses from a powerful infrared laser could outshine a star, if only for a billionth of a second. Interstellar gas and dust is almost transparent to near infrared, so these signals can be seen from greater distances. It also takes less energy to send the same amount of information using infrared signals than it would with visible light.

The idea dates back decades, Wright pointed out. Charles Townes, the late UC Berkeley scientist whose contributions to the development of lasers led to a Nobel Prize, suggested the idea in a paper published in 1961.

Scientists have searched the heavens for radio signals for more than 50 years and expanded their search to the optical realm more than a decade ago. But instruments capable of capturing pulses of infrared light have only recently become available.

“We had to wait,” Wright said, for technology to catch up. “I spent eight years waiting and watching as new technology emerged.”

Three years ago while at the Dunlap Institute, Wright purchased newly available detectors and tested them to see if they worked well enough to deploy to a telescope. She found that they did. Jérôme Maire, a Fellow at the Dunlap, “turned the screws,” Wright said, playing a key role in the hands-on effort to develop the new instrument, called NIROSETI for near-infrared optical SETI.

NIROSETI will also gather more information than previous optical detectors by recording levels of light over time so that patterns can be analyzed to for potential signs of other civilizations, a record that could be revisited as new ideas about what signals extraterrestrials might send emerge.

Because infrared light penetrates farther through gas and dust than visible light, this new search will extend to stars thousands rather than merely hundreds of light years

away. And the success of the Kepler Mission, which has found habitable planets orbiting stars both like and unlike our own, has prompted the new search to look for signals from a wider variety of stars.

NIROSETI has been installed at the University of California’s Lick Observatory on Mt. Hamilton east of San Jose and saw first light on March 15.

Lick Observatory has been the site of several previous SETI searches including an instrument to look in the optical realm, which Wright built as an undergraduate student at UC Santa Cruz under the direction of Remington Stone, the director of operations at Lick at that time. Dan Werthimer and Richard Treffers of UC Berkeley designed that first optical instrument. All three are playing critical roles in the new search.

NIROSETI could uncover new information about the physical universe as well. “This is the first time Earthlings have looked at the universe at infrared wavelengths with nanosecond time scales,” Werthimer said. “The instrument could discover new astrophysical phenomena, or perhaps answer the question of whether we are alone.

Read more at: <http://phys.org/>

Advertising in NZ

If you would like to advertise in New Zenith, you can have a space like this for £50 per year

Only four slots are available

Artwork can be created or you can supply it.

Don't forget that member's who take the electronic version see a full colour version

Contact the Editor for information

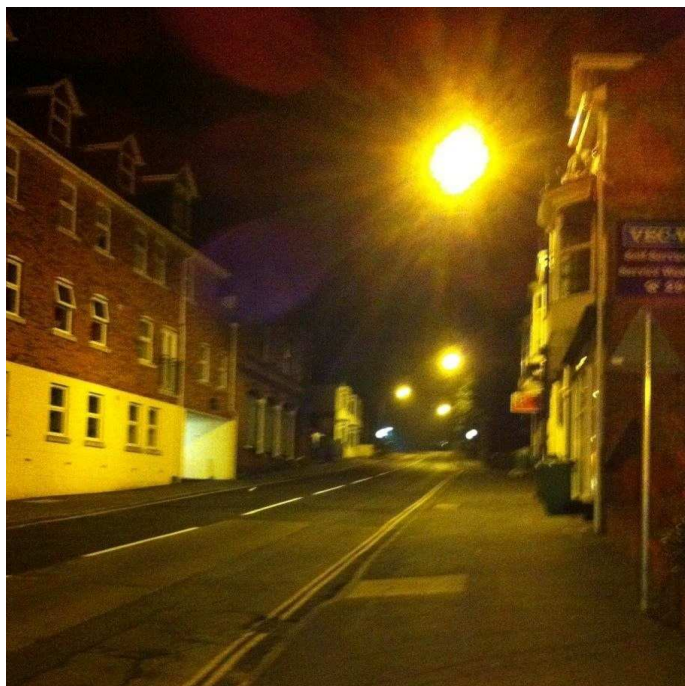
Details on the Front Page

Street Lights in Cowes

A large part of the Island has now been fitted with replacement LED street lights.

There is still quite a lot to do, especially involving “heritage” fittings and the odd locations with special requirements, but I think most astronomers would agree, the project has greatly improved the night sky views.

Elaine Spear took the photos shown here which clearly show the difference between the old and the new lights - particularly the three lights in the distance.



Before

How much energy will be saved?

Public lighting is one of the greatest consumers of energy and the greatest emitters of carbon. Because LED lighting is more energy efficient, it is also more reliable and requires less maintenance once installed – which is good for everyone, not just the environment. Based on our use of LED lighting elsewhere around the UK, we predict a 35% saving in the carbon footprint generated by public lighting on the Island as a result of these changes.

Are you adding more lights?

We are very aware that the Isle of Wight is a predominantly rural Island and **we support the ‘dark skies’ initiative** to minimise light pollution across the UK. Our current proposals include ‘like for like’ replacement of the street lighting already in place.

“For the first time since the WW2 blackouts, I can see the Milky Way from my home”
East Cowes Resident

There is information regarding the project and details of when your lights will be changed on the Island Roads website at <http://www.islandroads.com/>

The text below the pictures is taken from Island Roads literature - available from the website.



After

Can you control the brightness of the lights?

Island Roads will also operate a central management system which allows us to control the lighting levels and the times when lighting is on for individual streets. This will help us all continue to improve energy consumption and curb carbon emissions, whilst providing street lighting that meets the needs of individual towns and villages.

Please note, as the new streetlights are installed, they automatically connect to a control unit. They will normally be illuminated for the first 24 hours, or until they are recognised by the system. Following this, they will return to normal operating mode. The speed of configuration to the unit is dependent upon the topography of the area and the local environment; therefore some lights may take longer to return to normal operating mode than others.

THE BACK PAGE

LINKS, COMMENTS AND OBSERVATIONS

Universe may be on the brink of collapse (on the cosmological timescale)

Physicists have proposed a mechanism for “cosmological collapse” that predicts that the universe will soon stop expanding and collapse in on itself, obliterating all matter as we know it. Their calculations suggest that the collapse is “imminent”- on the order of a few tens of billions of years or so-which may not keep most people up at night, but for the physicists it's still much too soon.

In a paper published in Physical Review Letters, physicists Nemanja Kaloper at the University of California, Davis; and Antonio Padilla at the University of Nottingham have proposed the cosmological collapse mechanism and analyzed its implications, which include an explanation of dark energy.

“The fact that we are seeing dark energy now could be taken as an indication of impending doom, and we are trying to look at the data to put some figures on the end date,” Padilla told Phys.org. “Early indications suggest the collapse will kick in a few tens of billions of years, but we have yet to properly verify this.”

The main point of the paper is not so much when exactly the universe will end, but that the mechanism may help resolve some of the unanswered questions in physics. In particular, why is the universe expanding at an accelerating rate, and what is the dark energy causing this acceleration?

Read more at: <http://phys.org/>

Active asteroid spun so fast that it exploded

A team led by astronomers from the Jagiellonian University in Krakow, Poland, recently used the W. M. Keck Observatory in Hawaii to observe and measure a rare class of “active asteroids” that spontaneously emit dust and have been confounding scientists for years. The team was able to measure the rotational speed of one of these objects, suggesting the asteroid spun so fast it burst, ejecting dust and newly discovered fragments in a trail behind it. The findings were just published in Astrophysical Journal Letters.

Unlike the hundreds of thousands of asteroids in the main belt of our Solar System, which move cleanly along their orbits, active asteroids were discovered several years ago mimicking comets with their tails formed by calm, long lasting ice sublimation.

Read more at: <http://astronomynow.com/>

VAS Representative at NPS&CA

The NPS&CA (our landlords) need representatives from each club or association in the Newchurch to put forward suggestions and observations and to keep the Management Committee in check.

VAS need a representative - the duties are not onerous and mainly consist of attending a meeting in Newchurch once every 3 months.

I'd love to hear from any member willing to volunteer.

Dark Skies Representative Needed

If you'd like to help, please get in touch and I'll explain what's involved.

Brian Curd

Observatory

When visiting the VAS observatory, for your own safety, 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, reviews or pictures related to all aspects of astronomy.

Contributions to the Editor please at the email or postal address on the front page.

“In physics, you don't have to go around making trouble for yourself - nature does it for you”

Frank Wilczek

“It should be possible to explain the laws of physics to a barmaid”

Albert Einstein

“The first principle is that you must not fool yourself - and you are the easiest person to fool”

Richard Feynman

“Physics, as we know it, will be over in six months”

Max Born (1928!)