Ode to E Pluribus Unum for Sunday September 1 2024

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Milky Way Behind Three Merlons

Image Credit & Copyright: Donato Lioce; Text: Natalia Lewandowska (SUNY Oswego)

To some, they look like battlements, here protecting us against the center of the Milky Way.

The Three Merlons, also called the Three Peaks of Lavaredo, stand tall today because they are made of dense dolomite rock which has better resisted erosion than surrounding softer rock. They formed about 250 million years ago and so are comparable in age with one of the great extinctions of life on Earth.

A leading hypothesis is that this great extinction was triggered by an asteroid about 10-km across, larger in size than Mount Everest, impacting the Earth.

Humans have gazed up at the stars in the Milky Way and beyond for centuries, making these battlefield-like formations, based in the Sexten Dolomites, a popular place for current and ancient astronomers.

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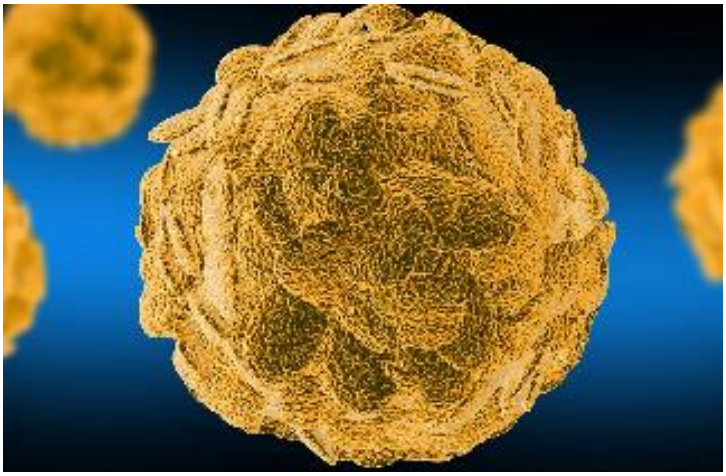
Study Reveals Molecular Mechanism Behind MS and Other Autoimmune Diseases

A Yale-led study reveals a mechanism that triggers loss of immune regulation associated with multiple sclerosis and other diseases — and a target for treatment.



(© stock.adobe.com)

In a new Yale-led study, a team of researchers finds that this loss of immune regulation is triggered by an increase in PRDM1-S, a protein involved in immune function, triggering a dynamic interaction of multiple genetic and environmental factors, including high salt uptake.

The findings, published in the journal Science Translational Medicine, also reveal a new target for a universal treatment for human autoimmune disease.

https://bit.ly/4dH5MQO

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Human Aging Happens in Bursts

verywellhealth.com

According to a groundbreaking Stanford Medicine study, human aging occurs in dramatic bursts rather than as a gradual process, with significant biomolecular changes occurring around ages 44 and 60, challenging our traditional understanding of how we age.

Dramatic shifts in molecular and microbial abundance occur primarily at two distinct points in human life: around age 44 and age 60. These bursts of aging involve significant changes in thousands of molecules and microbes, with approximately 81% of studied molecules showing non-linear fluctuations.

The mid-40s burst, previously unexpected, affects both men and women, impacting molecules related to skin, muscle, and cardiovascular health. In the early 60s, changes are observed in molecules linked to immunity, kidney function, and carbohydrate metabolism.

These findings challenge the notion of aging as a steady, chronological process and suggest that biological aging follows a more complex pattern with accelerated phases

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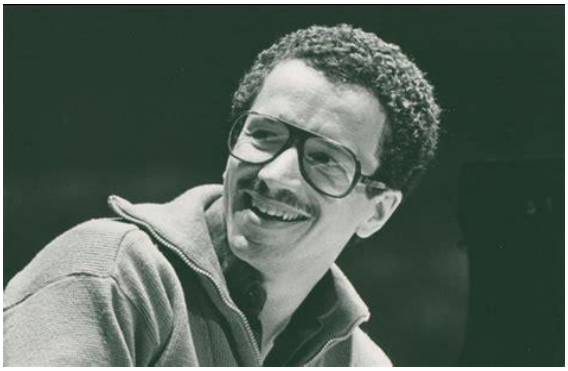
Chords & Riffs

Keith Jarrett -The Koln Concert and More



codalario.com

Jarrett is an American jazz pianist, composer, and saxophonist considered to be one of the most original and prolific jazz musicians to emerge during the late 20th century. He is also a noted classical pianist. He came to prominence in 1969, when he joined Miles Davis for several concerts and albums. Although Jarrett disliked electronic instruments, he was willing to compromise for the chance to work with Davis, whose band also featured other important keyboard players of the jazz fusion movement, such as Chick Corea and Herbie Hancock.

The story of The Kolm Concert record goes like this: It was January 24, 1975, Jarrett had made a grueling journey from Zurich to Cologne, Germany, and was suffering from severe back pain. When he arrived at the place where he was supposed to perform in the evening, another unpleasant surprise awaited him: instead of the high-end concert piano he had requested, there was a completely different piano on the stage. Not only was the instrument smaller, but it was old, out of tune, and the pedal didn't work.

In the end, it was possible to tune it, but it still sounded thin and tinny in the high notes, and a bit dull in the low ones. The piano was in such poor condition that the jazz musician seriously considered canceling the concert. In the end, he did come out in the evening. However, the limitation of the instrument forced him to think about his jazz improvisation differently than he was used to.

He kept the melody simple, emphasizing the rhythm. And he deliberately played almost the entire concert only in the middle part of the keyboard - the keys on the top and bottom of it sounded terrible. As far as I know this is the most successful solo jazz album in history. Great, isn't, it?

Keith Jarrett The Finest Two Minutes of Music https://youtu.be/0BgXCDuqZvM
Keith Jarrett Solo Concert https://youtu.be/HPqK1JJOFxw
Keith Jarrett The Koln Concert https://youtu.be/skkiVoI7sBk
Keith Jarrett Over the Rainbow https://youtu.be/AyLQGDIrGcI
Then for a little comparison
Dave Brubeck Over the Rainbow https://youtu.be/csXfCjoKJrE

Complex, to the point…and surprisingly simple.

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History of the Caesar Salad

Photo: © Fredrika Stjarne

To the untrained eye, Caesar Salad looks simple—little more than lettuce, cheese and croutons. But the delightful tossing of romaine, fresh Parmesan cheese, lemon juice, egg, garlic, Worcestershire sauce and, often, anchovies is much more complicated than that. And the story behind the salad's creation is a perfect example of how the intermingling of regional cooking can produce culinary magic. There are several legends about how the Caesar Salad was invented, but nearly all of them revolve around Caesar Cardini - a French-inspired Italian chef who immigrated to America before moving to Mexico to escape prohibition.

In 1896 Caesar Cardini was born near northern Italy's Lake Maggiore. But other than that little is known about his early life until he moved to North America in the 1910s. A

December 1919 ad in the Sacramento Union promoting the grand opening of "Brown's Restaurant," a joint venture from a Wm. Brown and Caesar Cardini, indicates he likely landed in northern California, (the ad also notes that they worked together at San Francisco's Palace Hotel, which still stands today). A few years later, Cardini made his way south to San Diego, where he operated a French restaurant in a building that's still standing on University Avenue. But in 1920, congress enacted prohibition across the United States. And while Cardini kept his business open in San Diego, he launched a second restaurant across the border in Tijuana where he could serve alcohol.

Throughout prohibition, Tijuana was the place for Southern California elites to go for a drink. The Los Angeles Times called Tijuana "the city that was Vegas before Vegas was Vegas." Douglas Fairbanks, Jean Harlin and Charlie Chaplin were just a few of the stars known to frequent the Mexican border town for a little drinking and gambling. It was in this atmosphere that Caesar Cardini opened his restaurant along the then-hopping Main Street, today called Avenida Revolución.

Caesar's daughter Rose Cardini claimed July 4th, 1924 was the exact day that her father created the Caesar Salad. Overrun by Americans and running short of supplies in the kitchen, her father threw together what was left: Stalks of lettuce, olive oil, raw egg, croutons, parmesan cheese and Worcestershire sauce. Originally intended as a finger food rather than a salad and prepared tableside for flair, it was a hit.

Now, there are several disagreements on the story itself with some saying it wasn't Caesar who invented the salad at all. One states that it was Caesar's brother Alessandro (or "Alex") who created it. The story goes that Alex, an Italian air pilot during World War I had come to Tijuana to help his brother with the restaurant. One night, a group of American airmen from Rockwell Field Air Base in San Diego were partying at Caesar's. As a fellow pilot, Alex wanted to treat them right, so he put together a finger food from the best ingredients he could find in the kitchen. Using many of the same things in Caesar's salad, but also adding anchovies, Alex named it "Aviator's Salad" in honor of those he had made it for. After Alex left to open his own restaurants in Mexico City, Caesar slapped his name on the popular salad, forever erasing his brother's contributions. Yet, another story states that it wasn't a Cardini at all who invented the salad, but an employee at Caesar's restaurant named Livio Santini. Also an Italian immigrant, Santini said it was his mother's recipe. The salad became so popular that Caesar Cardini claimed the recipe as his own.

Whatever the exact origin story, the salad gained popularity at Caesar's Tijuana establishment and became a tourist attraction on its very own. In her book From Julia Child's Kitchen, famed chef Julia Child wrote about her family's highly anticipated lunch at Caesar's restaurant in the mid-1920s, "Caesar himself rolled the big cart up to the table, tossed the romaine in a great wooden bowl and I wish I could say I remembered his every move, but I don't... It was a sensation of a salad from coast to coast, and

there were even rumblings of its success in Europe." It became so popular - and so copied - that in 1948 Caesar had to patent his recipe. In 1953, Paris's International Society of Epicure named the Caesar Salad the greatest recipe to originate in the Americas in the last half century.

Caesar Salad may be served everywhere today, but only one place features the original—Caesar's Restaurant in Tijuana.

By Matt Blitz for Food & Wine

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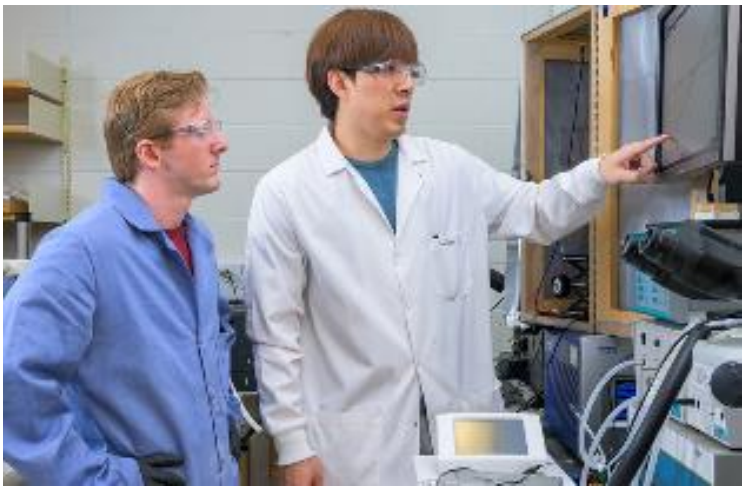
From Plastic Waste to Electronic Devices



Not only were the researchers able to find reaction conditions that resulted in high polymer sulfonation, minimal defects, and high efficiency with a mild sulfonating agent, this new method is also an efficient way to convert plastic waste into PEDOT:PSS.
Photos by Evan Krape and courtesy of David Kaphan

A new study conducted by researchers at UD and Argonne National Laboratory shows how waste Styrofoam can be transformed into polymers for electronics

Sulfonation is a common chemical reaction where a hydrogen atom is replaced by sulfonic acid; the process is used to create a variety of products such as dyes, drugs and ion exchange resins. These reactions can either be "hard" (with higher conversion efficiency but that require caustic reagents) or "soft" (a less efficient method but one that uses milder materials).

In this paper, the researchers wanted to find something in the middle: "A reagent that is efficient enough to get really high degrees of functionalization but that doesn't mess up your polymer chain," Kayser explained.

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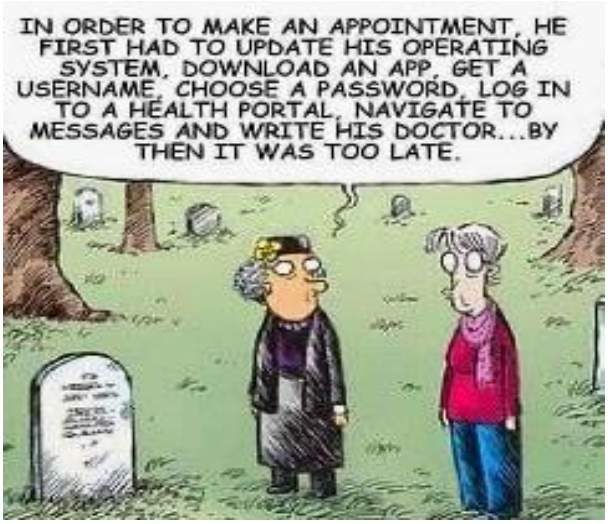

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Astronaut Snaps Strange Iridescent Clouds at the Edge of Space

NASA astronaut Matthew Dominick photographs a crescent moon over so-called noctilucent clouds from the International Space Station on July 4, 2024.
Credit: Matthew Dominick / Earth Science and Remote Sensing Unit / NASA Johnson Space Center

Below a thin curl of the moon is a lofty bed of so-called noctilucent clouds, floating in the calm before the riotous break of sunrise. These strange high-flying clouds at the edge of space — beguiling to scientists just two decades ago — are easy to observe from the station's orbit about 250 miles above Earth.

https://bit.ly/45Y5qSR

Twenty years ago, they were a total mystery

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Dogs Sniff Out Post-Traumatic Stress With 90% Accuracy

Laura Kiiroja with Ivy, a support dog-in-training for PTSD
Dalhousie University / SWNS

In the pilot study, the team taught two dogs to decipher the breath of people who have been reminded of traumas, by recognizing the scent of trauma reactions on human breath.

A Golden Retriever named Ivy and a German Shepherd-Belgian Malinois mix named Callie, were the only two of 25 dogs "skilled and motivated enough" to complete the rigorous training process.

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I'm skeptical, but there may be something here

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Top 10 Best U.S. Cities for Public Transportation

metro-magazine.com

In 2018, only 30% of buyers said a new home's proximity to public transit was "very important" or "extremely important," according to the 2023 Zillow Consumer Housing Trends Report. But in 2023, 43% said so — the largest increase of any neighborhood characteristic.

A 2020 report from the International Association of Public Transport found AI offers the potential to adjust transit services in real time, responding to heavy traffic, heavy ridership and sudden emergencies.

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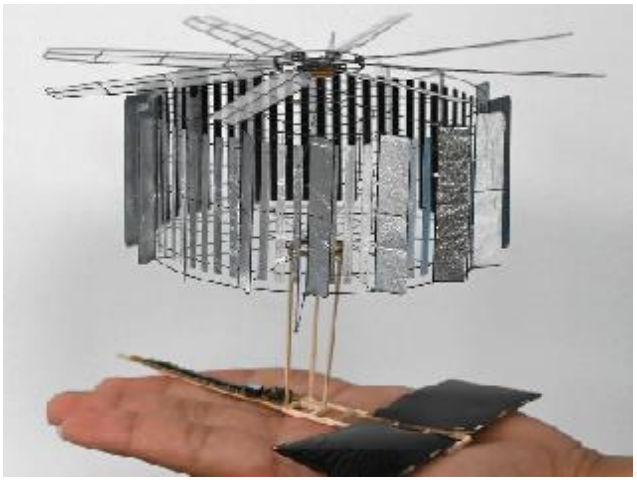
The Smallest, Lightest Solar-Powered Drone Takes Flight

It weighs less than a nickel and can fly nonstop while the sun shines



The palm-sized vehicle CoulombFly weighs 4.21 grams and has a wingspan of 20 centimeters. *Nature*

The new ultralight MAV, CoulombFly, is just 4.21g with a wingspan of 20 centimeters. That's about 10 times as small as and roughly 600 times as light as the previous smallest sunlight-powered aircraft, a quadcopter that's 2 meters wide and weighs 2.6 kilograms.

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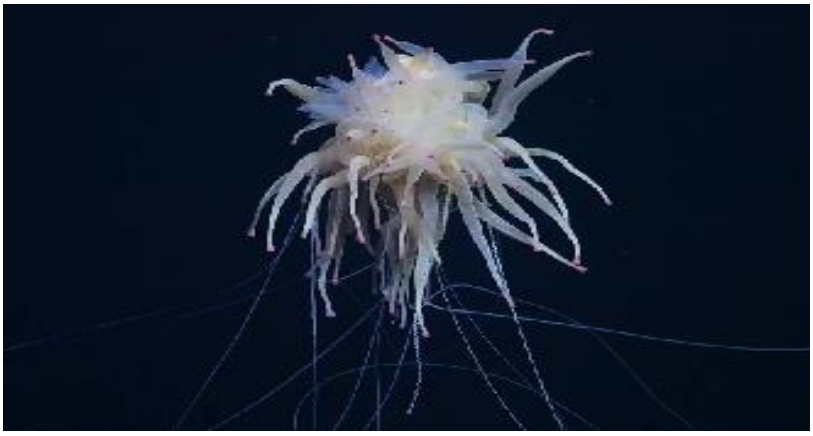
Flying Spaghetti Monsters and Other Critters Spotted at Sea Mounts



A rarely seen Bathyphysa conifera, commonly known as the flying spaghetti monster.
Image credit: ROV SuBastian / Schmidt Ocean Institute, CC BY-NC-SA

The expedition also secured the first-ever footage of a rare squid.

Known to science as Bathyphysa conifera, the flying spaghetti monster is a kind of siphonophore, making it a relative of the "long stringy thingy" and one of our closest invertebrate relatives, the vagina salp. Other rare sightings included the first-ever record of a Casper octopus in the Southern Pacific. a critter we've known about since 2016 but still never been able to describe and formally name because nobody has collected one yet.

They also captured the first-ever footage of a live Promachoteuthis squid, a genus so rare we only know of the three species based on specimens collected in the late 1800s. We've only ever been able to study the genus based on dead individuals retrieved from nets – until now.

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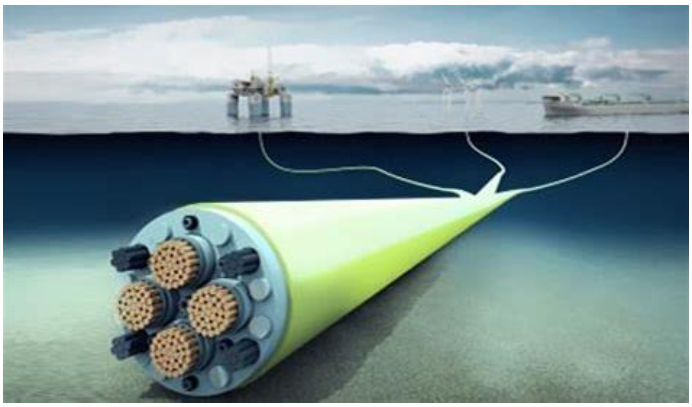
Cutting the Cord



mavinc.com

Even in the age of satellites and 5G, international communication still relies on cables at the bottom of the ocean, just as it did in the age of the telegraph. The wireless internet is, in fact, built on some thick — and usually hardy — wires draped across ocean floors.

In multiple recent instances, subsea cables have been damaged or cut clean through, rendering them useless, at least temporarily. Jordan Robertson and I tried to figure out what's going on in a new feature in Bloomberg Businessweek.

Most of the time when an undersea cable is damaged, it's due to an underwater seismic event or some kind of accident. Anchors and bottom-dragging fish nets are frequent culprits. But the events we looked at raise suspicions of something more deliberate.

In two incidents in particular, Russian fishing trawlers spent an unaccountably long time lingering over the cables at the precise moment when they met their untimely demise.

These incidents happen against a backdrop of growing evidence — gathered by Russia's apprehensive Scandinavian neighbors — that Russian fishing boats, which are permitted to move in and out of other countries' national waters, are being deputized to perform military and intelligence roles. We go into that evidence in our story.

Attacking undersea infrastructure, if that is indeed what happened, takes things to a new level. One of the questions we address in our story is what point it might have served — the damaged cables did have some military uses, but that wasn't their primary purpose.

Katarzyna Zysk, a professor of international relations and contemporary history at the Norwegian Institute for Defence Studies in Oslo, suggested that the attacks might have been training exercises for how Russia could disable communications and undersea sensors in the event of a conflict. Or, she says, "they were sending a signal: 'We are able to conduct this kind of operation.'"

There's a long history of this kind of gamesmanship.

It's a bit like sending fighter planes to "stray" ever so slightly into an adversary's national airspace to see what the response will be. In essence, it's trolling: we're doing this to remind you, and everyone else, that we can.

Subsea cables present serious temptation for anyone pondering such shenanigans, as does climate change, which creates the potential for new territorial conflicts as the ice in the northern seas retreats. Expect a lot more geopolitical trolling.

Drake Bennett for Bloomberg Tech Daily

The implications here are frightening in a day that the bulk of commerce and national security systems depend on reliable data transmission. I'm concerned here of the growing Chinese threat to Taiwan and the latter's dependance on the support of the US and other nations to its continued existence. Think what disruption this could cause.

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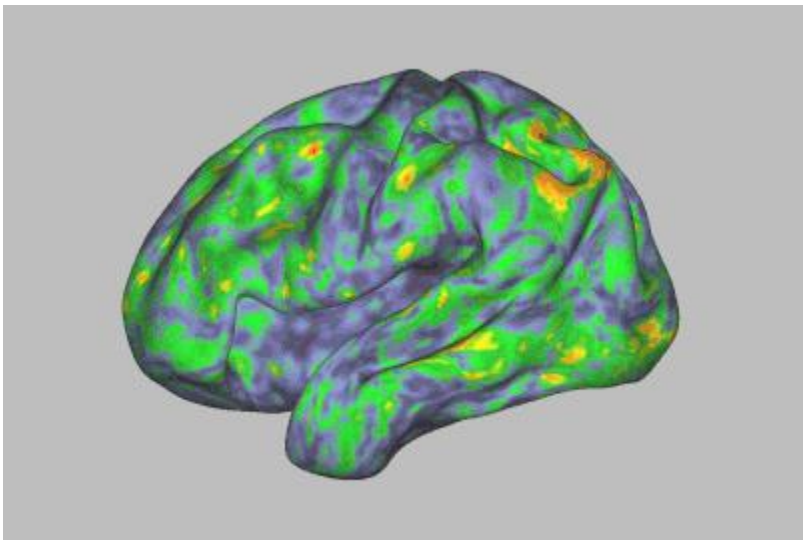
The Magic of Mushrooms Lingers After a Trip



A brain at rest in blue and green. A fiery-colored trip leaves lingering reds and oranges.
Sara Moser/Washington University

People who take magic mushrooms report feelings of distorted space, time, and sense of self. The active ingredient, psilocybin, often brings sensations or emotions that are otherwise overlooked into focus. Now, researchers may have figured out how psilocybin temporarily scrambles introspection.

Many studies have revealed how psilocybin affects the brain on cellular and psychological levels, but the link between the two has proven elusive. So, researchers set out to visualize the neurological pathway that connects cells to thoughts by having seven people take a high dose of psilocybin or a placebo. Before, during, and up to

three weeks after the experience, each participant underwent an average total of 18 MRI brain scans. Four returned six months later to repeat the experiment.

Psilocybin caused widespread but temporary changes in the participants' brains. Most of the "out of body" effects came from psilocybin desynchronization of the "functional brain network"—the set of interwoven brain areas that are usually active when the brain is not working on anything in particular. The areas active in this network are usually highly variable between people, but while the participants were 'tripping', they converged, which may explain why participants felt like they lost their "sense of self."

When the acute effects of the drug wore off, activity mostly returned to normal, but small differences remained for weeks.

An initial massive impact followed by some lingering effects is "exactly what you'd want to see for a potential medicine," said co-author Nico Dosenbach in a statement. "You wouldn't want people's brain networks to be obliterated for days, but you also wouldn't want everything to snap back to the way it was immediately. You want an effect that lasts long enough to make a difference." Whether such findings will change the minds of regulators regarding the use of psychedelics in medicine remains to be seen.

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Air-to-Air Footage of the B-2 Spirit Stealth Bomber

B-2 Spirit as seen from the cockpit of a T-38C Talon during Wings over Whiteman 2024 airshow
(Image credit: screenshot from the video below)

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Yikes. Is the bird an unstable monster or does the pilot have Parkinsons?

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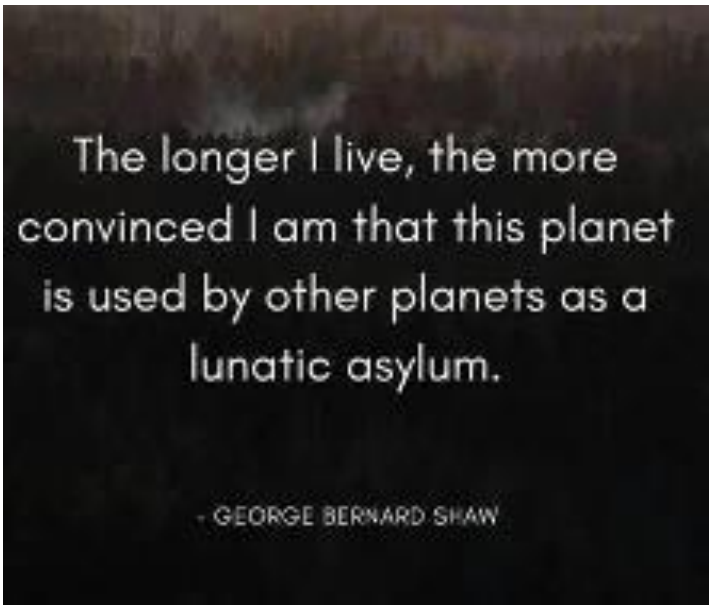

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The Multiverse Hypothesis Explained by Neil deGrasse Tyson

youtube.com

The multiverse hypothesis or theory holds that a group of multiple universes (possibly infinite universes) comprise everything that exists: The entirety of space, time, matter, energy, information, and the physical laws and constants that describe them. The renowned astrophysicist Neil deGrasse Tyson explains in detail the multiverse hypothesis.

However, prominent physicists are divided about whether any other universes exist outside of our own. Some even go as far as to say that the multiverse is not a legitimate topic of scientific inquiry. Because it can not be empirically falsified. But Neil deGrasse Tyson among other prominent cosmologists, thinks that given our

understanding of quantum mechanics and the theory of General relativity, the possibility of the existence of the multiverse is a legitimate scientific hypothesis.

Steven Weinberg said that if the multiverse existed, the hope of finding a rational explanation for the precise values of quark masses and other constants of the standard model that we observe in our Big Bang is doomed, for their values would be an accident of the particular part of the multiverse in which we live.

Some scientists analyzed the data from the Wilkinson Microwave Anisotropy Probe, an uncrewed spacecraft operating from 2001 to 2010 that measured temperature differences across the sky in the cosmic microwave background, the radiant heat remaining from the Big Bang, and claimed they found evidence suggesting that our universe collided with other parallel universes in the distant past.

However, a more thorough data analysis from the Wilkinson Microwave Anisotropy Probe and from the Planck Satellite, a space observatory operated by the European Space Agency from 2009 to 2013, which mapped the anisotropies of the cosmic microwave background, did not find any statistically significant evidence of universe collisions. there was no evidence of any gravitational pull of other universes on ours either. And to add insult to injury to the proponents that the multiverse hypothesis has been backed up by statistical evidence, the Planck satellite, has a resolution three times higher than the WMA Probe.

Our brains are not evolutionarily equipped to intuitively understand quantum mechanics and large scale cosmic phenomena. But Neil deGrasse Tyson with his usual wits explains the multiverse hypothesis in layman's terms.

https://youtu.be/h6OoaNPSZeM

"Might be lunatic;" or maybe not.

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AeroSys 'Goose' Pilot Assist App

snffd

AeroSys sees its app as a means of bringing the experience and redundancy of multi-crew flight to single-pilot operations. Designed to run on Apple iPhones and iPads (Android versions run about eight to 10 weeks behind, Kahn said) Goose can run voice-activated checklists and monitor VFR and IFR flight plans, as would a second pilot.

Kahn said the system integrates with ForeFlight for hands-free support with ADS-B, weather and traffic.

As an aviation-specific product, AeroSys says of the Goose app, "Only a few people would understand expressions like 'Zulu time', 'tree' or 'niner.' Goose does. Trained to have a deep understanding of aviation phraseology, you can talk to Goose like a human co-pilot—directly via your headset."

AeroSys says that Goose can handle the day-to-day flight routines, support with the custom procedures, and provide much-needed support during an emergency or critical flight condition. It's all voice-activated, too, requiring no physical switches, taps, scrolls, or clicks. Goose simply helps you walk through the appropriate checklist for your aircraft, keeping your eyes where they belong: Outside the cockpit.

Soon to launch will be voice-activated autopilot commands such as altitude and heading hold.

Seems to me this has automotive applicability as well,

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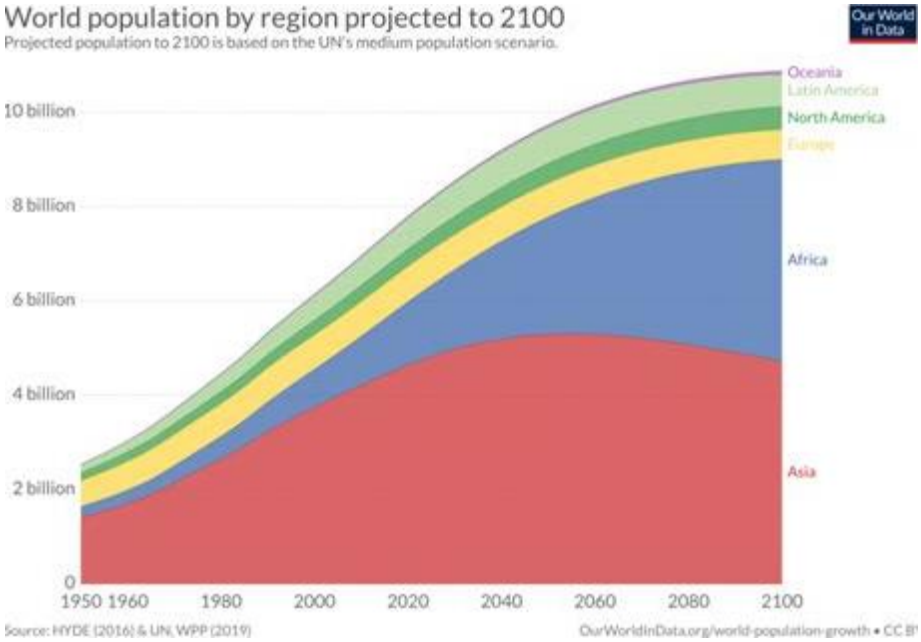
Key Findings from the 2024 UN World Population Prospects



The United Nations doesn't only publish historical estimates of how population and demographic trends have changed in the past; it also makes projections for what the

future might look like. To be clear, these are projections, not predictions of changes in the future.

In its 2022 publication, the UN estimated that, in its medium scenario, the global population would peak in 2086 at around 10.4 billion people.

This year's edition brings this peak forward slightly to 2084, with the population topping at just under 10.3 billion.

https://ourworldindata.org/un-population-2024-revision

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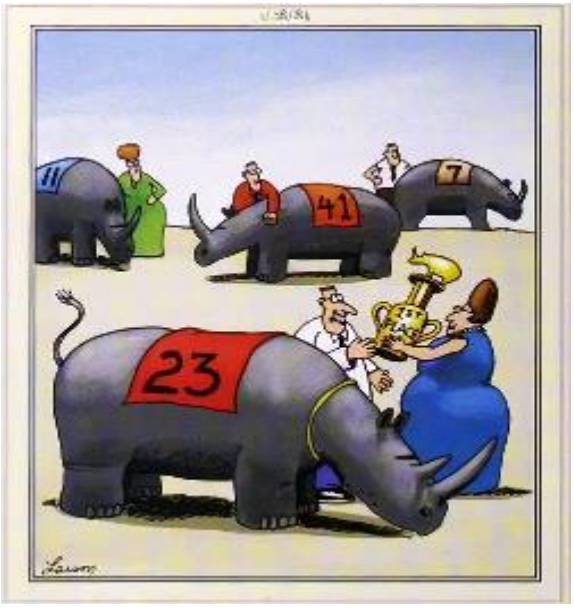

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American Wagyu Is Having a Moment. What Is It, Exactly?

This photo shows the prime-grade ribeye on the left, the Booth Creek Wagyu ribeye center, and the A5 Snow Beef zabuton on the right. Here you can see the difference in marbling. The ranch beef has a good amount of fat content, but it isn't really distributed evenly. The Booth Creek steak does a much better job of that, which eliminates any gristle on the plate, makes the steak more tender and moist, and in beef raised correctly, can really result in some unique flavors.

The A5 looks like a baseball-sized ball of fat, because that's basically what it is. I salted all the steaks liberally, and skipped any other seasonings or sauces.
(Photo: Wes Siler)

Unpacking the booming market for American wagyu and creates a taste test between this new beef, an old-fashioned rib eye, and a very expensive cut of Japanese A5

Importing Japanese beef products was banned by the United States in the 2000s after an outbreak of highly infectious foot and mouth disease in that country. Around the same time, interest in supposed "Kobe beef," began to boom, perhaps due to its unobtainable nature.

Wagyu beef is known globally for its soft texture and rich, fatty taste, and restaurants and butcher shops often charge much higher prices for steaks compared to beef from other types of cattle.

https://www.outsideonline.com/food/food-culture/what-is-american-wagyu/

I tried Kobe Beef in Tokyo in 1966. It cost me 9000 yen ($25.00)—about what it cost to stay at the Tokyo Hilton at the time--and I will have to say that while at least it didn't taste like chicken, failed to put US Government Grade 'Good' to shame.

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How Los Angeles Plans to Be Car-Free for the 2028 Olympics

For people who know Los Angeles, this seems overly optimistic.

latimes

Traffic was also a concern when LA hosted the 1984 Summer Games, but the Games went off smoothly. Organizers convinced over 1 million people to ride buses, and they got many trucks to drive during off-peak hours. The 2028 games, however, will have

roughly 50% more athletes competing, which means thousands more coaches, family, friends and spectators. So simply dusting off plans from 40 years ago won't work.

Three key improvements are planned for the Olympics. First, LA's airport terminals will be connected to the rail system. Second, the Los Angeles organizing committee is planning heavily on using buses to move people. It will do this by reassigning some lanes away from cars and making them available for 3,000 more buses, which will be borrowed from other locales.

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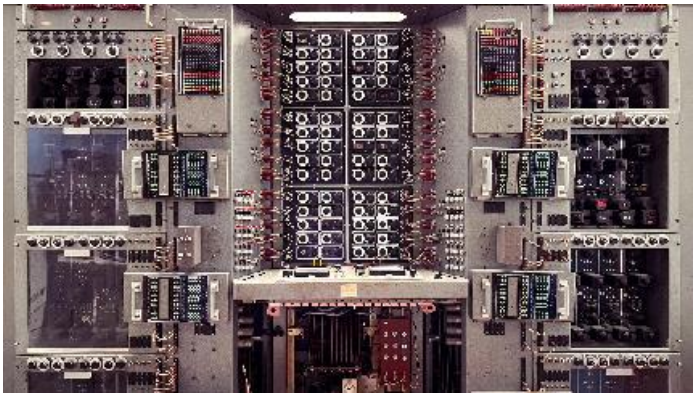
What Is Analog Computing?

You don't need 0s and 1s to perform computations, and in some cases it's better to avoid them.



The OME P2, released by a French company in 1952, is an example of an electronic analog computer. Its name is short for Opérateur Mathématique Électronique.
Damien Boureille

Among the earliest known analog computers is the Antikythera mechanism from ancient Greece, which used dozens of gears to predict eclipses and calculate the positions of the sun and moon. Slide rules, invented in the 17th century, executed the mathematical operations that would one day send men to the moon.

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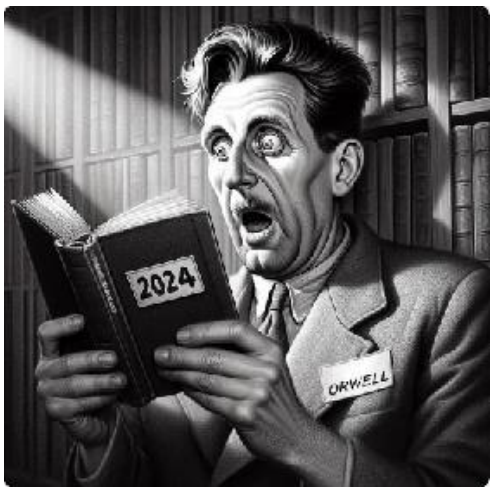

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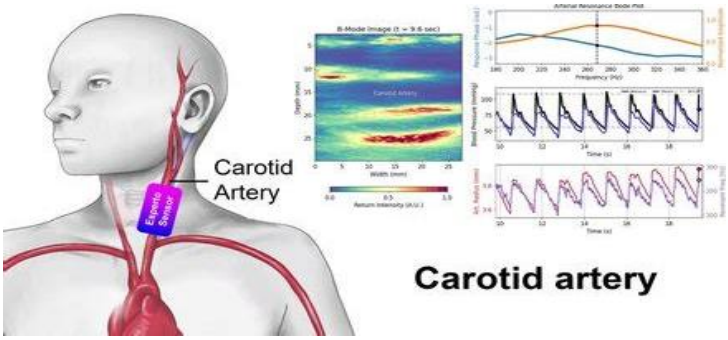
Noninvasive Method to Continually Measure True Blood Pressure



admissions.caltech.edu

Solving a decades-old problem, a multidisciplinary team of Caltech researchers has figured out a method to noninvasively and continually measure blood pressure anywhere on the body with next to no disruption to the patient. A device based on the new technique holds the promise to enable better vital-sign monitoring at home, in hospitals, and possibly even in remote locations where resources are limited.

The current prototype, built and tested by a spin-off company called Esperto Medical, is housed in a transducer case smaller than a deck of cards and is mounted on an armband, though the researchers say it could eventually fit within a package the size of a watch or adhesive patch. The team aims for the device to first be used in hospitals, where it would connect via wire to existing hospital monitors. It could mean that doctors would no longer have to weigh the risks of placing an a-line in order to get the continuous monitoring of real blood pressure for any patient.

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NASCAR’s Foray into Electrification

"The electric vehicle prototype can be something new and exciting in terms of the technology and the engineering," one engineering expert told Tech Brew of NASCAR's new electric prototype.
Getty Images

The sanctioning body for stock-car racing in North America last month unveiled an electric prototype in partnership with ABB. NASCAR demonstrated the vehicle at the Chicago Street Race and announced that ABB would be its partner on its sustainability initiatives, including efforts to achieve net-zero carbon emissions by 2035.

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Not too good for re-gen when the hooves are down all the way around an oval track.

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Homefront Dad Shows Mom How He’s Caring for the Little Darling

A graphic artist living in Germany works from home while his wife leaves their baby girl with him each day as she goes off to work.

A few months ago, he got tired of her texting to check on how he was doing with the baby, so he started photoshopping responses to text back to her. I’ll try and include a different one in subsequent Odes.

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Time's Arrow Within Glass Appears to Go in Both Directions,

This raises huge questions and the second law of thermodynamics would like a chat.

Unfortunately, the discovery does not mean glass can time travel.
Image credit: Benoit Daoust/Shutterstock.com

A study on the movement of molecules within glass has found something pretty astonishing, assuming that the results can be replicated.

Processes within glass, as well as a few other materials with similar properties, appear to be time-reversible, potentially telling us something interesting about the second law of thermodynamics.

Just about all physical laws are time reversible, from the Schrödinger equation to Newton's laws of classical mechanics. Play them back in reverse, and they will look the same either way. But the second law of thermodynamics is different, and shows us an arrow of time. If you see a system heading towards disorder, you can bet your bottom dollar that it is going forward in time. You cannot un-cook an egg.

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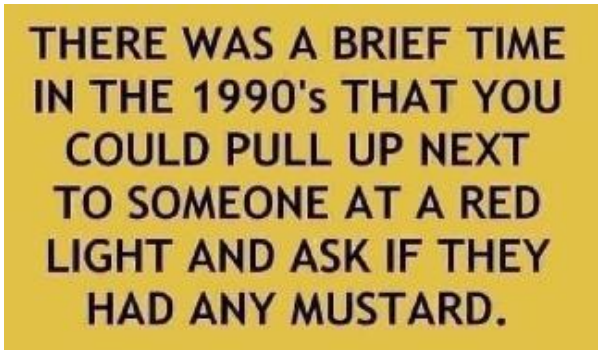

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6000-Year-Old Megalith a Monument To Ancient Science and the Creative Genius of Neolithic People

The inside of the Dolmen of Menga, a megalith on the Iberian Peninsula built between 3800 B.C.E. and 3600 B.C.E.

Classic Image/Alamy

In southern Spain stands a giant, earth-covered monument, upheld by gargantuan stone blocks and pillars, that has withstood 6000 years of rain, wind, and earthquakes. The Dolmen of Menga has puzzled archaeologists with two simple question: How did ancient architects design such a sturdy structure, and how did ancient builders manage construction materials weighing over 1140 tons?

A study in the most recent issue of Science Advances argues that Menga's builders had a far more sophisticated understanding of engineering and scientific principles than prehistoric people are usually given credit for. The engineering on display, the authors argue, reflects a process of trial, error, and learning similar to how scientists solve problems today.

By sifting through hundreds of unpublished, archival photographs, records, and laser scans, the researchers determined that Menga's 32 stones were placed like Tetris blocks, each locking with the others to give the structure maximum strength and durability. Other complex techniques like scoping out a nearby quarry, placing wall stones deep into the bedrock, and making an arched roof stone demonstrate evidence of an understanding of physics, geology, and geometry, the authors say.

"Perhaps we miscalculate the amount of intelligence that [Neolithic people] had," says Alex Torpiano, an architect and structural engineer who was not involved in the study. Monuments like Menga, he says, "are lessons not to think that we are the greatest civilization ever."

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Are Dating Apps Dying Out?

Unlike a man's height in his dating app profile, revenue numbers don't lie.

bolde.com

And the figures aren't looking too good for dating companies as users get fed up with swiping:

- Tinder's paying user base shrunk 9% YoY in 2024 to just shy of 10m.
- Match Group, which owns Tinder, saw other investments dip as well. Archer and Chispa — apps for LGBTQ and Latino daters, respectively — saw revenue dip 4% in 2023.
- Bumble missed analyst expectations with its Q4 2023 earnings, sending its stock spiraling down 30% and leading to the layoffs of 30% of its workforce.

Match Group and Bumble — which make up the majority of the dating market — have lost a combined $40B+ in market value since 2021.

It's not just that users don't want to pay a premium for special swipes — they're having a straight up bad time.

Almost half of all online daters and more than half of women daters say their experiences have been negative, according to a Pew Research Center survey.

Matching up

Compared to trillion-dollar tech giants, even the biggest dating companies are somewhat small: Match Group reported $3.4B in total revenue in 2023.

And to stay above water, dating companies are relying on pricey subscription models — which has likely led to increased dissatisfaction from users.

While dating app users spend an average of $19 a month, the charges can get even steeper.

Tinder released a $500 monthly subscription in 2023 and Hinge launched a $600 annual membership.

With users getting priced out from bearable dating experiences, many are turning to less traditional platforms like LinkedIn or Duolingo to find love.

Makes sense to us — if you're going to pay a monthly fee, you might as well learn Spanish, too.

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North Korea May Reopen International Tourism This Winter

Chinese tourists pose for photos on Kim Il Sung Square in 2019.
Ed Jones/AFP/Getty Images

North Korea is to reopen limited international tourism by the end of 2024, nearly five years after it completely sealed the country's borders due to the Covid-19 pandemic, two tour companies with connections to the isolated country have announced.

Beijing-based Koryo Tours and Shenyang-based KTG Tours both made separate online announcements Wednesday, saying tour groups would be allowed to visit the mountainous city of Samjiyon, the purported birthplace of the late North Korean leader Kim Jong Il.

https://bit.ly/4dXTdjH

Is this the opportunity you've been waiting for?

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Spiders Are Much Smarter Than You Think

Cognition researchers are discovering surprising capabilities among itsy-bitsy arachnids

Among jumping spiders, the most skilled hunters are members of the Portia genus. Spiders like this Portia fimbriata are known to plan out attacks on other spiders that involve long detours and strategies tailored to the prey's species.
Credit: Lee Hua Ming / Shutterstock

The vast majority of Earth's animal species are rather small, and a vanishingly small portion of them have been studied at all, much less by cognition researchers. But the profile of one group of diminutive animals is rapidly rising as scientists discover surprisingly sophisticated behaviors among them.

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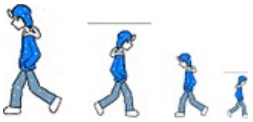
My Walking Thoughts



For Sunday September 1 2024

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My Walking Thoughts for Sunday September 1 2024

Is There Lift in Night Air?

It's the question all junior birdmen should ask before tempting the gods of flight

I found the answer in the T-34 when two of us students were tapped to see whether it was worthwhile to add a couple of sundown flights to the Primary Syllabus. A piece of cake? You bet. Worth changing the syllabus for? Nope.

So, yes, my friends, I knew there was lift where the sun don't shine, and it's just as cloying as it is when the sun is around. About the only difference lies in what's out there in the part of the world that isn't atmosphere…for instance things made of granite or water? It's those sorts of things that offer aviators a chance to upgrade their situational awareness quotient to a higher level.

To be honest, flying in Florida gives you a lot of leeway since the highest point in the entire state (Britton Wood) is 345 feet, which though just north of nearby Crestview is an unlikely place to take your T-28…and even if you get an unmanageable urge to do so, you can tell yourself to consider 400 feet your base altitude and trust your engine to keep you there.

And just to add another notch to my brutal honesty, until dreaded cataracts made themselves known in my late 70s, I preferred dark air over the stuff I couldn't see. It gave me a sense of mastery over a magic kingdom of winking lights and unknown horizons. Am I nuts? Maybe, but as I am increasing fond of saying, "I yam what I yam."

At Whiting, the syllabus called for three hops, the first, a dual that I flew with a Marine Captain named Scarbrough. Along with helping me familiarize myself with the light patterns of nearby towns—maybe Britton Hill though I somehow doubt it—he had me go through my full repertoire of aerobatic maneuvers before heading back to the base for a handful of touch-and-goes and a final landing.

During my two solo flights, I ventured further afield—as far away as Mobile—before returning to duplicate the activities of the dual flight. Oh, and on the second of the two I decided to brush the side of a decaying cumulonimbus with a wingtip, just because it was there and there was no one around to say I couldn't.

In the years to come, I flew a lot at night, often volunteering for flights others found less enchanting than I. In Vietnam, where Britton Hill's 345 feet would barely have gotten you past the high tide line along the coast, most of the night activity took place in the karst encrusted uplands in support of embattled ground troops. It was in such situations that you needed to *know* rather than guess where you and the cumulo-granite were. Such adventures served to bring my senses to a new and pleasing level of awareness.

Or as I've explained in the novel I'm struggling to finish:

> *"Flying at night is more than you and your airplane…even your mission," he (Gordon, the main character) struggled to explain to himself.*
>
> *How can you put into words the majesty of floating free between the void of space and the unyielding earth below, drawn to the threshold of a world beyond anything you've ever experienced? The ultimate synthesis of knowledge, awareness, and imagination without the daytime distractions rob you of its…its glory.*

Was there something in the T-28 that helped my future journeys into the joys of darkness? You bet, though I'm powerless to tell you what.

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Next week, we delve into the incomparable joy of flying wingtip to wingtip.

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