ECLIPSE NEWSLETTER

The Eclipse Newsletter is by-monthly newsletter dedicated to increasing the reader's knowledge of Astronomy, Astrophysics, Cosmology and related subjects. Please feel free to make suggestion as to the type of articles I cover as well as any specific topic you would like to have included. Photographs are always a welcome and appreciated.

Volume I, Number II
JANUARY-FEBUARY 2017

PLEASE SEND ALL COMENTS, PHOTOS, ARTICLES AND REQUEST FOR ARTICLES TO

eclipseastronews@gmail.com

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Public Nights at Mount Cuba.

Please visit mountcuba.org for a complete listing of Public Nights and Family Nights.

ASTRONOMICAL TERMS AND NAMES DEFINED:

When reading the articles in ECLIPSE, you may come across various terms and subject matter you may not be familiar with. Therefore, in each edition of ECLIPSE, we will review terms and subject matter relative to the articles.

Super-giant star: Supergiant stars are the largest stars in the universe. They can be thousands of times bigger than our Sun and have a mass up to 100 times greater. The largest known supergiant star, VY Canis Majoris, is up to 2,100 times the size of the Sun.

Redshift: In physics, redshift happens when light or other electromagnetic radiation from an object is increased in wavelength, or shifted to the red end of the spectrum. In general, whether or not the radiation is within the visible spectrum, "redder" means an increase in wavelength – equivalent to a lower frequency and a lower photon energy, in accordance with, respectively, the wave and quantum theories of light.

Supercluster: A Supercluster is a large group of smaller galaxy clusters or galaxy groups, which is among the largest-known structures of the cosmos. The Milky Way is part of the Local Group galaxy cluster (that contains more than 54 galaxies), which in turn is part of the Laniakea Supercluster. This supercluster spans over 500

million light-years, while the Local Group spans over 10 million light-years. The number of superclusters in the observable universe is estimated to be 10 million.

Zone of Avoidance: the area of the sky that is obscured by the Milky Way.

Nebula: a cloud of gas and dust in outer space, visible in the night sky either as an indistinct bright patch or as a dark silhouette against other luminous matter.

Horsehead Nebula: One of the best-known objects in the sky, the Horsehead Nebula strikes a memorable figure, illuminated from behind by a larger cloud of charged gas. Heated by a nearby star, the gas and dust form the familiar shape of an equine head.

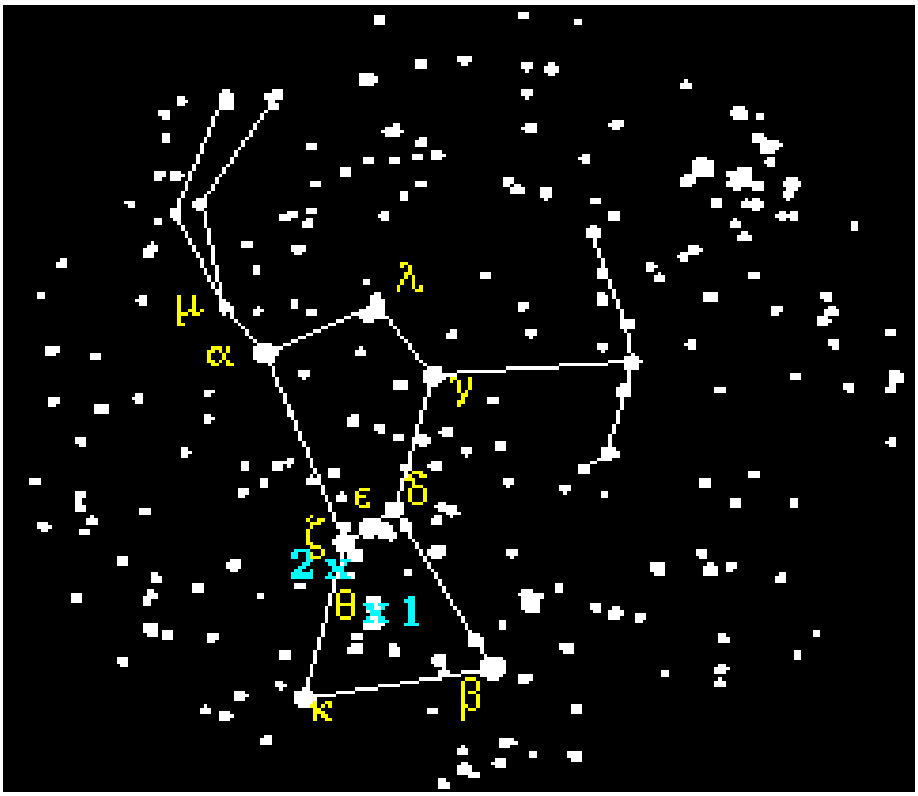
Messier objects: A group of fixed nonstellar celestial objects originally cataloged by the French astronomer Charles Messier (1730-1817) and since expanded from 103 to 110. Items in the Messier catalog are numbered from M1 (the Crab Nebula) through M110 and include what are now known to be galaxies, nebulae, and globular and open clusters. Messier's purpose was to further the search for comets by listing the indistinct celestial objects that might be mistaken for them; he had no understanding of what the items in his catalog actually were.

Olber's Paradox in Eureka: In astrophysics and physical cosmology, Olbers' paradox, named after the German astronomer Heinrich Wilhelm Olbers (1758–1840) and also called the "dark night sky paradox", is the argument that the darkness of the night sky conflicts with the assumption of an infinite and eternal static universe. The darkness of the night sky is one of the pieces of evidence for a dynamic universe, such as the Big Bang model. If the universe is static, homogeneous at a large scale, and populated by an infinite number of stars, any sight line from Earth must end at the (very bright) surface of a star, so the night sky should be completely bright. This contradicts the observed darkness of the night.

Retroreflectors: A device or surface that reflects light back to its source with a minimum of scattering. In a retroreflector an electromagnetic wavefront is reflected back along a vector that is parallel to but opposite in direction from the wave's source.

Constellation for January

Orion



The Great Hunter

The constellation Orion is perhaps the best known pattern in the night sky, rivaling the Big Dipper in fame, and the month of December is a great time for observers to reacquaint themselves with this celestial gem.

Formed from a distinctive pattern of bright stars, it is full of interesting and varied objects of interest to beginner and experienced astronomer alike. Located on the celestial equator, Orion is well placed for observers in all parts of the world except in the Polar Regions.

As seen by observers in the northern hemisphere, Orion the Hunter is represented by two bright stars, Betelgeuse and Bellatrix, marking his shoulders, and two more bright stars, Saiph and Rigel, marking his knees. His head is marked by Meissa and his belt, at a jaunty angle, by three stars in a line: Alnitak, Alnilam, and Mintaka. Hanging from his belt is his sword, with the famous Orion Nebula as its centerpiece.

Observers in the southern hemisphere see Orion standing on his head, and see his belt and sword as a saucepan. The sky map accompanying this article shows how the Orion constellation is formed from its component stars.

With one exception, all of the main stars in Orion are bright young blue giants or supergiants, ranging in distance from Bellatrix (243 light-years) to Alnilam (1,359 light-years). The Orion Nebula is farther away than any of the naked eye stars at a distance of about 1,600 light-years. One light-year is the distance light travels in a single year, about 6 trillion miles (10 trillion kilometers).

The exception is the star Betelgeuse, which is a red giant and one of the largest stars known. It is also the only star in the sky large enough and close enough to have been imaged as a disk in the Hubble Space Telescope. Observers with a keen eye should be able to see the difference in color between Betelgeuse and all the other stars in Orion.

A wealth of stars

Orion contains a wealth of double and multiple stars which can be explored with binoculars or a small telescope. Observers with binoculars should pay particular attention to three areas.

First, the area around Meissa, Orion's head, is actually a small star cluster known as Collinder 69. Secondly, the right-most star in Orion's belt, Mintaka, is a wide double star easily split in binoculars. Thirdly, the three "stars" which form Orion's sword are all totally amazing star systems, ranging somewhere between multiple stars and small open clusters of stars.

Observers with small telescopes will find a wealth of close doubles and multiples.

Rigel is an unusual pairing of a brilliant blue giant and a tiny white dwarf, almost lost in the glare from the primary. Sigma Orionis, just south of the left-most star in the belt, Alnitak, is one of the finest multiple stars in the sky. Finally, Theta, in the heart of the Orion Nebula, is a wide double which splits into a closer double and a quadruple star, the latter known as "the Trapezium." This resolves into four stars in a large telescope, with at least two fainter stars becoming visible when the seeing is really steady.

Nebulas galore

The "middle star" in Orion's sword, Theta Orionis, is swathed in nebulosity, glowing from the radiation of the hot young stars it contains. This is the most famous stellar nursery in the sky. The Hubble telescope has detected a number of protostars forming in this nebula region.

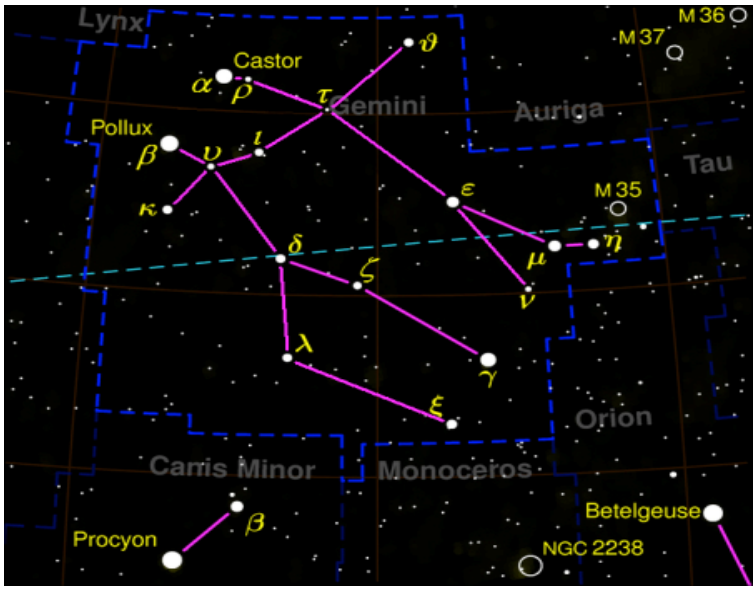
In a dark sky, the nebula can be seen with binoculars. In a small to medium telescope the view is truly wondrous. The nebula shows two wings, like bird's wings, enclosing the young stars in the middle of the nebula. Adding a nebula filter will bring out the mottled detail of the nebulosity, which John Herschel described as resembling "the breaking up of a mackerel sky when the clouds of which it consists begin to assume a cirrus appearance."

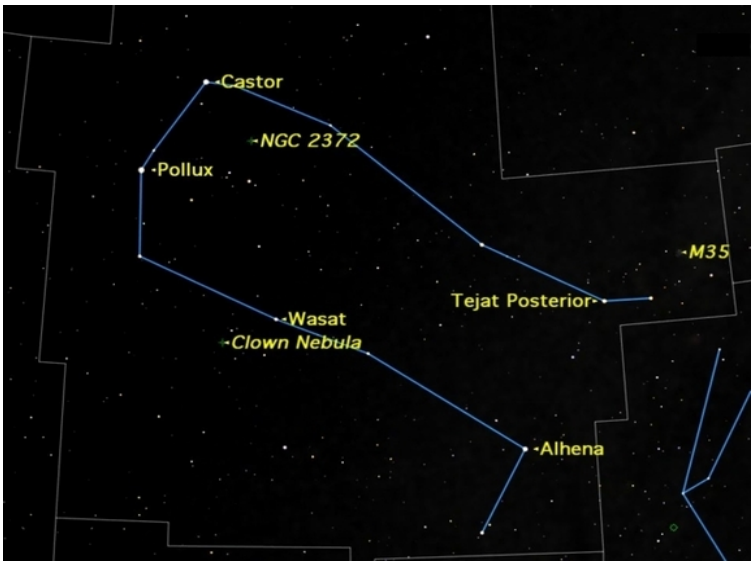
When observing the Orion Nebula, catalogued as M42 in the Messier catalog of deep sky objects, be sure to notice the dark bay in the nebula, known as the "fish mouth," which separates it from a smaller nebulosity which Messier catalogued as M43.

While looking at these Messier objects, check out Messier 78 (M78) on the opposite side of the belt. This nebula is unusual for being a reflection nebula rather than an emission nebula, lit by reflected starlight rather than glowing itself through the effects of stellar emissions.

Many beginners want to look for the Horsehead Nebula, surely one of the most photographed objects in the sky. Unfortunately, this is also one of the most difficult of all objects to observe visually, requiring a special hydrogen beta filter and an absolutely perfectly dark sky. Only a handful of very experienced observers have ever seen it.

Gemini – Constellation for February



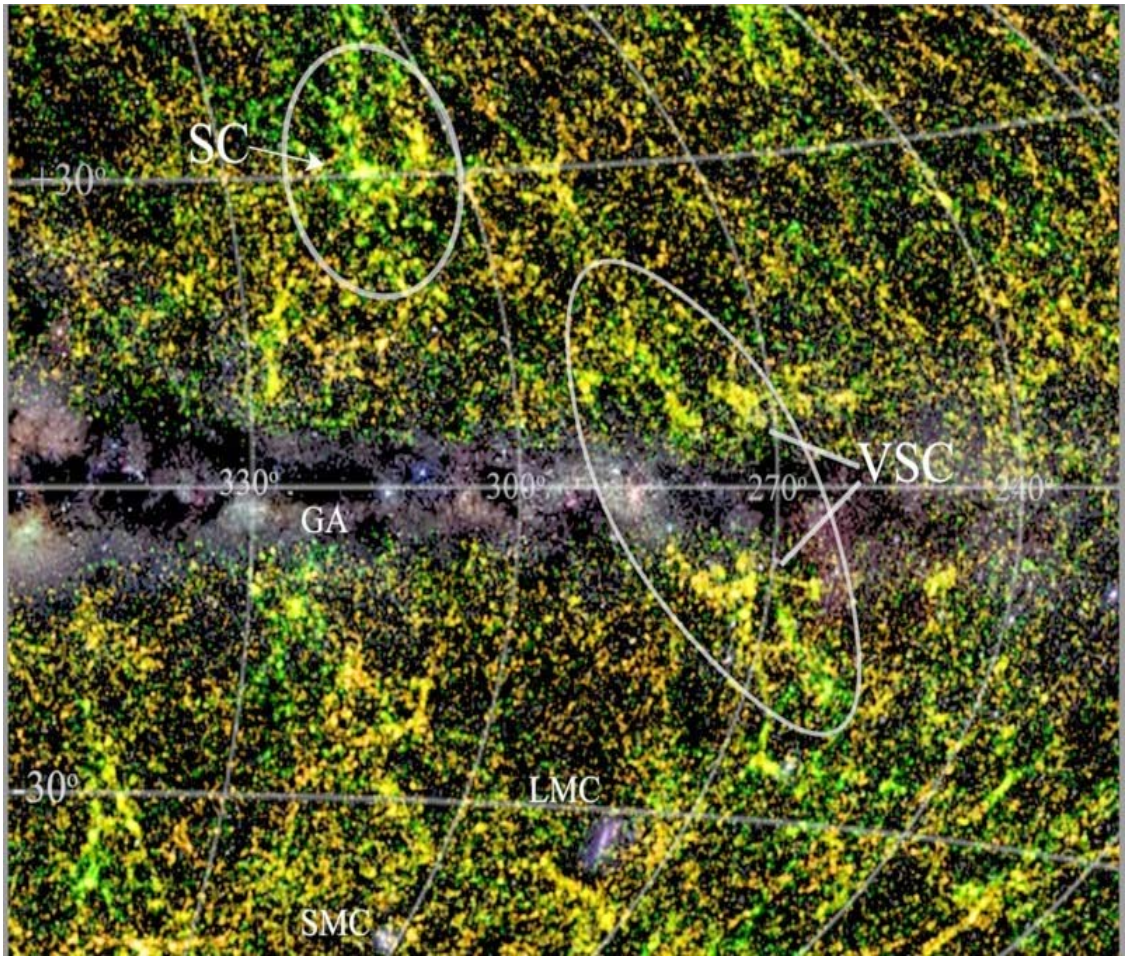


Gemini is Latin for "twins," and it is one of the few constellations that actually looks like its namesake. Gemini is one of the Zodiac constellations and one of the 48 constellations described by the 2nd century astronomer Ptolemy.

The constellation is named after the twins Castor and Pollux in Greek mythology. The two brightest stars — also named after Castor and Pollux — represent the heads of the twins, while fainter stars outline the two bodies. Pollux and orange-giant star (35 light-years) is the brighter of the twins. Castor is a sextuplet star system (50 light-years). Another noteworthy star is Mekbuda a super-giant star with a radius that is about 220,000 times the size of the Sun.

Other notable objects in the constellation include the Eskimo Nebula, Medusa Nebula and Geminga, a neutron star. It also include Messier object M35, part of a set of astronomical objects first in 1771 by French astronomer Charles Messier in 1771. M35 stands near the "feet" of the twins and astronomers estimate that the cluster is well more than 100 million years old.

Major supercluster of galaxies found hidden by the Milky Way



This image displays the smoothed redshift distribution of galaxies in and around the Vela supercluster (larger ellipse; VSC). The centre of the image, so-called the Zone of Avoidance, is covered by the Milky Way (with its stellar fields and dust layers shown in grey scale), which obscures all structures behind it. Colour indicates the distance ranges of all galaxies within 500 to 1,000 million light-years (yellow is close to the peak of the Vela supercluster, green is nearer and orange further away). The ellipse marks the approximate extent of the Vela supercluster, crossing the galactic plane. The VSC structure was revealed thanks to the new low latitude spectroscopic redshifts. Given its prominence on either side of the plane of the Milky Way it would be highly unlikely for these cosmic large-scale structures not to be connected across the galactic plane. The structure may be similar in aggregate mass to the Shapley Concentration (SC, smaller ellipse), although much more extended. The so-called

"Great Attractor" (GA), located much closer to the Milky Way, is an example of a large web structure that crosses the galactic plane, although much smaller in extent than VSC. The central, dust-shrouded part of the VSC remains unmapped in the current Vela survey. Also visible are the Milky Way's two satellite galaxies, LMC and SMC, located south of the galactic plane. Image credit: Thomas Jarrett (UCT).

An international team of astronomers has discovered a previously unknown major concentration of galaxies in the constellation Vela, which they have dubbed the Vela supercluster. The gravitational attraction from this large mass concentration in our cosmic neighbourhood may have an important effect on the motion of our Local Group of Galaxies including the Milky Way. It may also help to explain the direction and amplitude of the Local Group's peculiar velocity with respect to the cosmic microwave background.

Superclusters are the largest and most massive known structures in the universe. They consist of clusters of galaxies and walls that span up to 200 million light-years across the sky. The most famous supercluster is the Shapley supercluster, some 650 million light-years away containing two dozens of massive X-ray clusters for which thousands of galaxy velocities have been measured. It is believed to be the largest of its kind in our cosmic neighbourhood.

Now a team from South Africa, the Netherlands, Germany, and Australia including two scientists at the Max-Planck-Institut für Extraterrestrische Physik in Garching, has discovered another major supercluster, slightly further away (800 million light-years distant), which covers an even larger sky area than Shapley. The Vela supercluster had gone unnoticed due to its location behind the plane of the Milky Way, where dust and stars obscure background galaxies, resulting in a broad band void of extragalactic sources. The team's results suggest the Vela supercluster might be as massive as Shapley, which indicates that its influence on local bulk flows is comparable to that of Shapley.

The discovery was based on multi-object spectroscopic observations of thousands of partly obscured galaxies. Observations in 2012 with the refurbished spectrograph of the Southern African Large Telescope (SALT) confirmed that eight new clusters reside within the Vela area. Subsequent spectroscopic observations with the Anglo-Australian Telescope in Australia provided thousands of galaxy redshifts and revealed the vast extent of this new structure.

Prof. Renée Kraan-Korteweg from the University of Cape Town, who led this study and has been investigating this region for more than a decade, says: "I could not believe such a major structure would pop up so prominently," when she and her colleagues analysed the spectra of the new survey.

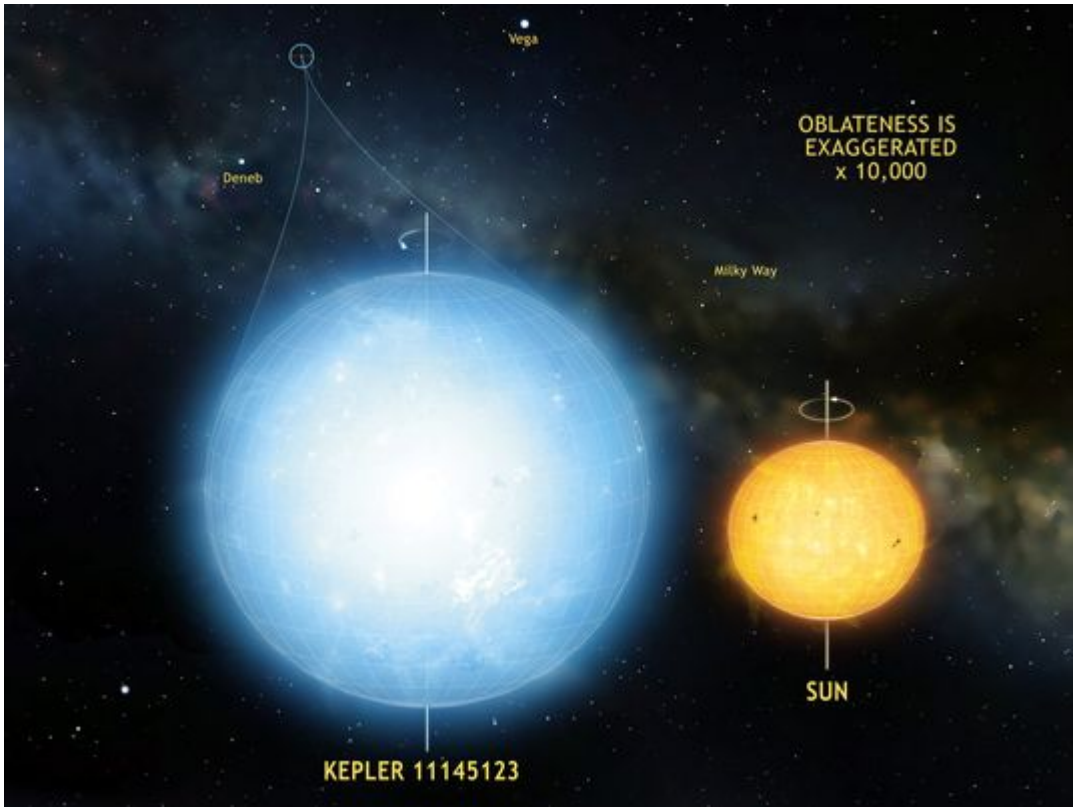
Scientists Hans Böhringer and Gayoung Chon from the Max-Planck-Institut für Extraterrestrische Physik in Garching have surveyed the supercluster region for X-ray luminous galaxy clusters and found two massive clusters in the region covered

by the redshift survey and further massive clusters in the immediate vicinity. They thus confirm: "This discovery shows that the Vela supercluster has a significantly higher matter density than average, making it a prominent large structure."

But there is still much to do — further follow-up observations are needed to unveil the full extent, mass, and influence of the Vela supercluster. So far this region of the sky is sparsely sampled, while the part closest to the Milky Way has not been probed because dense star and dust layers block our view. Planned observations with the new radio astronomical facility MeerKAT will in particular help to map this obscured region and further optical redshifts will be obtained with the new large-field-of-view multiobject-spectrograph, Taipan, from Australia.

The ongoing survey of X-ray luminous clusters conducted by the MPE team, Hans Böhringer and Gayoung Chon, has recently been extended to cover this region in the band of the Milky Way. The area of the Vela supercluster and its environment will receive special attention. "We already have good indications that the Vela supercluster is embedded in a large network of cosmic filaments traced by clusters, providing insight into the even larger-scale structure embedding the Vela supercluster. With the future multi-wavelength programme we hope to unveil its full influence on the cosmography and cosmology," Gayoung Chon remarks.

Scientists discover roundest object ever spotted in universe



(Photo: Laurent Gizon et al. and the Max Planck Institute for Solar System Research, Germany. Illustration by Mark A. Garlick.)

A distant star some 5,000 light-years from Earth has attained a newfound status as the roundest natural object ever discovered in the universe.

While still not a perfect sphere, Kepler 11145123 is only about 4 miles bigger at the equator than at the poles, according to a new study. That is astonishingly small compared to the star's average diameter of 2 million miles.

While the star is over twice the size of the sun, it is "significantly more round than the sun," said Laurent Gizon of Germany's Max Planck Institute for Solar System Research who lead the study published Wednesday in *Science Advances*.

Stars and planets are not perfect spheres. Instead, they tend to flatten out in the middle when they rotate due to centrifugal force. The sun is six miles bigger at the equator than at the poles, while the Earth is 13 miles bigger at the equator.

Astronomers used instruments aboard the Kepler space observatory to conduct the research. The technique used to measure the size of the star is relatively new and allowed astronomers to determine its size with unprecedented precision.

"We intend to apply this method to other stars observed by Kepler," Gizon said. "An important theoretical field in astrophysics has now become observational."

WHAT IS COSMOLOGY?

Cosmology is the branch of astronomy involving the origin and evolution of the universe, from the Big Bang to today and on into the future. According to NASA, the definition of cosmology is "the scientific study of the large scale properties of the universe as a whole."

Cosmologists puzzle over exotic concepts like string theory, dark matter and dark energy and whether there is one universe or many (sometimes called the multiverse). While other aspects astronomy deal with individual objects and phenomena or collections of objects, cosmology spans the entire universe from birth to death, with a boatload of mysteries at every stage. [7 Surprising Facts About the Universe]

Humanity's understanding of the universe has evolved significantly over time. In the early history of astronomy, Earth was regarded as the center of all things, with planets and stars orbiting it. In the 16th century, Polish scientist Nicolaus Copernicus suggested that Earth and the other planets in the solar system in fact orbited the sun, creating a profound shift in the understanding of the cosmos. In the

late 17th century, Isaac Newton calculated how the forces between planets — specifically the gravitational forces — interacted.

The dawn of the 20th century brought further insights into comprehending the vast universe. Albert Einstein proposed the unification of space and time in his General Theory of Relativity. In the early 1900s, scientists were debating whether the Milky Way contained the whole universe within its span, or whether it was simply one of many collections of stars. Edwin Hubble calculated the distance to a fuzzy nebulous object in the sky and determined that it lay outside of the Milky Way, proving our galaxy to be a small drop in the enormous universe. Using General Relativity to lay the framework, Hubble measured other galaxies and determined that they were rushing away from the us, leading him to conclude that the universe was not static but expanding.

In recent decades, cosmologist Stephen Hawking determined that the universe itself is not infinite but has a definite size. However, it lacks a definite boundary. This is similar to Earth; although the planet is finite, a person traveling around it would never find the "end" but would instead constantly circle the globe. Hawking also proposed that the universe would not continue on forever but would eventually end.

<u>Common cosmological questions.</u>

What came before the Big Bang?
Because of the enclosed and finite nature of the universe, we cannot see "outside" of our own universe. Space and time began with the Big Bang. While there is a number of speculations about the existence of other universes, there is no practical way to observe them, and as such there will never be any evidence for (or against!) them.

Where did the Big Bang happen?
The Big Bang did not happen at a single point but instead was the appearance of space and time throughout the entire universe at once.

If other galaxies all seem to be rushing away from us, doesn't that place us at the center of the universe?
No, because if we were to travel to a distant galaxy, it would seem that all surrounding galaxies were similarly rushing away. Think of the universe as a giant balloon. If you mark multiple points on the balloon, then blow it up, you would note that each point is moving away from all of the others, though none are at the center. The expansion of the universe functions in much the same way.

How old is the universe?
The universe is 13.7 billion years old, give or take a hundred million years or so.

Will the universe end? If so, how?
Whether or not the universe will come to an end depends on its density — how spread out the matter within it might be. Scientists have calculated a "critical

density" for the universe. If its true density is greater than their calculations, eventually the expansion of the universe will slow and then, ultimately, reverse until it collapses. However, if the density is less than the critical density, the universe will continue to expand forever. [More: How the Universe Will End]

Which came first, the chicken…er, the galaxy or the stars?
The post-Big Bang universe was composed predominantly of hydrogen, with a little bit of helium thrown in for good measure. Gravity caused the hydrogen to collapse inward, forming structures. However, astronomers are uncertain whether the first massive blobs formed individual stars that later fell together via gravity, or the mass came together in galaxy-sized clumps that later formed star.

Suggested additional reads. Google

What Happened Before the Big Bang? The New Philosophy of ...

Earths Days Have Lengthened.

I thank Mary Anna Webb, a friend and member of MCAO for bring this subject to my attention.

Credit: Brian Koberlein

The Earth and Moon are slowly moving apart. The moon's distance from the Earth is not constant, because the Moon's orbit is not perfectly circular. Over the course of

a month the moon comes as close as 363,000 km and as far as 405,000 km due to the eccentricity of its orbit. However its average distance is slowly increasing.

We have very precise measurements of the Moon's distance made by laser ranging. Retroreflectors were placed on the Moon during the Apollo missions, around the time when the picture above was taken. The retroreflectors let us bounce laser beams off the Moon, which lets us measure the distance of the Moon to within millimeters. What we've found after decades of observation is that the average distance of the Moon is increasing at a rate of about 3.8 centimeters per year. Not much compared to the range of its distance, but it builds up over time.

The reason for this increasing distance has to do with a property known as angular momentum. Angular momentum is a measure of the rotation of a system. In the case of the Earth and Moon, it includes the rotation of the Earth about its axis and revolution of the Moon around the Earth. The angular momentum of a system is constant, which means if the Earth loses angular momentum, the Moon must gain angular momentum.

It turns out the Earth does lose angular momentum. The days on Earth are getting longer by about 17 milliseconds per century. This slowdown is due to the tides of the Earth. As the oceans slosh back and forth, they slow down the Earth. But the tides are largely driven by the gravitational pull of the Moon, so as the Earth's rotation slows, the Moon gains angular momentum. It moves just a bit faster in its orbit, and that causes its orbit to get just a bit larger.

This increasing distance to the Moon is often used by "young Earth" creationists, who argue that since the Moon was closer in the past, it can't possibly be billions of years old. If you use the current rate of increase and the current average distance, you get a maximum age of the Moon of 10 billion years, which is much longer than the actual 4.5 billion year age of the Moon. But the argument is that if the Moon was closer, the tides would be stronger, therefore the rate of distance increase would have been greater in the past.

But we actually know the rate of increase was less in the past. We have geological records of ancient estuaries, where the tides were particularly high. With each tide a layer of silt was deposited, which creates tidal rhythmites. Since the length of the Earth's year is the same in the past as it is now, you can look at seasonal variations in the rhythmites to determine how many days there were in an ancient year. For example, we find that 620 million years ago a day was about 22 hours long instead of 24. From this we can determine that over geologic scales the Moon's orbit has been expanding by about 2.2 centimeters per year, which is less than the current level.

This difference is due to the fact that the Earth is changing shape. The Earth is not a perfect sphere. It is thicker at the equator than at the poles. Part of this is due to the Earth's rotation, but part of it is due to weight of ice at the polar regions. At the end of the last ice age about 10,000 years ago the ice of the polar regions melted, and the

Earth's crust continues to spring back to a more spherical shape. That means even more angular momentum is transferred from the Earth to the Moon, making its distance increase faster than it would by tides alone.

So there's no contradiction between the age of the Moon and the fact that it is slowly moving away from us.

Tides go in, tides go out. For billions of years.

ON THE LIGHT SIDE

I must admit to being a great Poe fan. Having come across this, I decided to use it not so much as a scientific fact but more as a view that deviates from the norm. It may be that you need to be a reader of Poe before you can enjoy such work but just the same I find it to be an interesting observation on Mr. Poe's part. Ed.

Did Edgar Allan Poe Foresee Modern Physics and Cosmology?

I've always been an Edgar Allan Poe fan, so much so that I even watched the horrifying—not in a good way--2012 film The Raven. But when I spotted an essay on Poe by novelist Marilynne Robinson in the February 5 New York Review of Books

I hesitated to read it, thinking, What more can I know about Poe?

Robinson then hooked me with her first sentence, which calls Poe "a turbulence, an anomaly among the major American writers of his period, an anomaly to this day." She went on to reveal something I definitely didn't know about Poe. Just before he died in 1849, when he was only 40, he wrote a book-length work titled Eureka.

According to Robinson, Eureka has always been "an object of ridicule," too odd even for devotees of Poe, the emperor of odd. But Robinson contends that Eureka is actually "full of intuitive insight"--and anticipates ideas remarkably similar to those of modern physics and cosmology.

Eureka, she elaborates, "describes the origins of the universe in a single particle, from which 'radiated' the atoms of which all matter is made. Minute dissimilarities of size and distribution among these atoms meant that the effects of gravity caused them to accumulate as matter, forming the physical universe. This by itself would be a startling anticipation of modern cosmology, if Poe had not also drawn striking conclusions from it, for example that space and 'duration' are one thing, that there might be stars that emit no light, that there is a repulsive force that in some degree counteracts the force of gravity, that there could be any number of universes with

different laws simultaneous with ours, that our universe might collapse to its original state and another universe erupt from the particle it would have become, that our present universe may be one in a series. All this is perfectly sound as observation, hypothesis, or speculation by the lights of science in the twenty-first century."

Curious, I found Eureka posted on the website of The Gutenberg Project. Poe's book strikes me as both strange and strangely familiar. It's like a 19th-century version of the many manuscripts I have received over the decades from brilliant but deranged autodidacts who have solved the secrets of the universe. Imagine what you might get if you toss Aristotle's Metaphysics and Newton's Principia in a blender along with scoops of gothic rhetoric and romantic philosophy. Eureka does indeed evoke some modern scientific ideas, but in the same blurry way that Christian or Eastern theologies do.

Here's an excerpt, in which Poe presents his theory of creation:

"Let us now endeavor to conceive what Matter must be, when, o

"Let us now endeavor to conceive what Matter must be, when, or if, in its absolute extreme of Simplicity. Here the Reason flies at once to Imparticularity—to a particle—to one particle—a particle of one kind—of one character—of one nature—of one size—of one form—a particle, therefore, 'without form and void'—a particle positively a particle at all points—a particle absolutely unique, individual, undivided, and not indivisible only because He who created it, by dint of his Will, can by an infinitely less energetic exercise of the same Will, as a matter of course, divide it. Oneness, then, is all that I predicate of the originally created Matter; but I propose to show that this Oneness is a principle abundantly sufficient to account for the constitution, the existing phenomena and the plainly inevitable annihilation of at least the material Universe. The willing into being the primordial particle, has completed the act, or more properly the conception, of Creation. We now proceed to the ultimate purpose for which we are to suppose the Particle created—that is to say, the ultimate purpose so far as our considerations yet enable us to see it—the constitution of the Universe from it, the Particle. This constitution has been effected by forcing the originally and therefore normally One into the abnormal condition of Many. An action of this character implies reaction. A diffusion from Unity, under the conditions, involves a tendency to return into Unity—a tendency ineradicable until satisfied. But on these points I will speak more fully hereafter. The assumption of absolute Unity in the primordial Particle includes that of infinite divisibility. Let us conceive the Particle, then, to be only not totally exhausted by diffusion into Space. From the one Particle, as a center, let us suppose to be irradiated spherically—in all directions—to immeasurable but still to definite distances in the previously vacant space—a certain inexpressibly great yet limited number of unimaginably yet not infinitely minute atoms."

I am grateful to Robinson for alerting me to Poe's peculiar work. But I winced at her claim that Poe's theorizing is "perfectly sound." She makes Eureka sound like a scientific treatise—but it is actually something far more ambitious and bizarre. Poe himself calls Eureka a "prose poem" and an "essay on the material and spiritual universe" [italics added].

His book closes with a riff that reminds me of the ravings—inspired by a drug trip - with which I conclude my book The End of Science. Unlike modern theories of everything, which are resolutely materialist and hence unsatisfying, Poe's is ultimately mystical:

"There was an epoch in the Night of Time, when a still-existent Being existed—one of an absolutely infinite number of similar Beings that people the absolutely infinite domains of the absolutely infinite space. It was not and is not in the power of this Being—any more than it is in your own—to extend, by actual increase, the joy of his Existence; but just as it is in your power to expand or to concentrate your pleasures (the absolute amount of happiness remaining always the same) so did and does a similar capability appertain to this Divine Being, who thus passes his Eternity in perpetual variation of Concentrated Self and almost Infinite Self-Diffusion. What you call The Universe is but his present expansive existence. He now feels his life through an infinity of imperfect pleasures—the partial and pain-intertangled pleasures of those inconceivably numerous things which you designate as his creatures, but which are really but infinite individualizations of Himself. All these creatures—all—those which you term animate, as well as those to whom you deny life for no better reason than that you do not behold it in operation—all these creatures have, in a greater or less degree, a capacity for pleasure and for pain:—but the general sum of their sensations is precisely that amount of Happiness which appertains by right to the Divine Being when concentrated within Himself. These creatures are all, too, more or less conscious Intelligences; conscious, first, of a proper identity; conscious, secondly and by faint indeterminate glimpses, of an identity with the Divine Being of whom we speak—of an identity with God. Of the two classes of consciousness, fancy that the former will grow weaker, the latter stronger, during the long succession of ages which must elapse before these myriads of individual Intelligences become blended—when the bright stars become blended—into One. Think that the sense of individual identity will be gradually merged in the general consciousness—that Man, for example, ceasing imperceptibly to feel himself Man, will at length attain that awfully triumphant epoch when he shall recognize his existence as that of Jehovah. In the meantime bear in mind that all is Life—Life—Life within Life—the less within the greater, and all within the Spirit Divine."

Now that is a theory of everything. But it isn't "sound," it's batshit crazy—in a good way.

Postscript: Gabriel Finkelstein, a friend and historian of science (author of a terrific biography of 19th-century polymath Emil du Bois-Reymond), notes below that Poe

has been credited with solving Olber's Paradox in Eureka. Note the skepticism with which Poe presents his solution: "Were the succession of stars endless, then the background of the sky would present us an uniform luminosity, like that displayed by the Galaxy—since there could be absolutely no point, in all that background, at which would not exist a star. The only mode, therefore, in which, under such a state of affairs, we could comprehend the voids which our telescopes find in innumerable directions, would be by supposing the distance of the invisible background so immense that no ray from it has yet been able to reach us at all. That this may be so, who shall venture to deny? I maintain, simply, that we have not even the shadow of a reason for believing that it is so."