

## SOCIETY NEWS

### Well that's about it for another year!

As most members know, NZ takes a bit of a break for a month, so the next issue will be February 2018.

I hope you all have a good Christmas break and, judging by the renewed interest in the Dark Skies Initiative, it could well be a great New Year for VAS, the AONB, CPRE, IW Council and the whole Island.

We had somewhere around 200 visitors to our October Dark Skies meeting in October and, for a change, we had reasonable skies and dry weather!

It really was inspiring to get such support and it seems to be continuing. I have just heard that Councillor Medland's motion to add a Lighting Code to the Islands planning process has been approved which, when completed should help our application for International Dark Sky Status.

<https://www.iwight.com/news/>

There's still a way to go and a lot of work to complete but maybe, just maybe, 2018 could be the year!



**Dr. John Barentine** @JohnBarentine 1d  
Congratulations on a big step forward toward Dark Sky Community status for Wight! 🍷🍷🍷🍷🇬🇧

Twitter response to the recent announcement from [IDSA](#)  
Program Manager Dr. John Barentine

Brian Curd  
Editor New Zenith

**Please take a look at page 9 of this issue to learn how you can help raise a bit extra for VAS with just a few clicks of the mouse and, at no cost to you.**

## VAS Website: [wightastronomy.org](http://wightastronomy.org)

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

**The Editor, New Zenith**  
**Carpenter's Cottage**  
**Dennett Road**  
**Bembridge**  
**Isle of Wight PO35 5XF**

Tel: **01983 872875** or email: [editor@wightastronomy.org](mailto:editor@wightastronomy.org)

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

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 and by arrangement Telescope and night sky training. Please contact Martyn Weaver 07855 116490
Thursday	Members (19.30hrs) and Public (20.00hrs). Informal meeting and observing

## VAS Website: [wightastronomy.org](http://wightastronomy.org)

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**PLEASE NOTE:**

Monthly meetings are now held at the  
Newchurch Pavilion next to the Observatory

**2017 Monthly Meetings**

Date	Subject	Speaker
Please check <a href="http://wightastronomy.org/meetings/">wightastronomy.org/meetings/</a> for the latest information		
24 Nov	Mapping orbits around black holes and neutron stars	Dr Diego Altamirano

**2018 Monthly Meetings**

Date	Subject	Speaker
Please check <a href="http://wightastronomy.org/meetings/">wightastronomy.org/meetings/</a> for the latest information		
26 Jan		
23 Feb	Astronomical Observations on the Isle of Wight	Paul Bingham
23 Mar		
27 Apr	An Overview of the Development of the Universe to date	John Currigan
25 May	The Rise and Fall of the Herstmonceux Observatory	Keith Brakenborough
22 Jun	TBA	Alan Chapman
27 Jul		
24 Aug	<b>AGM</b> The European Extremely Large Telescope	Dr Aprajita Verma
28 Sep		
26 Oct		
23 Nov		

**Observatory Visits Booked**

<i>Please phone me for the current situation (number on the front page)</i>
It would be appreciated if members could avoid using the observatory at these times.

**VAS Contacts 2017/18**

<b>President</b>	Barry Bates president@wightastronomy.org
<b>Chairman</b>	Bryn Davis chairman@wightastronomy.org
<b>Secretary</b>	Richard Flux secretary@wightastronomy.org
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<b>Observatory Director</b>	Brian Curd director@wightastronomy.org
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<b>NZ Editor</b>	Brian Curd editor@wightastronomy.org
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<b>NZ Distribution</b>	Graham Osborne
<b>Others</b>	Mark Williams, Nigel Lee & Stewart Chambers

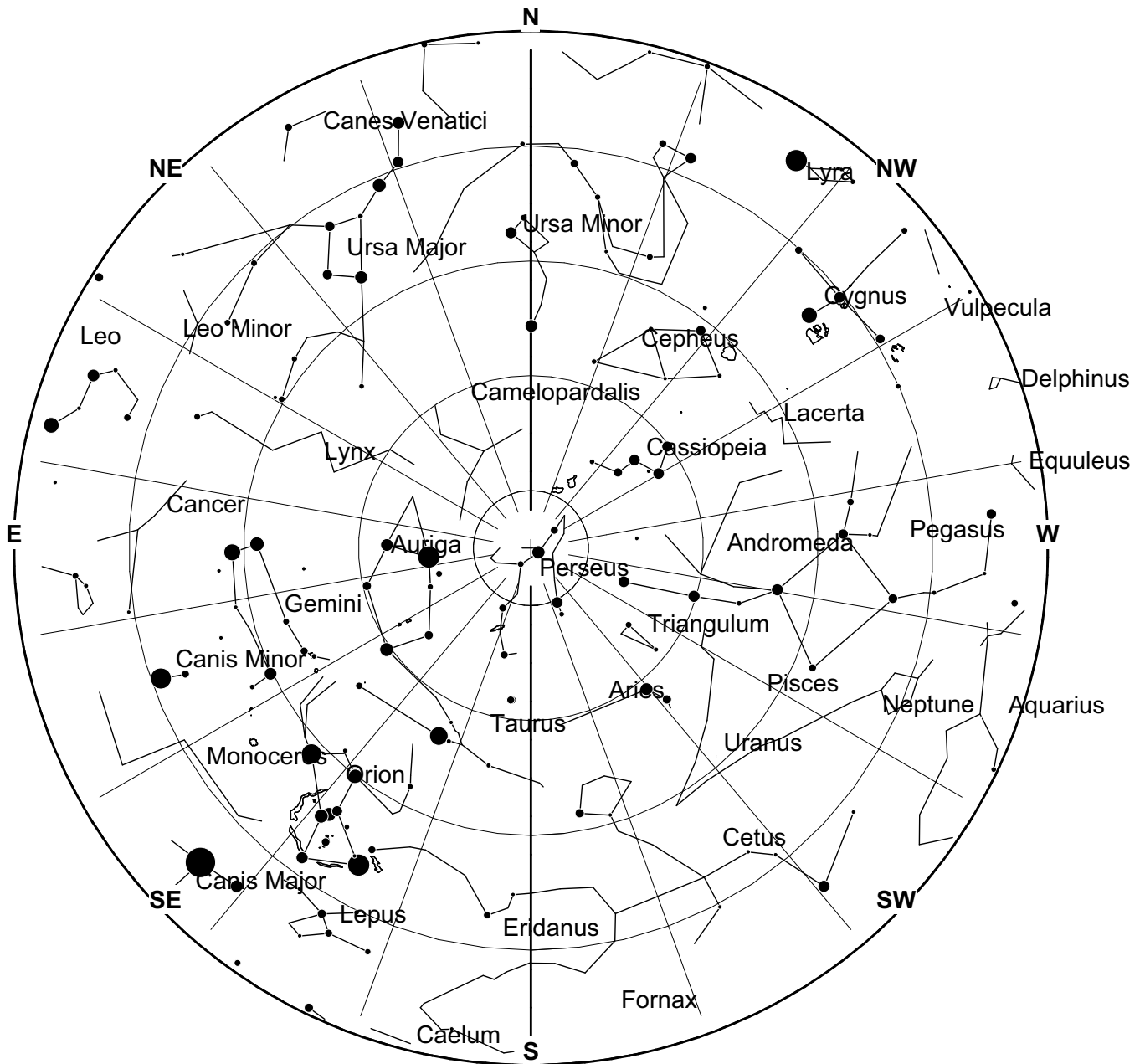
**Important**

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

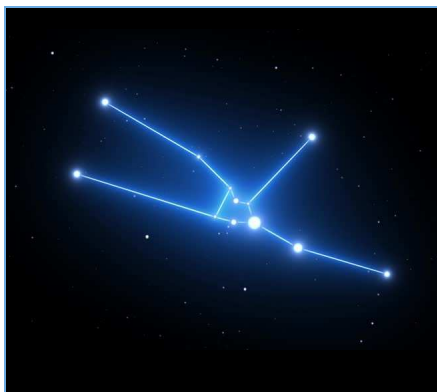
On several occasions, lights,  
heaters and the Meade LX200 have  
been left on!

When leaving, please ensure all is  
secure and all lights, heaters and  
telescopes are **TURNT OFF**.

# DECEMBER 2017 SKY MAP



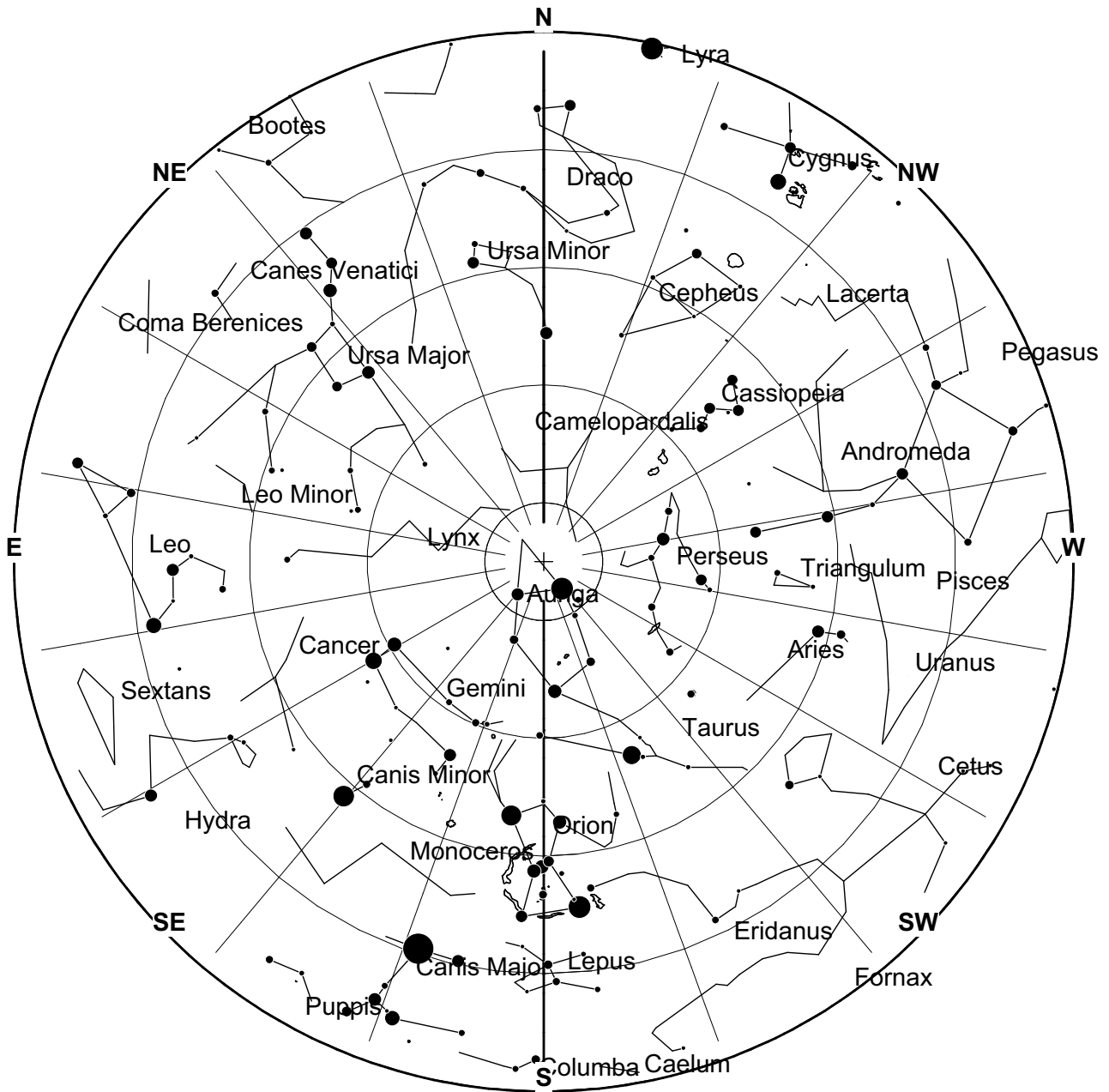
View from Newchurch Isle of Wight UK - 2200hrs - 15 December 2017



**Taurus** (Latin for “the Bull”) is one of the constellations of the zodiac, which means it is crossed by the plane of the ecliptic. Taurus is a large and prominent constellation in the northern hemisphere’s winter sky. It is one of the oldest constellations, dating back to at least the Early Bronze Age when it marked the location of the Sun during the spring equinox. Its importance to the agricultural calendar influenced various bull figures in the mythologies of Ancient Sumer, Akkad, Assyria, Babylon, Egypt, Greece, and Rome. A number of features exist that are of interest to astronomers. Taurus hosts two of the nearest open clusters to Earth, the Pleiades and the Hyades, both of which are visible to the naked eye. At first magnitude, the red giant Aldebaran is the brightest star in the constellation.

*This article is licensed under the [GNU Free Documentation License](https://www.gnu.org/licenses/fdl.html). It uses material from the Wikipedia article “[Taurus \(constellation\)](https://en.wikipedia.org/wiki/Taurus_(constellation))”.*

# JANUARY 2018 SKY MAP



View from Newchurch Isle of Wight UK - 2200hrs - 15 January 2018







**The Pleiades** (also known as the Seven Sisters and Messier 45), are an open star cluster containing middle-aged, hot B-type stars located in the constellation of Taurus. It is among the nearest star clusters to Earth and is obvious to the naked eye in the night sky. The cluster is dominated by hot blue and extremely luminous stars that have formed within the last 100 million years. Dust that forms a faint reflection nebulosity around the brightest stars was thought at first to be left over from the formation of the cluster, but is now known to be an unrelated dust cloud in the interstellar medium, through which the stars are currently passing. Astronomers estimate that the cluster will survive for about another 250 million years, after which it will disperse.

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## DEC 2017 & JAN 2018 NIGHT SKY

The Winter Solstice, our shortest day and the point at which the Sun is at its most southerly declination occurs at 04:28 on December 21.

### Moon Phases

New	First Qtr	Full	Last Qtr
			
Dec 18th	Dec 26th	Dec 3rd	Dec 10th
Jan 17th	Jan 24th	Jan 2nd/31st	Jan 8th

### Planets

**Mercury** - Over the New Year period Mercury makes a short apparition in the morning sky. The table shows the altitude and azimuth of Mercury at 07:30, approximately 30 minutes before sunrise.

Dec	Az	Alt	Jan	Az	Alt
21	132	7	2	138	8
23	134	8	4	138	7
25	136	8	6	138	7
27	137	8	8	137	6
29	137	8			
31	138	8			

**Venus** - During January, Venus it passes behind the Sun. With a very clear sky and a good western horizon it may be possible to spot its re-appearance as the Evening Star at the end of January.

**Mars** - At about 6AM Mars can be found in the south south-eastern sky about a hand span above the horizon. It is brighter than the nearby stars and does not move significantly over the period, just gradually drifting to the west. On the January 7th it is in very close conjunction with the much brighter Jupiter, spacing is a little under half the diameter of the full moon. On the morning of the 11th there is a close grouping of the Moon, Mars and Jupiter

**Jupiter** - Jupiter is in the south eastern sky in the early morning. It is brighter than any star making it easy to identify. At the end of January it is due south at sunrise.

**Saturn** - Saturn is just starting to make its re-appearance in the morning sky at the end of January. At this time though, it is still too close to the glare of the Sun to be seen.

**Uranus** - Uranus is well placed for observation in the southern sky throughout December and January. It does not move significantly against the background stars. It forms the top right hand corner of a slightly distorted

square with the stars Omicron, Mu and Nu Piscium forming the other corners.

**Neptune** - During December Neptune is well placed for observation in the early evening. It can be found close to the 3rd magnitude star Lambda Aquarii. As the month progresses it slips to east, starting on a line connecting Lambda and Tau Aquarii, then moving gradually east.

During January Neptune will become more difficult to observe as it slips further to the southwest at sunset.

### Deep Sky

#### 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 is visible in 10x50s but the ET outline is just a little too small, it really needs more than 10 times magnification, 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.

#### NGC752 RA 1h 58m Dec 37°41' mag 5.7



A large object, this is an open star cluster a little larger than the full moon and just visible to the naked eye in a dark sky. A pair of binoculars will resolve up to 20 stars, and an 8 inch telescope with low magnification shows over 50. Some stars show colour, mainly yellow and orange.

**NGC2264 RA 6h 41m Dec 9° 38' mag 4.1**

This is a large relatively bright cluster surrounded by a faint diffuse nebulosity. It is visible to the naked eye as a fuzzy patch, but observation with a pair of binoculars will show the inverted triangle shape that gives this cluster its popular name, the Christmas Tree Cluster. The brightest star in the group marks the trunk of this upside down tree. Just to the south of the 7th magnitude star on the top of the tree is the cone nebula. This, with the other surrounding nebulosity is best observed using a CCD camera.

**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 is an object that has something for all observers whether they are using naked eye, binoculars or a telescope.

*Peter Burgess*

## THE IDEA OF CREATING A NEW UNIVERSE IN THE LAB IS NO JOKE

Physicists aren't often reprimanded for using risqué humour in their academic writings, but in 1991 that is exactly what happened to the cosmologist Andrei Linde at Stanford University. He had submitted a *draft article* entitled 'Hard Art of the Universe Creation' to the journal *Nuclear Physics B*. In it, he outlined the possibility of creating a universe in a laboratory: a whole new cosmos that might one day evolve its own stars, planets and intelligent life. Near the end, Linde made a seemingly flippant suggestion that our Universe itself might have been knocked together by an alien 'physicist hacker'. The paper's referees objected to this 'dirty joke'; religious people might be offended that scientists were aiming to steal the feat of universe-making out of the hands of God, they worried. Linde changed the paper's title and abstract but held firm over the line that our Universe could have been made by an alien scientist. 'I am not so sure that this is just a joke,' he told me.

Fast-forward a quarter of a century, and the notion of universe-making – or 'cosmogenesis' as I dub it – seems less comical than ever. I've travelled the world talking to physicists who take the concept seriously, and who have even sketched out rough blueprints for how humanity might one day achieve it. Linde's referees might have been right to be concerned, but they were asking the wrong questions. The issue is not who might be offended by cosmogenesis, but what would happen if it were truly possible. How would we handle the theological implications? What moral responsibilities would come with fallible humans taking on the role of cosmic creators?

Theoretical physicists have grappled for years with related questions as part of their considerations of how our own Universe began. In the 1980s, the cosmologist Alex Vilenkin at Tufts University in Massachusetts came up with a mechanism through which the laws of quantum mechanics could have generated an inflating universe from a state in which there was no time, no space and no matter. There's an established principle in quantum theory that pairs of particles can spontaneously, momentarily pop out of empty space. Vilenkin took this notion a step further, *arguing* that quantum rules could also enable a minuscule bubble of space itself to burst into being from nothing, with the impetus to then inflate to astronomical scales. Our cosmos could thus have been burped into being by the laws of physics alone. To Vilenkin, this result put an end to the question of what came before the Big Bang: nothing. Many cosmologists have made peace with the notion of a universe without a prime mover, divine or otherwise.

At the other end of the philosophical spectrum, I met with Don Page, a physicist and evangelical Christian at the

University of Alberta in Canada, noted for his early *collaboration* with Stephen Hawking on the nature of black holes. To Page, the salient point is that God created the Universe *ex nihilo* – from absolutely nothing. The kind of cosmogenesis envisioned by Linde, in contrast, would require physicists to cook up their cosmos in a highly technical laboratory, using a far more powerful cousin of the Large Hadron Collider near Geneva. It would also require a seed particle called a ‘monopole’ (which is hypothesised to exist by some models of physics, but has yet to be found).

The *idea* goes that if we could impart enough energy to a monopole, it will start to inflate. Rather than growing in size within our Universe, the expanding monopole would bend spacetime within the accelerator to create a tiny wormhole tunnel leading to a separate region of space. From within our lab we would see only the mouth of the wormhole; it would appear to us as a mini black hole, so small as to be utterly harmless. But if we could travel into that wormhole, we would pass through a gateway into a rapidly expanding baby universe that we had created. (A *video* illustrating this process provides some further details.)

We have no reason to believe that even the most advanced physics hackers could conjure a cosmos from nothing at all, Page argues. Linde’s concept of cosmogenesis, audacious as it might be, is still fundamentally technological. Page, therefore, sees little threat to his faith. On this first issue, then, cosmogenesis would not necessarily upset existing theological views.

But flipping the problem around, I started to wonder: what are the implications of humans even considering the possibility of one day making a universe that could become inhabited by intelligent life? As I discuss in my book *A Big Bang in a Little Room (2017)*, current theory suggests that, once we have created a new universe, we would have little ability to control its evolution or the potential suffering of any of its residents. Wouldn’t that make us irresponsible and reckless deities? I posed the question to Eduardo Guendelman, a physicist at Ben Gurion University in Israel, who was one of the architects of the cosmogenesis model back in the 1980s. Today, Guendelman is engaged in *research* that could bring baby-universe-making within practical grasp. I was surprised to find that the moral issues did not cause him any discomfort. Guendelman likens scientists pondering their responsibility over making a baby universe to parents deciding whether or not to have children, knowing they will inevitably introduce them to a life filled with pain as well as joy.

Other physicists are more wary. Nobuyuki Sakai of Yamaguchi University in Japan, one of the theorists who *proposed* that a monopole could serve as the seed for a baby universe, admitted that cosmogenesis is a thorny issue that we should ‘worry’ about as a society in the

future. But he absolved himself of any ethical concerns today. Although he is performing the calculations that could allow cosmogenesis, he notes that it will be decades before such an experiment might feasibly be realised. Ethical concerns can wait.

Many of the physicists I approached were reluctant to wade into such potential philosophical quandaries. So I turned to a philosopher, Anders Sandberg at the University of Oxford, who contemplates the moral implications of creating artificial sentient life in computer simulations. He argues that the proliferation of intelligent life, regardless of form, can be taken as something that has inherent value. In that case, cosmogenesis might actually be a moral obligation.

Looking back on my numerous conversations with scientists and philosophers on these issues, I’ve concluded that the editors at *Nuclear Physics B* did a disservice both to physics and to theology. Their little act of censorship served only to stifle an important discussion. The real danger lies in fostering an air of hostility between the two sides, leaving scientists afraid to speak honestly about the religious and ethical consequences of their work out of concerns of professional reprisal or ridicule.

We will not be creating baby universes anytime soon, but scientists in all areas of research must feel able to freely articulate the implications of their work without concern for causing offence. Cosmogenesis is an extreme example that tests the principle. Parallel ethical issues are at stake in the more near-term prospects of creating artificial intelligence or developing new kinds of weapons, for instance. As Sandberg put it, although it is understandable that scientists shy away from philosophy, afraid of being thought weird for veering beyond their comfort zone, the unwanted result is that many of them keep quiet on things that really matter.

As I was leaving Linde’s office at Stanford, after we’d spent a day riffing on the nature of God, the cosmos and baby universes, he pointed at my notes and commented ruefully: ‘If you want to have my reputation destroyed, I guess you have enough material.’ This sentiment was echoed by a number of the scientists I had met, whether they identified as atheists, agnostics, religious or none of the above. The irony was that if they felt able to share their thoughts with each other as openly as they had with me, they would know that they weren’t alone among their colleagues in pondering some of the biggest questions of our being.

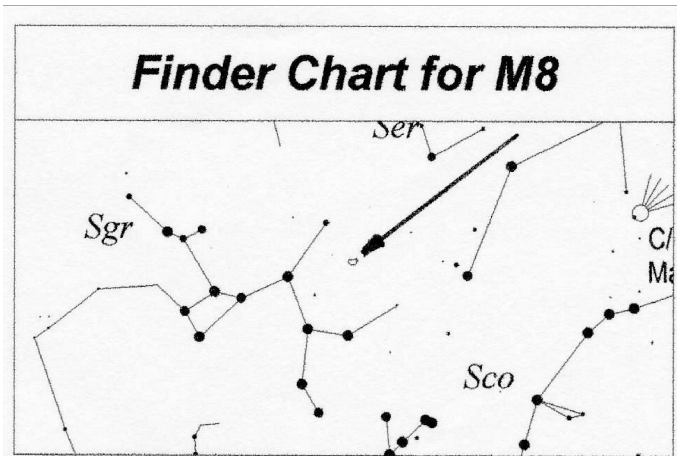
Zeeya Merali

More at: <https://eon.co/>

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## MY 100 BEST NIGHT SKY SIGHTS

### Emission Nebula

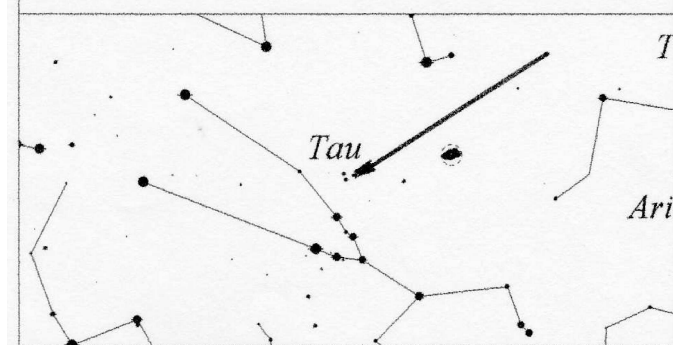


Among the grandest sights in the sky are emission nebulae, the birthplace of stars, but sadly few are well seen through amateur telescopes especially from our light-polluted skies - there are just three in my list but each one is a delight. At the bottom of the pile (rated *only* as 'a lovely sight!') is **M8 in Sagittarius**, popularly known as the Lagoon Nebula. On the very best nights it can just be glimpsed from here with the naked eye as an extremely faint hazy patch. At mag 5 it would be much easier to spot if it weren't for its low altitude - just  $27^\circ$  above the southern horizon at culmination, but we must be thankful we can see it at all as it's a beauty. Binoculars will brighten and extend the image a little and reveal a tiny cluster of stars seemingly to the left (E) of the nebula. This is the open cluster NGC 6530 balanced by two bright stars inside the nebulosity itself. In clean skies away from town lights an 8" telescope will show further nebulosity extending beyond the cluster and should glimpse the dust band which bisects the nebula and gives it its name. Through my 10" the glowing gases spill out beyond the 32' field of a 26mm eyepiece, the cluster is very bright and the dark band, whilst faint, is definite. Attaching an OIII filter accentuates the nebulosity against the darkened sky and brings out the rift in sharp relief. M8 is to be found during late spring/early summer just a Moon's width west of Sagittarius' Teapot Lid.

### Double Stars

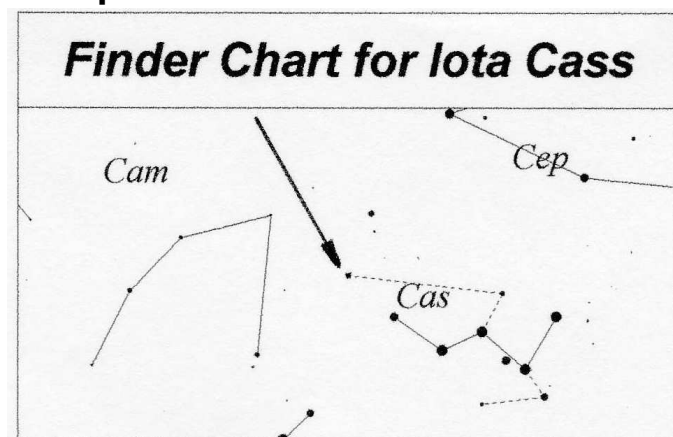
**Kappa Tauri** makes a neat optical double with 67 Tauri in a N/S orientation. Both are moderately bright yellow stars, Kappa being mag 4.4 and 67 Tau mag 5.4 and they are widely separated by 339 arc seconds (") and so nicely seen through binoculars in winter months. But that isn't all there is to this pair. Train a 6 inch telescope on them and you'll be rewarded with one of the neatest of stellar alignments for exactly half way between them sits a second pair of faint (mags 9.5 and 10) stars arranged in

### Finder Chart for Kappa Tauri



precisely the same plane as the brighter ones. This is **Struve 541**, a close binary with a separation of only 5.6" so you'll need to wind up the power some to split them. All four are members of the large galactic cluster The Hyades but we rarely notice them, our attention being drawn inexorable towards the V shape representing the head of the Bull and his bright red eye Aldebaran, which paradoxically is not part of the cluster but a foreground star less than half the 150 light year distance of the Hyades.

### Multiple Star

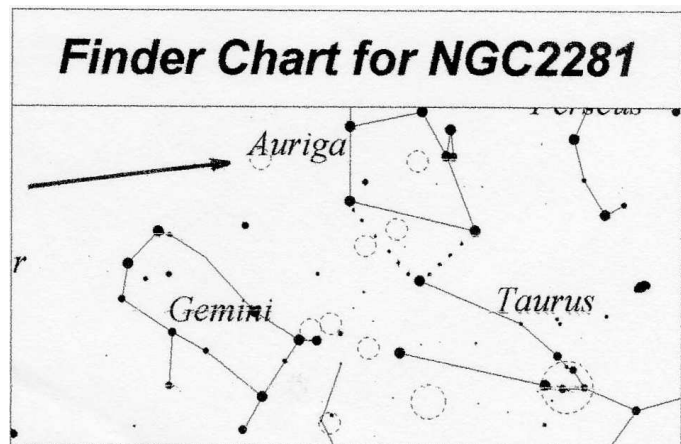


**Iota Cassiopeiae** is actually a quadruple star system but the fourth member is relatively so far away from its brethren (no pun intended) that, as seen through the telescope, it could be any of several faint stars in the vicinity. However, this doesn't detract at all from the fine sight of the other three members which display excellent colour contrasts. Through any telescope the primary, at mag 4.6, shines as a brilliant white beacon. Just over 7" away is a distinctly blue mag 8.4 companion whilst, on the opposite side and much closer in, just 2.2" from the primary, the third member is mag 6.4 and clearly yellow. You'll need to experiment with various powers to find which gives the best view of this trio through your telescope. I find that x180 well separates all three but nevertheless I prefer the view at x140 where the yellow star is only just split from it's parent but all colours are accentuated. Separating the two brightest stars may be a



challenge in our skies for 6" or smaller telescopes but try it anyway. Cassiopeia is circumpolar from here but best placed for observation from late summer to early spring.

**Galactic Cluster**



Have you ever wondered on what basis authors of star atlases decide which objects to include and which to omit? I never thought to question it until I discovered this little gem of an open cluster. Uranometria apart, which (bless 'em) contains just about everything you'll ever want to look at, of four atlases available to me only Norton's shows **NGC 2281 Aurigae** on the map but even then doesn't mention it in the text. This I find odd as to me it's at least the visual equal of M36 and M38 in the same constellation and which I discussed in recent articles - just because Messier missed it is no excuse. The main group of stars is contained in an area a little over half that of the Moon with two dozen or so bright ones in a crescent-like formation (others think it appears kite-shaped) and has at least two very close doubles embedded within it. Whatever shape you see it makes a very pretty sight throughout autumn and spring and one not to be missed when you're visiting Auriga. Although NGC2281 will need an 8" telescope to see really well, it will still be a fine object in smaller instruments and with larger optics is a joy.

*Bert Paice*

*Originally published in NZ - July 1998*



**EASY FUNDRAISING?**

**Did you know that whenever you buy anything online - from your weekly shop to your annual holiday - you could be collecting free donations for Vectis Astronomical Society?**

There are over 3,000 shops and sites on board ready to make a donation, including Amazon, John Lewis, Aviva, the trainline and Sainsbury's - and it doesn't cost you a penny extra!

**It's as easy as 1, 2, 3...**

1. Head to <https://www.easyfundraising.org.uk/causes/vectisastromicalsociety/> and join for free.
2. Every time you shop online, go to easyfundraising first to find the site you want and start shopping.
3. After you've checked out, that retailer will make a donation to your good cause for no extra cost whatsoever!

There are no catches or hidden charges and Vectis Astronomical Society will be really grateful for your donations.

Here are a few of the companies that will donate to VAS when you make a purchase (no cost to you).

As well as those mentioned above, here are just a few of the companies involved:

<b>John Lewis</b>	<b>Argos</b>	<b>Amazon.co.uk</b>
<b>Apple</b>	<b>ebay</b>	<b>Next</b>
<b>Boots</b>	<b>Currys/PC World</b>	<b>House of Fraser</b>
<b>Sky</b>	<b>AO</b>	<b>Dyson</b>
<b>M&amp;S</b>	<b>Debenhams</b>	<b>Asos</b>
<b>Gap</b>	<b>Clarks</b>	<b>Cotton Traders</b>
<b>Booking.com</b>	<b>Expedia</b>	<b>Thomas Cook</b>
<b>Wightlink</b>	<b>Trainline</b>	<b>Aviva</b>

*Please give this a try if you are shopping online and let the Editor know if you have problems.*

*Thank you for your support.*

## YOU CAN NAME NEW HORIZONS' NEXT TARGET



*New Horizons is on its way to MU69... can you come up with a better name for this Kuiper Belt object for NASA to use? NASA/Johns Hopkins University Applied Physics Laboratory/Southwest Research Institute*

New Horizons is on its way deep into the Kuiper Belt, aiming for a (probably) binary object about a billion miles (1.6 billion kilometers) farther from the Sun than Pluto. This cold, distant pair carries the official designation (486958) 2014 MU69, called MU69 for short. But now, NASA and the New Horizons team invite you to help nickname this target, which New Horizons will encounter on New Year's Day 2019.

From now until 3pm EST (12 noon PST) on December 1, you can submit names and vote for your favorites by visiting <http://www.frontierworlds.org/>. On the site, you'll find a submission form, a list of names currently under consideration, and a ranking of the names submitted so far. The campaign to nickname the target is led by Mark Showalter, a New Horizons team member and planetary scientist at the SETI Institute of Mountain View, California; the SETI Institute is also hosting the campaign.

"The campaign is open to everyone," Showalter said in a press release. "We are hoping that somebody out there proposes the perfect, inspiring name for MU69."

MU69 orbits the Sun at a distance that puts it more than 4 billion miles (6.5 billion km) from Earth. Our best telescope observations to date indicate it's actually a pair of binary objects, so two nicknames might be necessary, depending on what New Horizons sees as it finally approaches.

More at: <http://www.astronomy.com/>


("Spuds" seems to fit but I haven't submitted it! *Ed.*)

THE FRIENDS OF DINOSAUR ISLE CIO INVITE YOU TO THEIR

2017

# CHRISTMAS QUIZ

SATURDAY 2nd DECEMBER 7:00pm doors open for 7:30 start.  
The Education Room at Dinosaur Isle Museum



**Entrance to Quiz**

£4:00 members  
£5:00 non-members which includes Christmas Quiz with great prizes

PLUS

Delicious homemade soup with sandwiches followed by mince pies and stollen cake!

Maximum table number is six but there's always spaces for individuals.

HO HO HO!

So come and have a great evening and support the Isle of Wight's fantastic fossil heritage at the same time.


It would be appreciated if you could ring the museum on 01983 404344 or e-mail [jlockwood156@aol.com](mailto:jlockwood156@aol.com) with name and numbers

All proceeds to the Friend's fund to help the museum acquire specimens and displays. Thank you for your support.

Normal range of 'pub-style' quiz questions

Dinosaur Isle Museum, Culver Parade, Sandown PO368QA

The Friends of Dinosaur Isle CIO  
Registered Charity 1170688 Patron Prof Alice Roberts





## VECTIS ASTRONOMICAL SOCIETY ? ANNUAL DINNER

The VAS Annual Dinner will be held at The Breeze Restaurant, Island Harbour on Saturday 20 January 2018. Dinner will be served at 19:00. Dress Code - casual.

Please mark choices in the Member (and Guest) columns

MEMBERS NAME: \_\_\_\_\_

Menu	Price	Member	Guest
<b>STARTERS</b>			
<b>Homemade soup of the day</b> - Served with a choice of white or brown crusty bread	£5.25		
<b>Tomato, basil and mozzarella bruschetta</b> - Finished with a balsamic reduction	£5.95		
<b>Classic prawn cocktail</b> - Luxury north Atlantic prawns served on a bed of crisp lettuce, topped with Marie rose sauce, served with crusty brown bread and butter	£6.95		
<b>MAINS</b>			
<b>Lamb shank</b> - Succulent braised lamb shank served on a bed of minted mashed potato, topped with homemade rosemary gravy, served with fresh vegetables	£13.95		
<b>Homemade spicy winter vegetable and chickpea curry</b> - Served with basmati rice and mango chutney	£9.95		
<b>Oven roasted salmon fillet</b> - Topped with pan fried garlic prawns, served with new potatoes and a dressed side salad	£14.50		
<b>Chargrilled Cajun chicken</b> - A whole butterflied chicken breast marinated in Cajun spices, served with grilled tomato, button mushrooms, homemade chips and a dressed salad garnish	£10.95		
<b>DESSERTS</b>			
<b>Homemade Malteser cake</b>	£5.50		
<b>Homemade Eton Mess</b> - Served with strawberry coulis	£5.50		
<b>Selection of fruit sorbets</b> – Champagne, lemon, mango, lime & coconut	£3.95		
<b>TOTAL</b>			

Return completed form with cheque to:

**The Membership Secretary, 9 Woodside Avenue, Alverstone Garden Village, PO36 0JD OR**

Return the completed form by email to: [normanosborn@outlook.com](mailto:normanosborn@outlook.com) **AND**

Submit payment by bank transfer to:

**Vectis Astronomical Society, Sort Code 30 95 99, Account No. 00037505**

**COMPLETED FORM AND REMITTANCE TO BE RECIEVED BY 13 JANUARY 2018**

# THE BACK PAGE

LINKS, COMMENTS AND OBSERVATIONS

## CHRISTMAS PUZZLE



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NEPTUNE  
ORBIT  
PLUTO  
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### 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

NZ needs letters, articles, reviews or pictures related to astronomy. Send to the Editor, contact details on the front page.

*“When you hear a physicist invoke the uncertainty principle, keep a hand on your wallet”*

**David Griffiths**

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

**Albert Einstein**

*“I don’t think there is one unique real universe. ... Even the laws of physics themselves may be somewhat observer dependent”*

**Stephen Hawking**

*“Physics is imagination in a straight jacket”*

**John Moffat**