Ode to E Pluribus Unum for Sunday March 27 2022

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Raven on the Rocks #10

Louisa Wallace Jacobs

The Raven (crow) may be the perfect bird for illustration. Recognized by shape and color and the mystic that accompanies them as bearers of both good and bad news, they have been an inspiration for artists throughout history.

My series, " Raven on The Rocks", started with the title and my usual attraction to alliteration. In the case of Raven #10, the animal emerges through a veil of painted drips and can be recognized by shape, not color. Acrylic on canvas.

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Jester's Cap

The Jester's Response to the March 20 2022 Ode

Julie Andrews

Julie Andrews is great, from Maria to Guenivere. The Favorite Things parody is merely wonderful--painful, but wonderful. Did you ever watch the original movie, *Bedazzled*? It's the one made in the 60s starring Dudley Moore and Peter Cook, not the one made about 20 years ago. If you've never seen it, do. Really hilarious. JA figures into it.

Quantum mechanics

Quantum mechanics, aka "quant mech," and relativity truly is mind bending stuff. What did it for me was the single photon interference demonstration for quant mech, and the meson decay demo done at sea level and on the top of Mt. Washington (New Hampshire). If those two don't make a believer out of you, nothing will.

Neal Stephenson's early work is great; later stuff not so much. One of the latter nonetheless was based on a quant mech duality idea. It dealt with the question of magic(k), and whether it could be real. He argued that, before 1851, sentiments ran about 50/50 on the subject; after that, it was seen as all gimmick. What changed?

What changed was photography--it had begun. And by beginning, it "collapsed the wave function" that had essentially allowed magic and anti-magic to coexist in equipoise. Specifically, it was the photograph of the solar eclipse that occured in 1851 during the World's Fair. Much of the rest of the novel is largely useless, but that idea was pretty clever of him.

And there's always a physics student at the University of Copenhagen was once faced with the following challenge:

"Describe how to determine the height of a skyscraper using a barometer."

The student replied: "Tie a long piece of string to the barometer, lower it from the roof of the skyscraper to the ground. The length of the string plus the length of the barometer will equal the height of the building."

This answer so incensed the examiner that the student was failed immediately. However, the student appealed on the grounds that the answer was indisputably correct, and the university appointed an independent arbiter to decide. The arbiter judged that the answer was indeed correct, but that it did not display any noticeable knowledge of physics.

To resolve the problem, it was decided to call the student and allow six minutes for him to provide an oral answer. For five minutes the student sat in silence, his forehead creased in thought. When the arbiter pointed out that time was running out, the student replied that he had several extremely relevant answers but could not decide which to use.

1. "Firstly, you could take a barometer up to the roof of the skyscraper, drop it over the edge and measure the time it takes to reach the ground, but too bad for the barometer.
2. "If the sun is shining you could measure the height of the barometer, then set it on end and measure the length of its shadow. Then you measure the length of the skyscraper's shadow, and thereafter it is a simple matter of proportional arithmetic.
3. "If you wanted to be highly scientific, you could tie a short piece of string to the barometer and swing it as a pendulum, first at ground level, then on the roof of the skyscraper. The height of the building can be calculated from the difference in the pendulum's period.
4. "If the skyscraper has an outside emergency staircase, it would be easy to walk up it and mark off the height in barometer lengths.
5. "If you wanted to be boring and orthodox, of course, you could use the barometer to measure the air pressure on the roof of the skyscraper and on the ground and convert the difference into a height of air.

"But since we are continually being urged to seek new ways of doing things, probably the best way would be to knock on the janitor's door and say: 'If you would like a nice new barometer, I will give you this one if you tell me the height of this building'." The student was allegedly Niels Bohr.

This story ties in well with an anecdote recounted in Abraham Pais' book Niels Bohr's Times, in Physics, Philosophy and Polity (Oxford, 1991).

In his youth, Bohr played goalkeeper in soccer. On one occasion his team was playing against a German side, and most of the action was taking place in the German half of the field. Suddenly the German team counterattacked, and a spectator had to shout to warn Bohr, who was using the goalpost to write down a mathematical problem.

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The Three Envelopes

The XYZ Corporation CEO was retiring and at his goodbye party he gave a farewell speech ending with his heartfelt advice to his successor.

"Here are three envelopes marked 1, 2, and 3. When things turn to worms open them one at a time in order. Adios"

Three months later the first worm appeared, causing Envelope 1 to come into play, that advised, "Blame the last CEO." He did and Worm number one turned allowing life at the company to move forward.
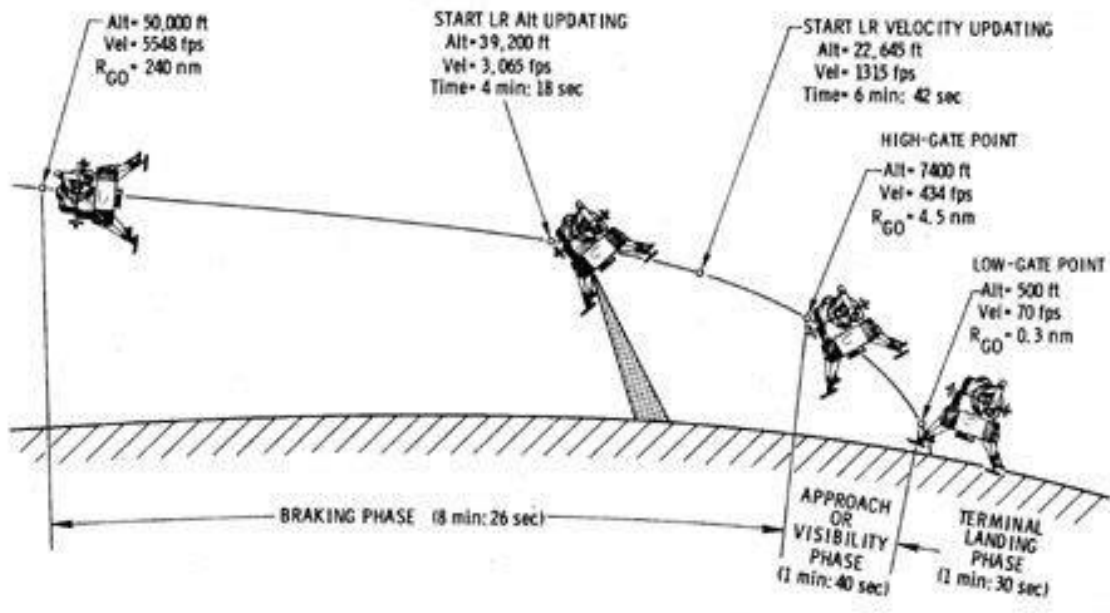
Things were fine for the next 16 months, then worm two showed up. Envelope 2 said, "reorganize," so the CEO, following the advice, shook things up top to bottom, and as before the worm departed.

Two more years went by before the third worm appeared, prompting a frantic dash to tear open Envelope 3, which said…

"Prepare Three envelopes"

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Want to See (and Hear) Apollo 11 Lunar Descent?

It's why it was done with test pilots. This video gives a second-by-second look and listen to how the professionals dealt with the unknown. Wow!

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Carrie Nation Attacks Again

A return to prohibition unlikely.

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Off We Go Again with the Gypsy Moth's New Name

Entomologists chose the common name as a nod to the invasive species' eggs

The invasive spongy moth (pictured) used to be called the gypsy moth, a pejorative term that entomologists have replaced with a name that references the insect's porous egg casings (seen here as brown masses beneath the moths).
john ghent/bugwood.org (cc by 3.0)

By Jude Coleman

A menacing pest just became a bit less problematic, at least socially, after getting an update to its common name. Lymantria dispar is an invasive insect previously known as the gypsy moth — a label that contains an ethnic slur. On March 2, the Entomological Society of America renamed L. dispar the spongy moth.

The updated term is a nod to the moth's porous egg casing. It was selected through ESA's Better Common Names Project, after hundreds of new name suggestions for L. dispar poured in from the public after the society retired the old name last July (SN: 8/25/21). ESA elected the moth for a rebrand primarily due to its frequent presence in conversation. Now, entomologists and gardeners alike can discuss the pervasive pest without using pejorative language. It's one action in a larger mission to decolonize science, which aims, in part, to create a more diverse and inclusive atmosphere in science.

"Decolonizing science is actually a really broad process," says Jessica Ware, the president of ESA and an entomologist at the American Museum of Natural History. "Addressing common names is just one piece of that."

This is the first rebranding that the project has tackled. It will continue to gather input on insect names that perpetuate stereotypes or contain insulting references. Ware says dozens of species are waiting to be addressed, such as the Asian giant hornet (Vespa mandarinia). And insects aren't the only offenders: Birds, mammals and plants often have names referencing racial or ethnic slurs or white colonizers.

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Juno Flyby of Ganymede and Jupiter

NASA Eyes Clearest Image Of Jupiter's Ganymede In Juno's Closest Flyby
Video Credit: Images: NASA, JPL-Caltech, SWRI, MSSS;
Animation: Koji Kuramura, Gerald Eichstädt, Mike Stetson; Music: Vangelis

What would it be like to fly over the largest moon in the Solar System? In June, the robotic Juno spacecraft flew past Jupiter's huge moon Ganymede and took images that have been digitally constructed into a detailed flyby.

https://youtu.be/CC7OJ7gFLvE

As the featured video begins, Juno swoops over the two-toned surface of the 2,000-km wide moon, revealing an icy alien landscape filled with grooves and craters. The grooves are likely caused by shifting surface plates, while the craters are caused by violent impacts.

Continuing on in its orbit, Juno then performed its 34th close pass over Jupiter's clouds. The digitally-constructed video shows numerous swirling clouds in the north, colorful planet-circling zones and bands across the middle -- featuring several white-oval clouds from the String of Pearls, and finally more swirling clouds in the south. Next September, Juno is scheduled to make a close pass over another of Jupiter's large moons: Europa.

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Bob Cardenas: The X-1's Quiet Driver

Bob Cardenas with Arado 234.
Credit Miramar National Cemetery Support Foundation.

Paul Bertorelli

My various research projects lead me on some interesting trips through photo archives and one that turns up repeatedly is also one of my favorites. It was probably shot in 1947 or 1948 and captured the flight operations team for the Bell X-1, the first aircraft to exceed Mach 1.

You'll immediately recognize Chuck Yeager in the front row, but unless you're an X-1 groupie like me, the others won't be familiar, perhaps especially the third from the left. That's Bob Cardenas, who died this week in California at the venerable age of 102. He was the last living member of the X-1 flight team. (Yeager died in 2020, at 97.)

Look closely and you'll see a major's oak leaves on Cardenas' shoulders for in addition to being the command pilot of the B-29 that dropped the X-1, Cardenas was senior and also the project officer charged by Wright-Patterson's Col. Albert Boyd with getting the X-1 to its Mach 1 goal as quickly as possible. Project engineer Jack Ridley—that's him on the far right—mapped out nine flights to get there. It took 13, with some stumbles along the way.

Like probably everyone in that photo, Cardenas' career took a winding road to the left seat of that B-29, with a no small share of happenstance, good fortune and coincidence. Improbably, he flew combat missions in a B-24 named Glamorous Glennis five years before he ever laid eyes on Yeager.

The X-1 team included (from left) Ed Swindell, Bob Hoover, Bob Cardenas, Chuck Yeager, Dick Frost and Jack Ridley.
(USAF Flight Test Center)

Cardenas joined the Army before the U.S. entered World War II and because he had learned to fly in gliders, his initial assignment was to set up a glider school that eventually morphed into the training operation that prepared pilots for the Normandy invasion and other airborne operations in Europe. Unlike Yeager and Hoover—that's Hoover in the back row, second from left—Cardenas had been at Wright-Patterson before his combat flying tour and had flight test experience, mostly in bombers.

That came in handy after he was shot down on his 20th mission over Friedrichshafen, Germany, in March of 1944. He escaped capture via an icy swim in Lake Constance before being plucked out of the water by a Swiss fisherman. Interned in neutral Switzerland, he was soon put to work test flying some 40 to 50 B-17s and B-24s that had landed in neutral Switzerland either damaged or low on fuel. The Swiss had so many of them that they were nervous about a bombing visit from the Luftwaffe and wanted to disperse them to mountain airports.

Later in 1944, Cardenas escaped through the French underground and eventually returned to Wright-Patterson and flight test work, some of it of captured German aircraft, including the Me 262 and Arado 234. Early in 1947, the arcs of those six men in the photo came together at an aircraft factory in Buffalo. They slung the X-1—the first pure research aircraft of its kind—and flew west to a wind-blown dry lake called Muroc.

Despite its crazy dangerous edge-of-technology bent, the X-1 progressed nearly as rapidly at Col. Boyd had wished it to. It had minor setbacks, but the unsung Major Cardenas kept it on track. In this series of interviews (Part 1, Part 2, Part 3) done with Cardenas by the San Diego Air and Space Museum in 2017, he describes some of the details from a perspective different from the well-trod recollections of Yaeger. Speaking of which, the interviewer seems to explore whether Cardenas knew Yeager had broken ribs after falling off a horse the night before the record flight. I say "seems" because

Cardenas suggests he didn't want to replace Yeager with Hoover because of animosity between the two pilots. The details of that may never be known, but if Cardenas did know, he assumed no small risk in ignoring it.

Cardenas did his own share of hairy flight testing, including the Northrop YB-49 which, on one stall test, tumbled about its lateral axis despite Northrop's insisting that this was impossible. Cardenas warned fellow flight test pilot Glen Edwards about this tendency, but the forewarning was insufficient. Edwards and pilot Daniel Forbes were killed when the YB-49 again tumbled, breaking up over Muroc, a base that would later be renamed after Edwards himself. Sadly, another man in the picture—Lt. Edward Swindell, far left—also died in that crash. Ironically, Cardenas thought so highly of Edwards that he had recommended him for the X-1 project. Col. Boyd overruled him and Yeager got the job instead. And standing behind Yaeger is the sixth man on the team, Bell Aircraft's Dick Frost. He briefed Yaeger on the X-1 and oversaw his initial flights.

Even if he hadn't sought it, Yeager basked in the public limelight. Cardenas was the diametric opposite. He once told an interviewer he didn't give a damn if his name was noted in the newspaper. That proved unavoidable in 1949, however. At the behest of President Harry Truman, Cardenas flew the YB-49 nonstop from California to Washington, D.C., in just over four hours, a new record. Truman clambered into the cockpit and told Cardenas he was going to buy some of YB-49s for a new bomber fleet. Cardenas winced, because, as he later said, the airplane "wouldn't bomb worth a goddamn" because of its inherent roll instability.

Nonetheless, insisted Truman, he wanted to show off what he was about to buy, so he ordered Cardenas to fly it at roof top level down Pennsylvania Avenue. Dodging trees and wires, Cardenas complied, pulling up at the last second to miss the capitol dome. A well-timed photo caught what would foretell a future made possible only by the advent of fly by wire: a practical flying wing bomber.

Later in his career, Cardenas continued in flight test, flew combat and training missions in the F-105 in Vietnam and, upon being promoted to brigadier general, was given command of the Air Force Special Operations Force. As a personal project after retirement, he was instrumental in establishing the Miramar National Cemetery.

In a life filled with curiosities, ironies and unpredictable twists, Robert Leon Cardenas died on his 102nd birthday, March 10, 2022. Although little heralded, as he would have wished, his legacy is more than a century's worth of consequence.

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It's Not Faster than a Speeding Bullet, But...

https://youtu.be/CaycHxDMpRg

It's Super Duper Drone.

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Pipelines vs Trains vs Cargo Ships

Someone with a sharp mind and the capacity to do a little research spent time putting some numbers together:

- 1 Train has 100 cars, 2 engines and weighs 27,240,000 lbs
- 1 Train carries 3,000,000 gallons of oil.
- 1 train uses 55.5 gallons of diesel per mile. It takes 119,000 gallons of diesel to go 2150 miles from Hardidsy, AB to Freeport, TX.

- *Keystone pipeline was to deliver 34,860,000 gallons of oil per day.*
- It would take 12 trains and 1,428,000 gallons of diesel to deliver that amount. *per day,* 521,220,000 gallons of diesel per year.

The oil will still go to market with or without the pipeline.

By stopping the pipeline billions of gallons of diesel will be wasted and pollute needlessly. Does that make you feel good?

Stop the Tar Sands all together? Then we must ship the oil from the overseas sandbox.

- 1 large oil tanker can haul 120,000,000 gallons of oil
- 1 boat takes 15 days to float across the Atlantic.
- 1 boat uses 63,000 gallons of fuel *per day*, that is about 1 million gallons of the most polluting type fuel in the world *per trip*.
- *Or take 3.5 days of Keystone Pipeline to move the same amount of oil with a fraction of the pollution.*

In international waters ship emissions remains one of the least regulated parts of our global transportation system.

The fuel used in ships is waste oil, basically what is left over after the crude oil refining process. It is the same as asphalt and is so thick that when cold it can be walked upon.

It's the cheapest and most polluting fuel available and the world's 90,000 ships chew through an astonishing 7.29 million barrels of it each day, or more than *84%* of all exported oil production from Saudi Arabia.

Shipping is by far the biggest transport polluter in the world.

- There are 760 million cars in the world today emitting approximately 78,599 tons of Sulfur Oxides (SOx) annually.
- The world's 90,000 vessels burn approx 370 million tons of fuel per year emitting 20 million tons of Sulfur Oxides. That equates to *260 times more* Sulfur Oxides being emitted by ships than the worlds entire car fleet.
- One large ship alone can generate approx 5,200 tons of sulfur oxide pollution in a year, meaning that 15 of the largest ships now emit as much SOx as the world's 760 million cars.

Eliminate all gas consuming cars and diesel vehicles?

- Worldwide car gas consumption is 403,583,712,000 gallons a year. That's billion.
- Worldwide oil consumption is 1,500,000,000,000 gallons a year. That's trillion.
- It takes 2.15 gallons of oil to make 1 gallon of gasoline/petrol, and 0.6 gal of diesel.
- So it takes 867,704,980,800 gallons of oil to run the worlds cars, most diesel vehicles for a year and some ships
- That leaves 632,295,019,200 gallons of oil for other uses.

Conclusion? Passenger vehicles are only a very small percentage of the problem.

Killing Keystone must reflect agenda outside conventional wisdom. You might wonder what it is.

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Dealing with Threat Levels Around the Globe

The English are feeling the pinch in relation to recent Russian threats and have therefore raised their security level from "Miffed" to "Peeved." Soon, though, security levels may be raised yet again to "Irritated" or even "A Bit Cross." The English have not been "A Bit Cross" since the blitz in 1940 when tea supplies nearly ran out. The Russians have been re-categorized from "Tiresome" to "A Bloody Nuisance." The last time the British issued a "Bloody Nuisance" warning level was in 1588, when threatened by the Spanish Armada.

The Scots have raised their threat level from "Pissed Off" to "Let's Get the Bastards." They don't have any other levels. This is the reason they have been used on the front line of the British army for the last 300 years.

The French government announced yesterday that it has raised its terror alert level from "Run" to "Hide." The only two higher levels in France are "Collaborate" and "Surrender." The rise was precipitated by a recent fire that destroyed France's white flag factory, effectively paralyzing the country's military capability.

Italy has increased the alert level from "Shout Loudly and Excitedly" to "Elaborate Military Posturing." Two more levels remain: "Ineffective Combat Operations" and "Change Sides."

The Germans have increased their alert state from "Disdainful Arrogance" to "Dress in Uniform and Sing Marching Songs." They also have two higher levels: "Invade a Neighbor" and "Lose."

Belgians, on the other hand, are all on holiday as usual; the only threat they are worried about is NATO pulling out of Brussels.

The Spanish are all excited to see their new submarines ready to deploy. These beautifully designed subs have glass bottoms so the new Spanish navy can get a really good look at the old Spanish navy.

Australia, meanwhile, has raised its security level from "No worries" to "She'll be all right, Mate." Two more escalation levels remain: "Crickey! I think we'll need to cancel the barbie this weekend!" and "The barbie is cancelled." So far, no situation has ever warranted use of the final escalation level.
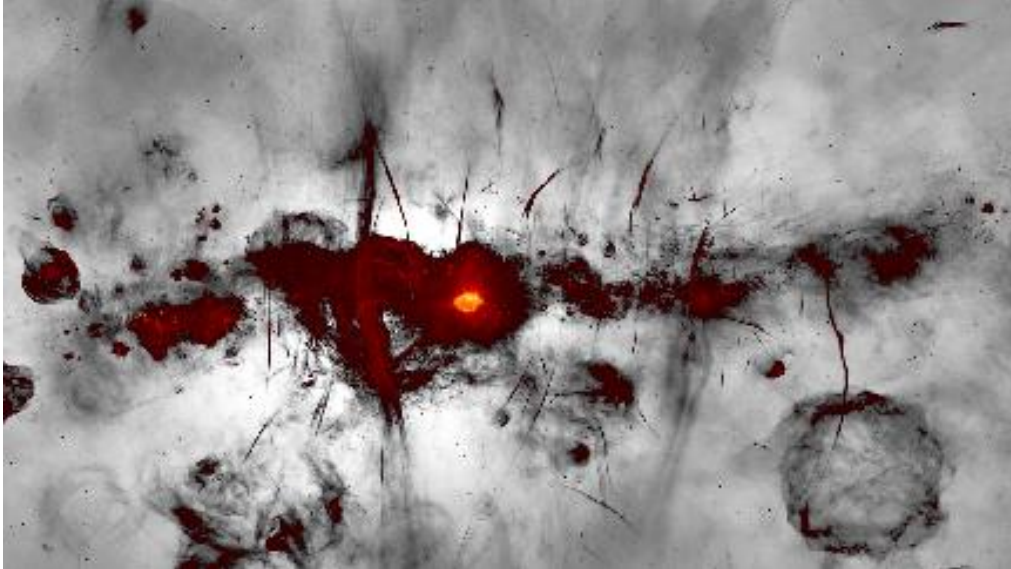
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At least you always knew where it was.
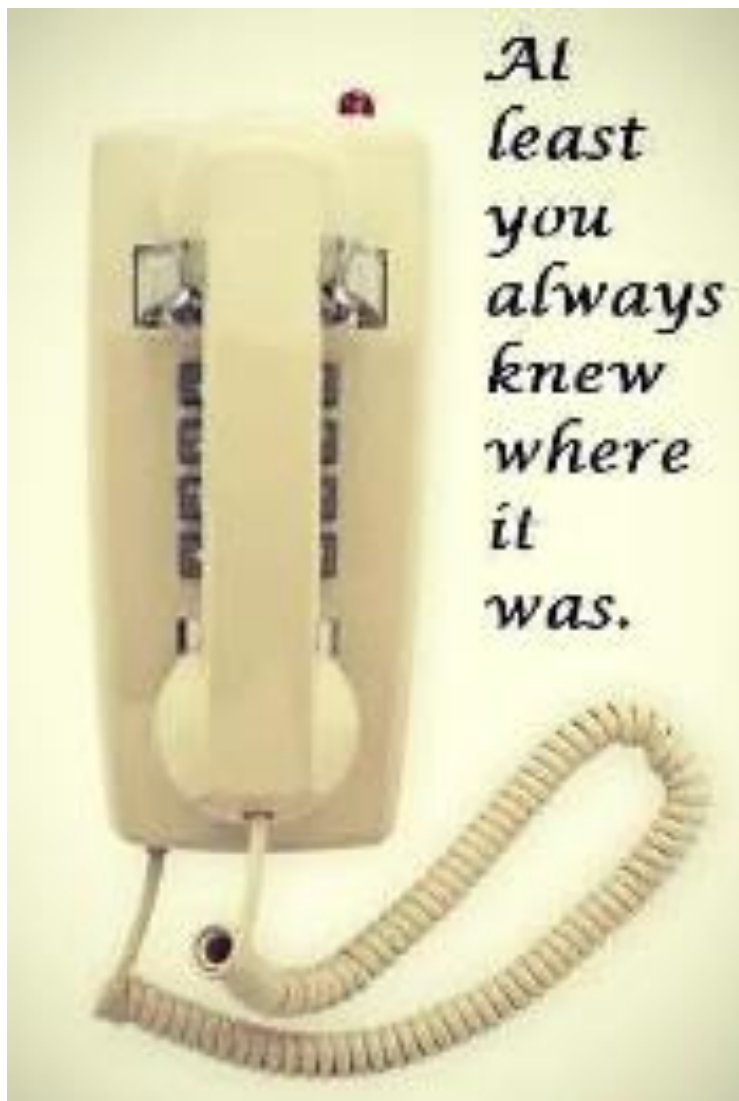
The Heart of the Milky Way in this New Radio Image

Wispy filaments accent the brightest spot, supermassive black hole Sagittarius A*

The MeerKAT telescope array in South Africa provided this image of radio emissions from the center of the Milky Way. Stronger radio signals are shown in red and orange false color. Fainter zones are colored in gray scale, with darker shades indicating stronger emissions.
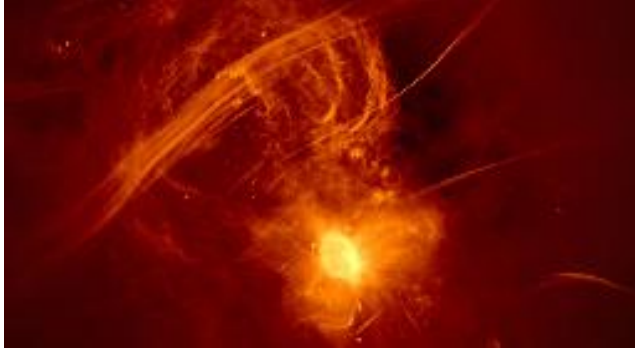i. heywood/sarao

By Lisa Grossman

An image that looks like a trippy Eye of Sauron or splatter of modern art is actually a new detailed look at the Milky Way's chaotic center, as seen in radio wavelengths.

The image was taken with the MeerKAT radio telescope array in South Africa over the course of three years and 200 hours of observing. It combines 20 separate images into a single mosaic, with the bright, star-dense galactic plane running horizontally. The MeerKAT team describes the image in a paper to be published in the Astrophysical Journal.

MeerKAT captured radio waves from several astronomical treasures, including supernovas, stellar nurseries and the energetic region around the supermassive black hole at the galaxy's center (SN: 8/31/21; SN: 9/17/19). One puffy supernova remnant can be seen in the bottom right of the image, and the supermassive black hole shows up as the bright orange "eye" in the center.

The supermassive black hole Sagittarius A*, which sits at the center of the Milky Way, shines in the lower center of this closeup image from the MeerKAT radio telescope. Mysterious thin filaments accent the galaxy's center.
i. heywood/sarao

Other intriguing features are the many wispy-looking radio filaments that slice mostly vertically through the image. These filaments, a handful of which were first spotted in the 1980s, are created by accelerated electrons gyrating in a magnetic field and creating a radio glow. But the filaments are hard to explain because there's no obvious engine to accelerate the particles.

"They were a puzzle. They're still a puzzle," says astrophysicist Farhad Yusef-Zadeh of Northwestern University in Evanston, Ill., who discovered the filaments serendipitously as a graduate student.

Previously, scientists knew of so few filaments that they could study the features only one at a time. Now MeerKAT has revealed hundreds of them, Yusef-Zadeh says. Studying the strands all together could help reveal their secrets, he and colleagues report in a paper to be published in the Astrophysical Journal Letters. "We're definitely one step closer to seeing what these guys are about," he says.

The observatory released the data behind the imagery as well, so other scientists can run their own analyses on it. "There's going to be a lot of science coming," Yusef-Zadeh says.
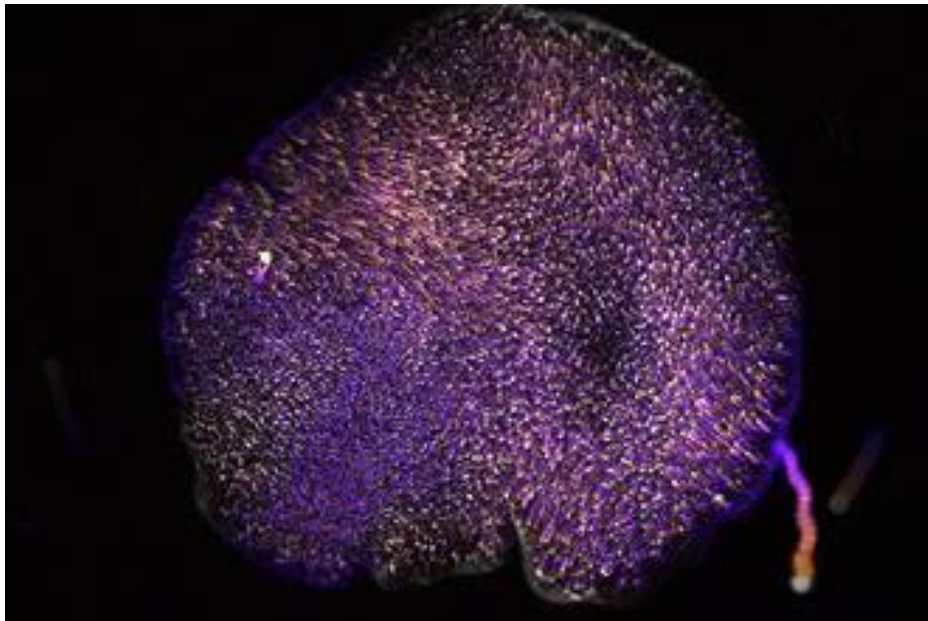
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"The price good men pay for indifference to public affairs is to be ruled by evil men." --Plato

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SURVIVAL TIP: If you get lost in the woods start talking about politics and someone will show up to argue with you.

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This Animal's Behavior Is Mechanically Programmed

New work shows that biomechanical interactions among the animal's cilia are sufficient to explain how it moves.

https://www.quantamagazine.org/before-brains-mechanics-may-have-ruled-animal-behavior-20220316?mc_cid=80d950ddd6&mc_eid=636bc88d2e

Biomechanical interactions, rather than neurons, control the movements of one of the simplest animals. The discovery offers a glimpse into how animal behavior worked before neurons evolved.

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Classical Computers Race to Catch Up with Quantum Advantage

Ieva Čepaitė

Going faster: In the race for computational advantage, classical machines are less far behind than previously thought.
(Courtesy: istock/UroshPetrovic)

For quantum computers to be considered viable, they need to successfully and verifiably perform tasks that are hard to reproduce on any classical computer – a situation known as "quantum advantage". As both quantum computers and classical methods improve, however, it becomes difficult to draw the line beyond which quantum machines have the upper hand.

A recent development spearheaded by researchers at the University of Bristol, UK, has taken the competition up a notch by showing that classical machines can solve one such "hard" task drastically faster than previously thought. Although the quantum computer remains in the lead, the Bristol team's new algorithm narrows the gap between classical and quantum by about nine orders of magnitude.

Photonic advantage

In late 2020 experimentalists at the University of Science and Technology of China (USTC) reported that they had demonstrated quantum advantage using a technique known as Gaussian boson sampling (GBS). Their experiment was based on the idea that the task of sampling probability distributions generated by quantum states in certain settings is known to be intractable for classical computers.

In GBS, the probability distributions come from a set of photons that pass through optical circuits. As the photons travel through the circuit, they interfere with one another before being measured. As the size of the optical circuit and the number of photons increases, calculating the statistics of the output measurements gets exponentially harder for classical computers. In just a few minutes, the quantum set-up built by the USTC team managed to calculate what a classical machine was expected to require several million years to compute.

Classical speedup

Unfazed by this gigantic gap, a team at Bristol's Quantum Engineering Technology Labs (QET Labs), along with colleagues at Imperial College London and Hewlett Packard

Enterprise, took on the challenge and came up with a way to reduce the classical runtime for solving the same problem. They showed, in a recent paper in Science Advances, that it is possible to simulate USTC's experiment in mere months – a speed-up factor of around a billion when compared to previous estimates.

This new result overhauls several algorithms used in GBS simulations and outputs the results of an experiment, with the possibility to add noise and errors at will. This extra ability sets it apart from many other efficiency-focused simulation algorithms, which tend to explicitly rely on the way errors affect the output of the physical experiment to achieve faster simulation times. Adding noise models that represent experimental losses to classical simulations of GBS has been shown to reduce their complexity and hence shorten their runtime.

Implications and a look to the future

According to Jacob F Bulmer, a PhD student at Bristol and a lead author of the study, the goal of these experiments and simulations is not to solve a particular real-world problem. Rather, it is to better understand and demonstrate the criteria for quantum advantage. While the new result is still not faster than the quantum experiment, it pokes holes in what was previously conceived to be "difficult" for classical computers and raises the bar for future experiments.

Quantum advantage takes a giant leap in optical and superconducting systems

"I think the main implication is that we provided a clear benchmark which GBS experiments should be compared against," Bulmer explains. "I hope that from now on, any new progress in GBS will include a comparison to our methods, which stand as the fastest classical algorithms for exact simulation of GBS."

The race for quantum advantage is not over. On the classical side, the Bristol researchers have yet to fully exploit the noise and imperfections of experimental set-ups in ways that would speed up their simulations even further. At the same time, quantum technologies are continuing to race ahead. In October 2021, the USTC group reported new results in Physical Review Letters that surpass their 2020 findings by a large margin. Although the USTC team did not provide a benchmark against the new classical algorithm, with advances coming from both sides, it remains to be seen what quantum advantage really means for GBS.

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Scots of the Desert

An Arab Sheik was admitted to the Hospital for heart surgery, but prior to the surgery, the doctors needed to have some of his blood type stored in case the need arose.

As the gentleman had an extremely rare type of blood that couldn't be found locally, the call went out around the world.

Finally, a Scotsman was located who had the same rare blood type. After some coaxing, the Scot donated his blood for the Arab.

After the successful surgery, the Arab sent the Scotsman a BMW, a diamond necklace for his wife, and $100,000 US dollars in appreciation for the blood donation.

A few months later, the Arab had to undergo a further corrective surgery procedure. Once again, his doctor telephoned the Scotsman who was more than happy to donate his blood.

After the second surgery the Arab sent the Scotsman a thank-you card and a box of Quality Street chocolates.

The Scotsman was shocked that the Arab did not reciprocate his kind gesture as he had anticipated. He phoned the Arab and asked him; "I thought you would be more generous than that. Last time you sent me a BMW, diamonds and money, but this time you only sent me a thank-you card and a box of chocolates?"

To this the Arab replied: "Aye laddie, but I now have Scottish blood in me veins."

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Why is the Medical Symbol a Snake on a Stick?

By Remy Melina , Ben Biggs

It doesn't exactly scream "I'll heal you!"

The medical symbol of serpents wrapped around a staff is a familiar one in the field, decorating pharmaceutical packaging and hospitals alike. Snake bites are generally bad news so the animal might seem ill-fitting as the symbol of the medical profession, but the ancient emblem actually has quite a story behind it.

There are actually two versions of the symbol. The winged version is known as a caduceus and the stick is actually a staff that was carried by the Olympian god Hermes. In Greek mythology, Hermes was a messenger between the gods and humans (which explains the wings) and a guide to the underworld (which explains the staff). Hermes was also the patron of travellers, which makes his connection to medicine appropriate because doctors of the olden days had to travel great distances by foot in order to visit their patients.

In one version of Hermes' myth he is given the staff by Apollo, who was the god of healing among other attributes. In another version, he receives the staff from Zeus, the king of the gods, and it is entwined with two white ribbons. The ribbons were later replaced by serpents, as one story tells that Hermes used the stick to separate two fighting snakes, which then coiled around his staff and remained there in balanced harmony.

*The Greek God, Hermes, is often depicted with the cadaceous.*

Another, earlier depiction of the medical symbol is the staff of Asclepius, though it has no wings and only one snake. The son of Apollo and the human princess Coronis, Asclepius is the Greek demigod of medicine. According to mythology, he was able to restore the health of the sick and bring the dead back to life.

In one telling, Zeus killed Asclepius with a thunderbolt for disrupting the natural order of the world by reviving the dead, while another version states that Zeus killed him as punishment for accepting money in exchange for conducting a resurrection. After he died, Zeus placed Asclepius among the stars as the constellation Ophiuchus, or "the serpent bearer."

The Greeks regarded snakes as sacred and used them in healing rituals to honor Asclepius, as snake venom was thought to be remedial and their skin-shedding was viewed as a symbol of rebirth and renewal. Which is a good thing to keep in mind the next time you spot a medical alert bracelet featuring the seemingly sinister serpents.

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Why Schrödinger's cat"
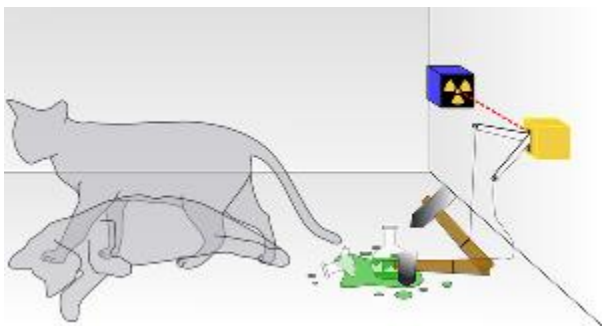
You'd think the complete description of a system of particles must include the positions of those particles. If one insists on that, then one arrives rather quickly at Bohmian mechanics. And if one insists on the implausible completeness assumption one arrives instead at Schrödinger's paradoxical cat. Garbage in, garbage out!

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My Walking Thoughts
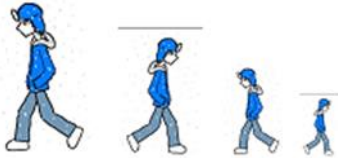
March 27, 2022

Out of the Light and into the Dark

According to current astrophysics thinking, the vast majority of the universe is made up of dark matter locked in mortal combat with its evil opponent, dark energy.

Speculations on such things as space-time, the big bang, black holes, etc. have been in circulation for quite some time, but dark matter and energy? Not so much nor so long, nor have there been cogent explanations for their existence…if indeed they exist at all. But fairly certainly something does, which is why the heavy thinkers want to gravitate back to the very beginning and take a peek at the cards.

As I understand the logic, because of the universe's small size early in its life, dark matter's gravity was able to hold dark energy's repulsive force at bay. As the universe expanded, however, things changed until today (March 27, 2022) dark energy is in charge, ripping the cosmos apart.

While you and I might not feel it, the disintegration, tomorrow's rip will be greater until at some distant tomorrow it will be 'lights out', producing a situation akin to that at the beginning of today's universe.

Or is there something else at play?

While the James Webb telescope won't take us to the farthest horizons of the universe—won't see dark matter regardless of how dense it might have been in the first instants—it will provide us with new clues on which new inferences will be drawn. Ditto NASA's now-in-the-planning-stage, SPHEREx, scheduled to launch sometime before April 2025 (care to bet on that), which will probe what happened within the first second after the big bang, how galaxies formed and evolved.

Somewhere in my earlier 'dark ages' days I imagined if ever we were to see beyond the universe's fateful horizon, we might find it populated with the likes of Pluto, Mickey, Donald, and Popeye…all dangling from puppet strings giggling at our ignorance.

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There will be no Ode next Sunday (April 3)

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