

Society News

Garlic Festival

For a change, there was hardly any wind blowing and certainly no rain for almost the whole weekend. True until it came to the time to dismantle the club tent when, of course, it decided to pour down!

Anyhow, the whole weekend can be viewed as a success particularly as we made about £50 for society funds with the telescope/binocular raffle. The first prize, a telescope, went to an Island family and the second prize binoculars were won by holidaymakers staying in Cowes. It was great to see that both had young children and we hope that the equipment will provide both inspiration and many hours of entertainment to parents and children.



Thanks to Barrie (and Mrs Barrie!) Bates, Stewart Chambers, Bryn Davis, Mark (and Mrs Mark!) Williams, Simon Plumley, and of course Richard Flux for all their efforts over the weekend.

Sorry if I've missed anyone off the list!

Brian Curd
Editor New Zenith.

VAS Website: wightastronomy.org

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

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Isle of Wight PO35 5XF

Tel: **01983 872875** or email: 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.

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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

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PLEASE NOTE:
All monthly meetings are now held at the Newchurch Pavilion next to the Observatory

2017 Monthly Meetings

Date	Subject	Speaker
Please check wightastronomy.org/meetings/ for the latest information		
25 Aug	Annual General Meeting and Members' Social Evening	
22 Sep	TBA	Graham Bryant
27 Oct	VAS - AONB -CPRE Public Open Evening	
24 Nov	TBA	TBA

Observatory Visits Booked

No bookings for June so far but I have other interested parties choosing dates at the moment.

I am restricting visits to Mon and Tues wherever possible.

Please phone me for the current situation (number on the front page)

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



VAS Contacts 2016/17

President	Barry Bates president@wightastronomy.org
Chairman	Bryn Davis chairman@wightastronomy.org
Secretary	Richard Flux secretary@wightastronomy.org
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NZ Editor	Brian Curd editor@wightastronomy.org
Membership Secretary	Norman Osborn members@wightastronomy.org
NZ Distribution	Graham Osborne
Others	Mark Williams, Nigel Lee & Stewart Chambers

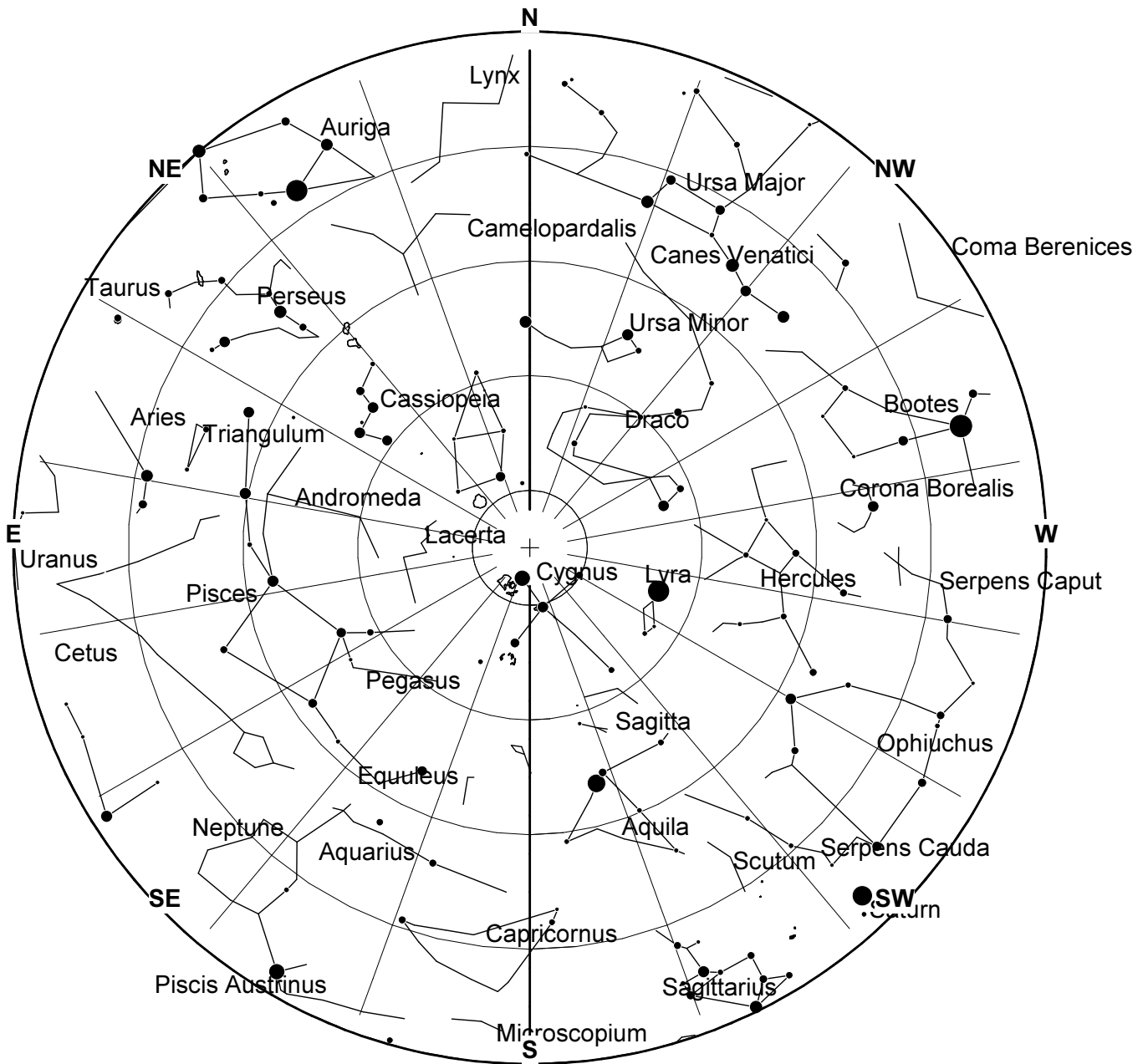
Important

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

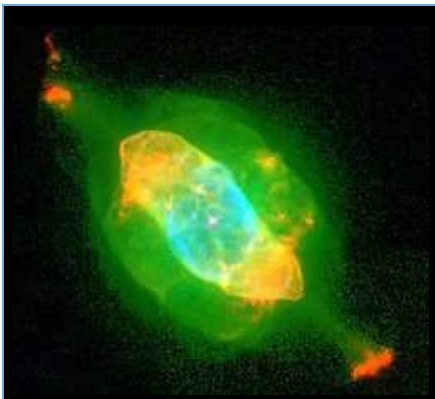
On several occasions, lights, heaters and the Meade LX200 have been left on!

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

September 2017 Sky Map



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



The Saturn Nebula or NGC 7009 is a planetary nebula in the constellation Aquarius. It appears as a greenish-yellowish hue in a small amateur telescope. It was discovered by William Herschel on September 7, 1782, using a telescope of his own design in the garden at his home in Datchet, England, and was one of his earliest discoveries in his sky survey. The nebula was originally a low-mass star that ejected its layers into space, forming the nebula. The central star is now a bright white dwarf star of apparent magnitude 11.5. The Saturn Nebula gets its name from its superficial resemblance to the planet Saturn with its rings nearly edge-on to the observer. It was so named by Lord Rosse in the 1840s, when telescopes had improved to the point that its Saturn-like shape could be discerned. William Henry Smyth said that the Saturn Nebula is one of Struve's nine "Rare Celestial Objects."





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September 2017 Night Sky

Autumnal Equinox

The autumnal equinox, the point at which the Sun crosses the equator on its way south, and day and night are equal occurs on September 22nd at 08:59.

Moon Phases

New	First Qtr	Full	Last Qtr
			
20th	28th	6th	13th

Planets

Mercury - There is a fairly good morning apparition of Mercury this month. The table shows the altitude and azimuth of Mercury at 06:00. It starts when Mercury has reached magnitude 0, a brightness at which it should be visible against the brightening sky.

Follow a line from The much brighter Venus towards the rising sun to help in finding this elusive world.

Date	Az	Alt	Date	Az	Alt
10th	83°	9°	18th	84°	7°
12th	84°	9°	20th	83°	5°
14th	84°	9°	22nd	83°	4°
16th	84°	8°	24th	83°	2°

Venus - Venus is now starting to slide towards the rising sun. It can still be easily seen against the brightening sky. On the 17th it is about equally spaced between the waning crescent moon and Mercury and Mars. Use these two as a pointer to finding these two much fainter planets. On the 20th is about a moon diameter to the left of Regulus, the brightest star in Leo.

Mars - It may be possible to glimpse Mars low down in the pre-dawn sky if it is very clear and you have a very good eastern horizon. On the 17th it is in close conjunction with Mercury, a separation of less than 0.5 degrees.

Jupiter - Jupiter is now well past its best for observation. It can be found very low in the south west just after sunset, by the end of the month it will have become quite difficult to spot against the still bright sky.

Saturn - As Jupiter sets Saturn becomes visible low in the south. It is not as bright as Jupiter, but is still noticeably brighter than any star in that part of the sky

Uranus - To find Uranus look about 1 degree above the star Omicron Piscium. This is one for those who can stay up until the early hours of the morning. Uranus does not get clear the haze until after midnight. See the finder chart in last months New Zenith.

Neptune

Neptune can be found about 1 degree east of the star Lambda Aquarii. Around mid month this is due south at about midnight.

Deep Sky

M72 Globular Cluster

RA 20h 54m Dec -12° 31' mag 10.0

Visually a rather small globular but it can be forgiven its apparent size when you consider that it is on the other side of the galaxy from us. It can be just seen in binoculars and a small to medium sized telescope with some magnification is needed to resolve any of the stars. It is not as tightly packed in the core as many globulars.

M15 Globular Cluster

RA 21h 30m Dec 12° 10' mag 7.5

This impressive globular is quite bright and very easily found in binoculars. Follow the line from Baham to Enif, about 4 degrees beyond the horse's nose to find this rather large fuzzy looking star. Through a telescope it reveals it's self as a bright core surrounded by a halo of much fainter stars. As with all globulars the view becomes more impressive with increasing aperture. This is one of only a few globular clusters to contain a planetary nebula; it is however about 14th magnitude and for visual observation beyond all but those with the largest telescopes and best eyes.

NGC7009 The Saturn Nebula

RA 21h 5m Dec -11° 20' mag 8.3

Originally discovered by William Herschel in 1782 and named by Lord Rosse who saw its elongated shape for the first time. This tiny nebula is one of the few that can show some hint of colour, usually reported as light green. The high brightness allows the use of fairly high magnification and being so small this is needed if the Saturn shape is to be seen.

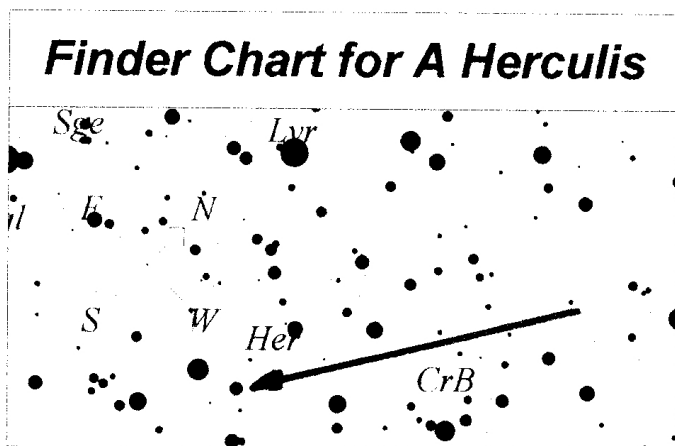
Peter Burgess

My 100 Best Night Sky Sights

In this series of articles I've begun at the lower end of my 100 or so of the very best night sky objects to be seen through binoculars and modest aperture telescopes from I.o.W. locations, so each class of object starts in the 'very good' category and gets better. This of course means that they won't necessarily be on view during the month the article is published so, if you want to try them out for real, save the New Zeniths and do what I do - build up a Night Sky Calendar - I'll point out which time of the year they're best positioned. This way by the end of the series you'll have a schedule of all that's best to see (in my opinion) in night skies for any month. To help locate them I've now included finder charts for each object, most charts being orientated the 'right way up', i.e. where North is 'up', East is left, etc. In others, a compass will provide direction.

Now for more goodies.

Double Star



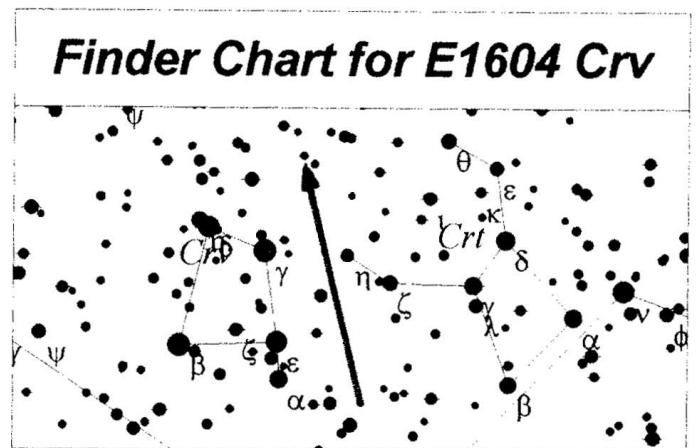
Alpha Herculis. This is a fine example of a very close pair which rewards use of a high power by displaying significant colour difference. The primary is variable between magnitudes 3 & 4 and the secondary is mag 5.4, bright enough not to be overwhelmed by its close companion. They're separated by only 5 arc seconds (5") and, using a power of x100 on my 10", the two are not cleanly split but at x250 there's clear, black sky between them. A is brilliant orange, B distinctly blue. My night colour recognition isn't particularly good but this pair is unmistakably colourful - you may well see them even better. Through my SCT, which maintains N & S but reverses E & W, the blue member is below and right of its neighbour. If you're using a refractor or newtonian telescope it'll be above and left.

Hercules is high in the sky in mid summer but well placed a couple of months either side. Alpha is named Rasalgethi, the Kneeler's Head, which would lead one to

suppose it would be positioned somewhere in the upper part of the constellation, but not so. For some reason Hercules is upside down as we see him so we have to scan his nether regions to find Alpha.

It's not particularly bright but lies conveniently close (right and slightly above) to the mag 2 star Alpha Ophiuchi.

Multiple Star



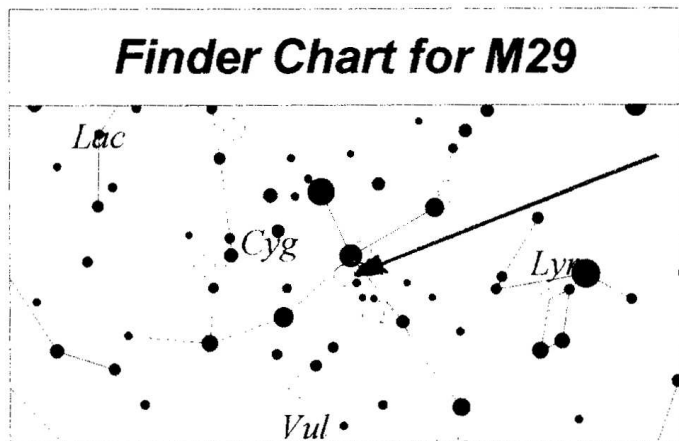
Struve 1604 Corvi. Stellar triangles don't come better displayed than this fine example. With magnitudes of 6.8, 9.3 and 9.2 and separations of 10" and 19" they are nicely seen in any telescope and here we have not two, but three colours. The primary (lower left in my 'scope) is a bright white beacon, B at upper right is blue and C, lower right, a reddish hue, seemingly dimmer than B despite its equivalent magnitude. Although higher magnifications separate the stars more, I find this little group looks nicest at x100 when the sight of this diminutive, colourful, geometrical shape suspended in the heavens is most pleasing. Users of 6" or smaller telescopes may find the colours not so easy to discern, but the shape still neat.

Corvus the Crow is a very small constellation riding on the back of Hydra the Water Snake. Locate it rather low in the south in April a little below and right of the very bright star Spica in neighbouring Virgo. Its four brightest stars form a quadrilateral like a squashed square and E1604 will be found 6° above and a little right of Gamma Corvi, the top right of the four - the one that spoils the otherwise neat rectangle).

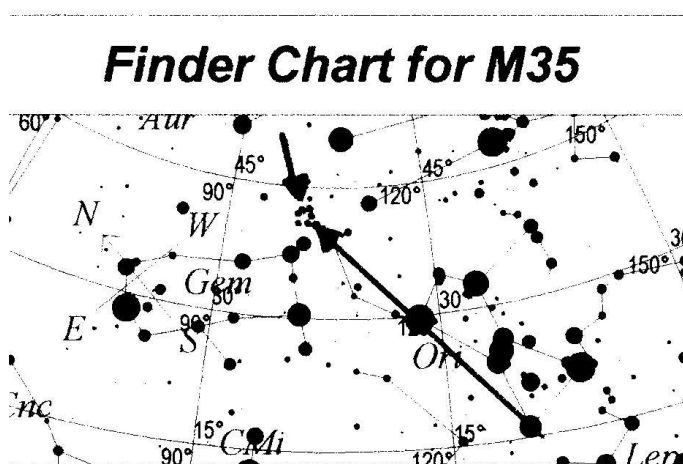
Galactic Clusters

M29. There are just two Messier objects in Cygnus, both clusters, this one containing some 80 stars but only 8 or 9 bright ones, giving the cluster a pleasingly open appearance (some are so crowded as to deny their designation as 'open' clusters). These brighter members appear to me to be displayed in the shape of a distorted 'H' and are well seen in any telescope at all powers. At x100

they crowd the centre of the field and in small apertures may give the appearance of being the only stars in the group. With increasing magnification more of the fainter members put in an appearance until at x250 the bright ones fill the field in a dazzling display with the fainter stars sparkling in the background. M29 is easy to find as it lies just 2° south and a smidgen east of the bright star Sadr at the centre of the Northern Cross. July to September are good times to view the cluster.



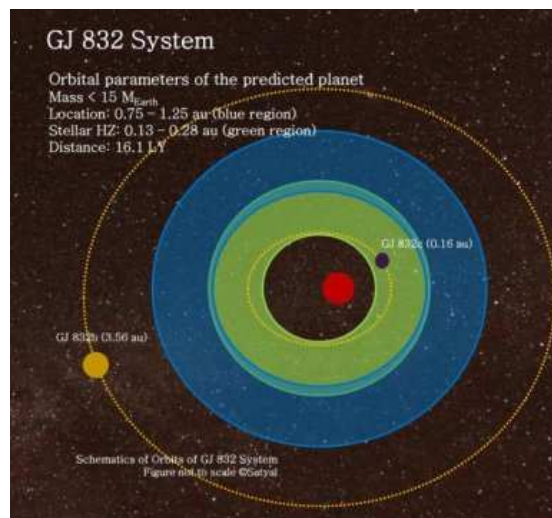
M35. This fellow suffers from being not far from the magnificent constellation of Orion and so gets less attention than it deserves. However, Orion is a most useful aid to locating it. Just follow a line upwards equal distance from its bottom left through top left bright stars and you're there (see finder chart). This Gemini cluster is good in any telescope with its brighter members more prevalent in the outer regions. In small instruments this may produce the appearance of a relatively dark centre. On good nights between December and March M35 can be seen with the naked eye and binoculars may show it as a tiny, hazy patch in a particularly pleasing general star field.



Bert Paice

Originally published in NZ - April 1998

Astrophysicists Predict Earth-like Planet in Star System Only 16 Light Years Away



Astrophysicists at the University of Texas at Arlington have predicted that an Earth-like planet may be lurking in a star system just 16 light years away.

The team investigated the star system Gliese 832 for additional exoplanets residing between the two currently known alien worlds in this system. Their computations revealed that an additional Earth-like planet with a dynamically stable configuration may be residing at a distance ranging from 0.25 to 2.0 astronomical unit (AU) from the star.

“According to our calculations, this hypothetical alien world would probably have a mass between 1 to 15 Earth’s masses,” said the lead author Suman Satyal, UTA physics researcher, lecturer and laboratory supervisor. The paper is co-authored by John Griffith, UTA undergraduate student and long-time UTA physics professor Zdzislaw Musielak.

UTA Physics Chair Alexander Weiss congratulated the researchers on their work, which underscores the University's commitment to data-driven discovery within its Strategic Plan 2020: Bold Solutions | Global Impact.

“This is an important breakthrough demonstrating the possible existence of a potential new planet orbiting a star close to our own,” Weiss said. “The fact that Dr. Satyal was able to demonstrate that the planet could maintain a stable orbit in the habitable zone of a red dwarf for more than 1 billion years is extremely impressive and demonstrates the world class capabilities of our department's astrophysics group.”

Read More at: <https://www.sciencedaily.com/>

The Implications Of Cosmic Silence



The universe is incomprehensibly vast, with billions of other planets circling billions of other stars. The potential for intelligent life to exist somewhere out there should be enormous.

So, where is everybody?

That's the Fermi paradox in a nutshell. Daniel Whitmire, a retired astrophysicist who teaches mathematics at the University of Arkansas, once thought the cosmic silence indicated we as a species lagged far behind.

"I taught astronomy for 37 years," said Whitmire. "I used to tell my students that by statistics, we have to be the dumbest guys in the galaxy. After all we have only been technological for about 100 years while other civilizations could be more technologically advanced than us by millions or billions of years."

Recently, however, he's changed his mind. By applying a statistical concept called the principle of mediocrity – the idea that in the absence of any evidence to the contrary we should consider ourselves typical, rather than atypical – Whitmire has concluded that instead of lagging behind, our species may be average. That's not good news.

In a paper published Aug. 3 in the International Journal of Astrobiology, Whitmire argues that if we are typical, it follows that species such as ours go extinct soon after attaining technological knowledge. (The paper is also available on [Whitmire's website](#).)

The argument is based on two observations: We are the first technological species to evolve on Earth, and we are early in our technological development. (He defines "technological" as a biological species that has developed electronic devices and can significantly alter the planet.)

The first observation seems obvious, but as Whitmire notes in his paper, researchers believe the Earth should be

habitable for animal life at least a billion years into the future. Based on how long it took proto-primates to evolve into a technological species, that leaves enough time for it to happen again up to 23 times. On that time scale, there could have been others before us, but there's nothing in the geologic record to indicate we weren't the first. "We'd leave a heck of a fingerprint if we disappeared overnight," Whitmire noted.

By Whitmire's definition we became "technological" after the industrial revolution and the invention of radio, or roughly 100 years ago. According to the principle of mediocrity, a bell curve of the ages of all extant technological civilizations in the universe would put us in the middle 95 percent. In other words, technological civilizations that last millions of years, or longer, would be highly atypical. Since we are first, other typical technological civilizations should also be first. The principle of mediocrity allows no second acts. The implication is that once species become technological, they flame out and take the biosphere with them.

Whitmire argues that the principle holds for two standard deviations, or in this case about 200 years. But because the distribution of ages on a bell curve skews older (there is no absolute upper limit, but the age can't be less than zero), he doubles that figure and comes up with 500 years, give or take.

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

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Cassini Prepares for Mission's End

The spacecraft has entered its final five orbits of Saturn



Cassini has begun its five final close passes of Saturn's atmosphere. Credit: NASA/JPL-Caltech

NASA's Cassini spacecraft is quickly nearing the end of its mission — and its life. Already in the aptly named Grand Finale portion of its mission, Cassini has begun its final five orbits around the ringed planet. The probe is also preparing for its final encounter with Saturn's largest moon, Titan — an encounter that will seal Cassini's fate.

On August 13, Cassini completed the first of five close passes over Saturn, skimming the giant's atmosphere at a height of just over 1,000 miles (1,600 kilometers). That's close enough to require the spacecraft to utilize its thrusters to maintain its course as it travels through denser portions of the atmosphere than before. However, Cassini has had practice at such manoeuvring, thanks to previous close passes over Titan, which itself is shrouded in a thick atmosphere.

Cassini's last encounter with Titan will take place September 11, when the moon's gravity will be used to tug the spacecraft into a trajectory that will end with its death plunge into the atmosphere of Saturn on September 15. That final encounter is the last chapter in a story that's included numerous gravity assists from the moon, which have, in large part, made the mission what it is. Thanks to the ability of Cassini to use Titan's gravity to modify its orbit, the spacecraft was able to carry less fuel and use that fuel more sparingly, increasing the science return possible from this landmark mission.

But Titan has provided more than a gravitational tool — it's also been a primary science target throughout the mission, and the landing site of Cassini's Huygens probe in 2005. During its time at Saturn, Cassini has revealed the surface of the surprisingly Earth-like moon, peering through the veil of its thick clouds to show mountains, dunes, and even seas of liquid hydrocarbons, where future probes may someday sail.

Cassini's last close pass to the moon was April 22, when flew 608 miles (979 kilometers) above the surface to take radar data. That data added detail to the growing

global picture of Titan, and included coverage of some of the very first terrain imaged during the spacecraft's first flyby of the moon in 2004. Scientists will use the most recent radar data to measure the depths of some of Titan's north polar lakes, as well as determine whether they contain liquid methane or ethane.

Even as the end of its mission nears, Cassini will continue to return never-before-seen information about Saturn to Earth. And during its September 15th swan song, its instruments will transmit data for as long as possible, offering a momentary glimpse beneath the tops of Saturn's swirling clouds.

Links etc at: <http://www.astronomy.com/>

Large Asteroid to Safely Pass Earth on Sept. 1



Asteroid Florence, a large near-Earth asteroid, will pass safely by Earth on Sept. 1, 2017, at a distance of about 4.4 million miles, (7.0 million kilometers, or about 18 Earth-Moon distances). Florence is among the largest near-Earth asteroids that are several miles in size; measurements from NASA's Spitzer Space Telescope and NEOWISE mission indicate it's about 2.7 miles (4.4 kilometers) in size.

“While many known asteroids have passed by closer to Earth than Florence will on September 1, all of those were estimated to be smaller,” said Paul Chodas, manager of NASA's Center for Near-Earth Object Studies (CNEOS) at the agency's Jet Propulsion Laboratory in Pasadena, California. “Florence is the largest asteroid to pass by our planet this close since the NASA program to detect and track near-Earth asteroids began.”

This relatively close encounter provides an opportunity for scientists to study this asteroid up close. Florence is expected to be an excellent target for ground-based radar observations. Radar imaging is planned at NASA's Goldstone Solar System Radar in California and at the National Science Foundation's Arecibo Observatory in Puerto Rico. The resulting radar images will show the real size of Florence and also could reveal surface details as small as about 30 feet (10 meters).

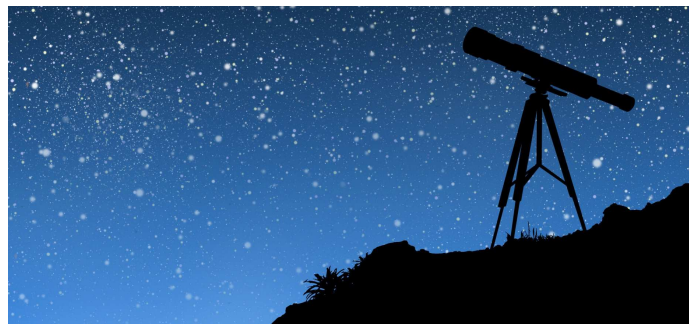
More at: <https://www.nasa.gov/>

Astro



1. Which naming convention is used for features on Venus?
 - They are named after famous women or given female names.
 - Named after famous astronomers.
 - They are named after famous men or given male names.
 - Given Alpha/Numeric designations.
2. What name is given to the centre of gravity of the Earth-Moon system?
 - Silacentre.
 - Earth-Moon gravity centre.
 - Barycentre.
 - Terracentre.
3. The Pleiades star cluster is also known by which other name?
 - The Seven Maidens.
 - The Seven Spinsters.
 - The Seven Virgins.
 - The Seven Sisters.
4. The O, B, A, F, G, K, M system is used to classify what?
 - Surface temperature (colour) of stars.
 - Probability of stars having habitable planets orbiting them.
 - Size of asteroids.
 - Classification of planets' atmospheres.
5. Why did a solar eclipse lead to a “rest day” in the 1980 Jubilee Test cricket match between India and England?
 - Lack of spectators due to religious ceremonies to mark the event.
 - An eclipse is regarded as bad luck among Hindus.
 - Fear of eye damage among spectators.
 - Lack of light could be dangerous for batsmen.
6. The Latin name for this constellation is Camelopardalis: its English name is which of the following?
 - The Unicorn.
 - The Giraffe.
 - The Camel.
 - The Leopard.
7. Which constellation of the Northern Hemisphere has a distinct “W” shape?
 - Taurus.
 - Ursa Major.
 - Cassiopeia.
 - Pegasus.
8. What is the name of the Danish astronomer (1546-1601) who had an artificial nose made from gold, silver and wax?
 - Tycho Brahe
 - Johann Madler
 - Ole Romer
 - John Dreyer
9. Which of the following was the first professional geologist to walk on the Moon?
 - Harrison Schmitt.
 - Alan Shepard.
 - Eugene Cernan.
 - Fred Haise.
10. In which country will you find the Megalithic Passage Tomb at Newgrange (built about 3200 BC), the passage and chamber of which are illuminated by the winter solstice sunrise (the sunlight shines through a roof box and penetrates the passage to light up the chamber, lasting for 17 minutes at dawn on the winter solstice)?
 - England
 - Wales
 - Scotland
 - Ireland

Answers on Page 10



NASA Plans to Send Cubesat to Venus to Unlock Atmospheric Mystery



CubeSats being deployed from the International Space Station during Expedition 47. Image: NASA

From space, Venus looks like a big, opaque ball. Thanks to its extremely dense atmosphere, which is primarily composed of carbon dioxide and nitrogen, it is impossible to view the surface using conventional methods. As a result, little was learned about its surface until the 20th century, thanks to development of radar, spectroscopic and ultraviolet survey techniques.

Interestingly enough, when viewed in the ultraviolet band, Venus looks like a striped ball, with dark and light areas mingling next to one another. For decades, scientists have theorized that this is due to the presence of some kind of material in Venus' cloud tops that absorbs light in the ultraviolet wavelength. In the coming years, NASA plans to send a CubeSat mission to Venus in the hopes of solving this enduring mystery.

The mission, known as the CubeSat UV Experiment (CUVE), recently received funding from the Planetary Science Deep Space SmallSat Studies (PSDS3) program, which is headquartered as NASA's Goddard Space Flight Center. Once deployed, CUVE will determine the composition, chemistry, dynamics, and radiative transfer of Venus' atmosphere using ultraviolet-sensitive instruments and a new carbon-nanotube light-gathering mirror.

More at: <https://www.universetoday.com/>

Can 'Large Stars' Anti-aging research' help future memory devices?

Nothing is forever, but is it possible to slow down inescapable decay? An inquiry into the delay of deterioration of quantum memory devices and formation of black holes explained with intuitive analogies from everyday life.

Inevitably, large stars at the end of their life collapse under the gigantic force of gravity, turning into black holes. We could cunningly ask if there is a way to delay this process; postpone the death of the star. While investigating "anti-aging therapy" of large stars, researchers at the Center for the Theoretical Physics of the Universe, within the Institute for Basic Science (IBS) conceptualized an ideal material that could store data for an exceptionally longer time than current short-lived devices, bringing new hints for future quantum memory technologies.

Archaeologists have been able to discover, and often decipher, messages left by ancient civilizations in clay tablet, stone or paper. These specimens made it into the 21st century, but will our digital messages survive in pristine condition for thousands of years? The production of new digital information is bigger than ever before, but silicon-based devices come with an expiration date: it is around 3 to 5 years for hard disks and 5 to 10 years for flash storage devices, CDs and DVDs. Sadly, all our priceless memories stored as digital photos, videos and digitalized documents are not going to be available to our descendants, unless of course we carefully copy them to new devices from time to time. Overcoming this limitation is one of the biggest challenges faced by scientists today. "We all die, but we want to slow down the aging process, so that we can live longer, much longer than now. The same goes for our digital data, we want to prolong their existence," explains Soo-Jong Rey, director of the Field, Gravity, and Strings Group at the Center for the Theoretical Physics of the Universe.

More at: <https://www.sciencedaily.com/>

Answers from page 9:

- 1 Famous women or given female names
- 2 Barycentre
- 3 The Seven Sisters
- 4 Surface temperature (colour) of stars
- 5 Fear of eye damage among spectators
- 6 The Giraffe
- 7 Cassiopeia
- 8 Tycho Brahe
- 9 Harrison Schmitt
- 10 Ireland



Comet C/2014 E2 Jacques Aug 2014 - Credit: Simon Plumley

NGC 896 (end of the Heart Nebula) and 55 minutes of comet movement. Celestron HD 11" 2,000mm Canon 650d x3 exposures combined F7

THE BACK PAGE

LINKS, COMMENTS AND OBSERVATIONS

Quantum Oddities

Get your head round the weird world of quantum mechanics.

1. [*Double slit experiment*](#) - Cartoon video explaining this fundamental experiment in quantum mechanics, including the basics of wave particle duality and the observer effect.
2. [*Schrodinger's cat*](#) - Page detailing the famous Schrodinger's cat thought experiment in quantum theory.
3. [*The strange world of quantum entanglement*](#) - Popular physics author Brian Clegg explains the basics of quantum entanglement and its applications for quantum computers and teleportation.
4. [*Teleportation Takes a Quantum Leap*](#) - Good clear article from the National Geographic on quantum teleportation, including its use in cryptography.

From <http://www.physics.org>

An Insider's Guide to Voyager: 1977-2017

From the first detection of active volcanoes outside Earth to the first up-close images of Neptune, the 40-year Odyssey of NASA's Voyager mission is full of unforgettable memories. Voyager 1, the farthest human-made object, launched on Sept. 5, 1977, and Voyager 2, the second farthest, launched on Aug. 20, 1977. In honor of their 40th launch anniversaries, we asked scientists and engineers who have worked with the spacecraft, as well as enthusiasts inspired by the mission, to share their most meaningful Voyager moments.

Some Voyager team members began their careers in the early days of the mission. Designing science sequences for the 1986 Uranus encounter was a first job after college for Suzanne Dodd, now the Voyager project manager: "We were making history," she said. Jamie Rankin, a current graduate student at Caltech in Pasadena, California, started working with Voyager Project Scientist Ed Stone just days after Voyager 1 entered interstellar space in 2012: "Every day as a graduate student here is like living in a legacy of discovery," she wrote.

Read these stories and more at: <https://www.jpl.nasa.gov/voyager/share/>

The era of exploration for Voyager continues even now, as showcased in a video about the mission. The twin Voyagers still send signals from deep space every day and collect valuable information about their environments. Voyager 1 is in interstellar space, while Voyager 2 is expected to cross over in the next few years. "The wonderful thing about the Voyager journey is not just that it's 40 years long, but in fact, it's still discovering new things because it's going where nothing has been before," Stone said.

Happy Birthday Voyager(s)!

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.

*"Geologists have a saying
- rocks remember"*
Neil Armstrong

*"I believe that a scientist
looking at nonscientific
problems is just as dumb
as the next guy"*
Richard Feynman

*"No man has a good
enough memory to be a
successful liar"*
Abraham Lincoln

*"All generalizations are
false, including this one"*
Mark Twain

*"It has yet to be proven that
intelligence has any
survival value"*
Arthur C Clarke