Ode to E Pluribus Unum for Sunday February 9 2025

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Unbelievable Underwater Fireworks

moss&fogg

Underwater fireworks feel like an impossible contradiction—flames blooming in a world of water, where sparks dance without a crackle and colors shimmer in ethereal silence.

https://bit.ly/3PkYqrG

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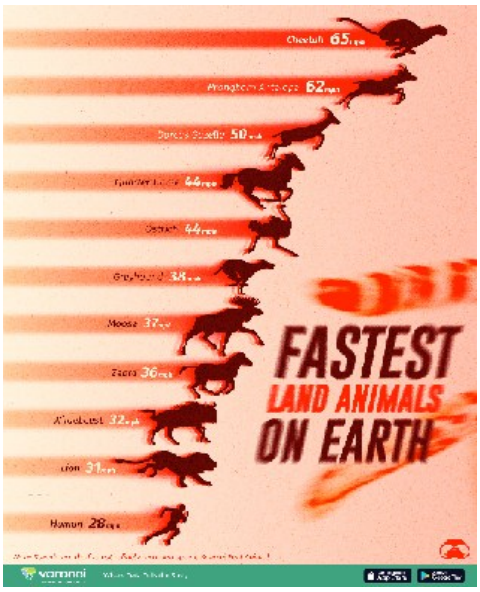
Ranked: The Fastest Land Animals on the Planet



Speed is a defining characteristic of survival in the animal kingdom, with some land animals reaching incredible velocities in their pursuit of prey or escape from predators.

According to a study by Imperial College London and Harvard University researchers, the maximum running speed of land animals is determined by two muscle function limits: the speed of muscle contraction (affecting smaller animals) and the extent of muscle shortening (affecting larger animals).

Animals of "intermediate" size, such as cheetahs, exist in a "physical sweet spot" where these limits coincide, allowing them to achieve the highest running speeds

https://bit.ly/3BR2uN0

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Meanwhile work continues on the fence at the Canadian border.

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'Alien Plant' Fossil Discovered Near Utah Ghost Town

It doesn't belong to any known plant families, living or extinct

The Othniophyton elongatum fossil.
(Image credit: Florida Museum photo by Jeff Gage)

Fossilized plant remains discovered near a Utah ghost town have stumped scientists, who are unable to link them to any modern or extinct plants.

Paleontologists first found fossilized leaf specimens of the plant in 1969 and named it Othniophyton elongatum, which translates to "alien plant." At the time, they believed the extinct species could be related to ginseng. A more recent analysis, however, has challenged that hypothesis.

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QUANTUM THOUGHTS

Schrödinger's Cat Breakthrough

An antimony atom could usher in the 'Holy Grail' of quantum computing, making them error-proof

(Image credit: Jean Landry via Alamy Stock Photo)

Scientists have used the famed "Schrödinger's cat" thought experiment to come up with a way to remove errors from future quantum computers.

The new method encodes quantum information onto an antimony atom, which has eight possible states that enable data to be more safely stored than in a standard two-state qubit, or quantum bit.

The breakthrough is a vital step in making errors within quantum systems less likely to occur, and, when they do, make them more easily detected and corrected — a key barrier to the development of quantum computers. The researchers published their findings Jan.14th in the journal Nature Physics.

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FLASHMOB CENTRAL

Sound of Music | Central Station Antwerp

youtube

https://youtu.be/7EYAUazLI9k

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These 5 Cities Have America's Slowest Driving

Average time it took to drive 6 miles

thegetaway.com

Slowest

New York	30 minutes
San Francisco	25.6
Honolulu	19.9
Chicago	19.2
Philadelphia	18.9

Fastest

Richmond, Va	9.6
Newark, Del	9.5
Mesa, Ariz.	9.3
Little Rock, Ark.	9.0
Thousand Oaks, Calif.	8.3

Data: TomTom; Chart: Axios Visuals

New York, San Francisco and Honolulu are home to the country's slowest driving, a new report finds.

Why it matters: Drivers want to get where they're going — fast. But public transit and pedestrian advocates might point to these numbers as evidence that some cities are overwhelmed by cars and need to get serious about alternatives.

What they found: In the heart of the Big Apple, it took an average of about 30 minutes to drive 6 miles in 2024, according to TomTom's annual Traffic Index, released Tuesday. That's 2.3% longer than in 2023.

- New York drivers spent a staggering 94 hours a year driving in rush hour on average, based on a twice daily six-mile trip. That's nearly four days of bumper-to-bumper misery.

- San Francisco drivers took nearly 26 minutes to cover 6 miles (+1.9% longer than 2023), while those in Honolulu took nearly 20 minutes (+0.6% longer).

The other side: Richmond, Virginia, is a veritable autobahn by comparison, with drivers making a six-mile trip in under 10 minutes on average.

Reality check: New York is walkable, bikeable and boasts one of the country's best public transit systems — meaning you're not necessarily stuck driving, as you might be in so many other U.S. cities.

- The latest: Drivers entering the most crowded parts of Manhattan are now being tolled under a "congestion pricing" plan meant to reduce vehicle traffic and raise money for public transit.
- Between the lines: Lots of factors go into how quickly you can drive 6 miles in a given city, including traffic congestion, construction and weather.

How it works: TomTom's report is based on a representative sample of data collected by "over 600 million devices" and "over 61 billion anonymous GPS data points around the world," the company says.

- The numbers above are based on city centers — "the densest areas that capture 20% of all trips within the city-connected area," per TomTom.

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Chords & Riffs

Igor Stravinsky (1882-1971)

frases333.com

The Russian-born composer’s work had a revolutionary impact on musical thought and sensibility just before and after World War I, and whose compositions remained a touchstone of modernism for much of his long working life.

Rimsky-Korsakov tutored Stravinsky mainly in orchestration and acted as the budding composer's mentor, discussing each new work and offering suggestions. He also used his influence to get his pupil's music performed.

In February 1909 a short but brilliant orchestral piece, the Scherzo fantastique was performed in St. Petersburg at a concert attended by the impresario Serge Diaghilev, who was so impressed by Stravinsky's promise as a composer that he quickly commissioned some orchestral arrangements for the summer season of his Ballets Russes in Paris. For the 1910 ballet season Diaghilev approached Stravinsky again, this time commissioning the musical score for a new full-length ballet on the subject of the Firebird.

This work showed how fully he had assimilated the flamboyant Romanticism and orchestral palette of his master. The Firebird was the first of a series of spectacular collaborations between Stravinsky and Diaghilev's company. The following year saw the Ballets Russes's premiere on June 13, 1911, of the ballet Petrushka, with Vaslav Nijinsky dancing the title role to Stravinsky's musical score.

Stravinsky had conceived the idea of writing a kind of symphonic pagan ritual to be called Great Sacrifice. The result was The Rite of Spring (Le Sacre du printemps), the composition of which was spread over two years (1911–13). The first performance of The Rite of Spring at the Théâtre des Champs Élysées on May 29, 1913, provoked one of the more famous first-night riots in the history of musical theatre. Stirred by Nijinsky's unusual and suggestive choreography and Stravinsky's creative and daring music, the audience cheered, protested, and argued among themselves during the performance, creating such a clamour that the dancers could not hear the orchestra.

Living in France until 1939, Stravinsky spent much of this time in Paris. (He took French citizenship in 1934.) Having lost his property in Russia during the revolution, Stravinsky was compelled to earn his living as a performer, and many of the works he composed during the 1920s and '30s were written for his own use as a concert pianist and conductor. His instrumental works of the early 1920s include the Octet for Wind Instruments (1923), Concerto for Piano and Wind Instruments (1924), Piano Sonata (1924), and the Serenade in A for piano (1925).

During the years of World War II, Stravinsky composed two important symphonic works, the Symphony in C (1938–40) and the Symphony in Three Movements (1942–45). The Symphony in C represents a summation of Neoclassical principles in symphonic form, while the Symphony in Three Movements successfully combines the essential features of the concerto with the symphony. From 1948 to 1951 Stravinsky worked on his only full-length opera, The Rake's Progress, a Neoclassical work (with a libretto by W.H. Auden and the American writer Chester Kallman) based on a series of moralistic engravings by the 18th-century English artist William Hogarth. The Rake's Progress is a

mock-serious pastiche of late 18th-century grand opera but is nevertheless typically Stravinskyan in its brilliance, wit, and refinement.

Like that of so many masters, Stravinsky's fame rests on only a few works and one or two of his more important achievements. In The Rite of Spring he presented a new concept of music involving constantly changing rhythms and metric imbalances, a brilliantly original orchestration, and drastically dissonant harmonies that have resonated throughout the 20th century. Later Stravinsky was regarded as the typical rootless exile, a creative chameleon who could dart from style to style but who never recaptured the creative depth of his first masterpieces. Yet the more spectacular modernisms of The Rite of Spring belong to the evolution of Russian nationalist music from Modest Mussorgsky to Nikolay Rimsky-Korsakov, while that work's feeling of "primitive dynamism" is a period feature that is found in much music of the early 20th century. Nor were the discordant harmonies of The Rite of Spring entirely new in 1913, though Stravinsky was the first to pursue Claude Debussy's purely sensual approach to chords into a harmony that was not itself obviously beautiful.

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Symphony of Psalms https://youtu.be/uK5BMzNHlyA

Pulcinella Suite https://youtu.be/funlnfTpAbI

Rite of Spring https://youtu.be/EkwqPJZe8ms

LA Phil Rehearsal Firebird https://youtu.be/x_gi7MIQkqo

Firebird Suite https://youtu.be/pHxstiIybz4

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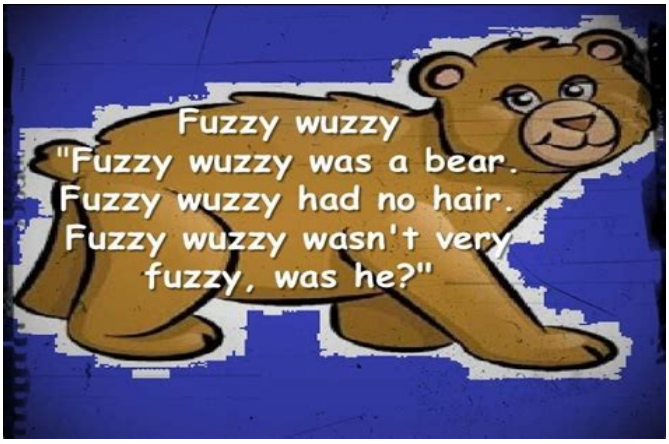
The Hardest Tongue Twister in English Is…

Betcha it isn't Fuzzy Wuzzy was a bear



rideshare.net

Tongue twisters are those delightfully tricky phrases or verses that are designed to challenge the articulation and coordination of speech. The hardest tongue twister is packed with sequences of similar sounds, particularly consonants, that are super tricky to say quickly or repeatedly.

The difficulty arises because these phrases require precise control over vocal muscles, especially those that govern the movement of the tongue.

https://bit.ly/4hlYOlZ

What's the hardest? Click on the URL

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Santorini Eruption Pales in Comparison with Ancient Blowout

Evidence for huge underwater eruption 500,000 years ago, part of a still-active volcanic arc in the Aegean

nationalheraldindia.com

One of the most explosive volcanic eruptions ever witnessed by humans took place 3,600 years ago, around 1,600 B.C.E., off the island of Santorini in the Eastern Mediterranean.

That eruption covered Santorini — part of the submerged volcano's rim — with ash and pumice, wiping out the inhabitants and, as some historians believe, leading to the decline of the Minoan civilization centered on the island of Crete about 140 kilometers (km) away.

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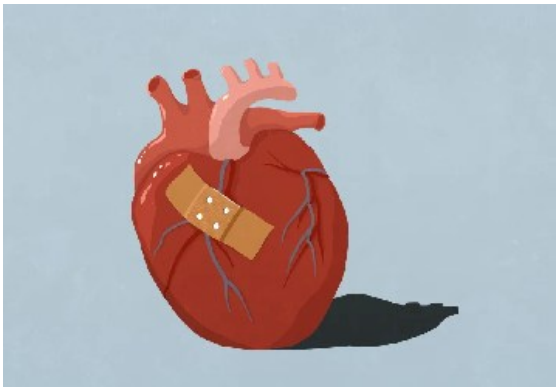
Can the Heart Heal Itself?

New study on muscle regeneration sparks hope for a heart failure cure



The idea is based on a new study showing that the heart muscle can heal itself — in some cases. Currently, the only treatment options for patients with advanced heart failure are complete transplants or left ventricular assist devices, also called "artificial hearts," which are surgically implanted mechanical units that help the organ pump blood. Through the research, scientists found that patients with artificial hearts regenerated muscle cells more than six times faster than those with healthy hearts.

A Sadek study from 2014 opened the door to the possibility that muscle cells may renew if patients have artificial hearts. In these cases, the devices pump blood directly into the aorta, passing over the heart and giving the real muscle a break of sorts.

https://bit.ly/4j5JdZf

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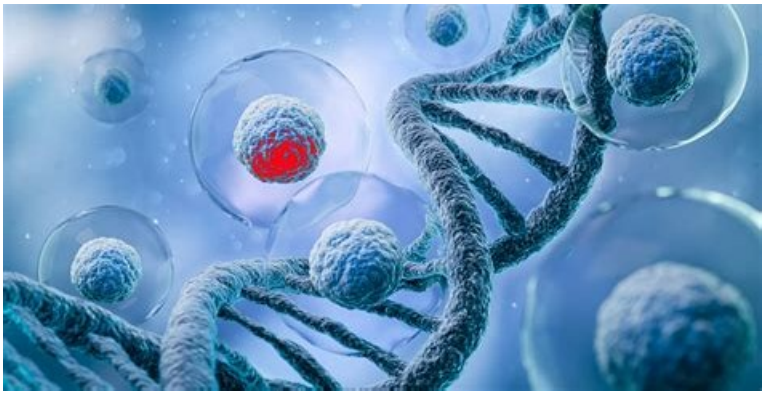
We Are All Mosaics

Picture your body: It's a collection of cells carrying thousands of genetic mistakes accrued over a lifetime — many harmless, some bad, and at least a few that may be good for you.



newsfounded.com

You began when egg and sperm met, and the DNA from your biological parents teamed up. Your first cell began copying its newly melded genome and dividing to build a body, and almost immediately, genetic mistakes started to accrue.

Scientists have long known that DNA-copying systems make the occasional blunder — that's how cancers often start — but only in recent years has technology been sensitive enough to catalog every genetic booboo. And it's revealed we're riddled with errors. Every human being is a vast mosaic of cells that are mostly identical, but different here or there, from one cell or group of cells to the next.

https://bit.ly/3C7QpDy

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Baby Dinosaur Coiled Inside 70-Million-Year-Old Fossilized Egg

The remarkable discovery highlights the similarities between dinosaurs and bird

Photo: Lida XING

A 70-million-year-old fossilized dinosaur egg discovered in China is giving scientist the opportunity to study dinosaur incubation.

Nicknamed Baby Yingliang — after the Chinese museum where it was discovered — the fossil preserves the embryonic skeleton of an oviraptorid dinosaur and shows the baby dinosaur curled up perfectly inside, CNN reported.

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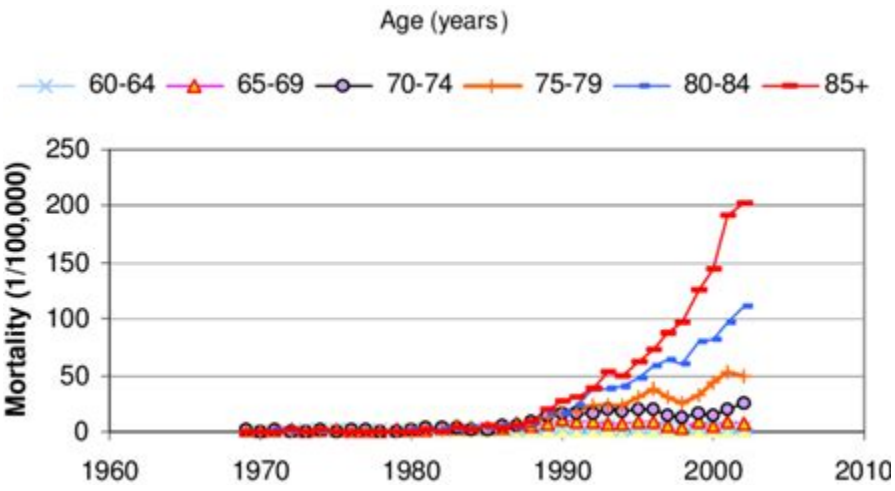
The Devastating Legacy of Lies in Alzheimer's Science

Mortality rates for cancer and heart disease, the top causes of death in the United States, have fallen sharply. But in an aging population, Alzheimer's death rates have gone in the opposite direction.



researchgate.net

Over the past 25 years, Alzheimer's research has suffered a litany of ostensible fraud and other misconduct by world-famous researchers and obscure scientists alike, all trying to ascend in a brutally competitive field.

https://bit.ly/40pjDWw

A disturbing commentary on the sanctity of academic enquiry

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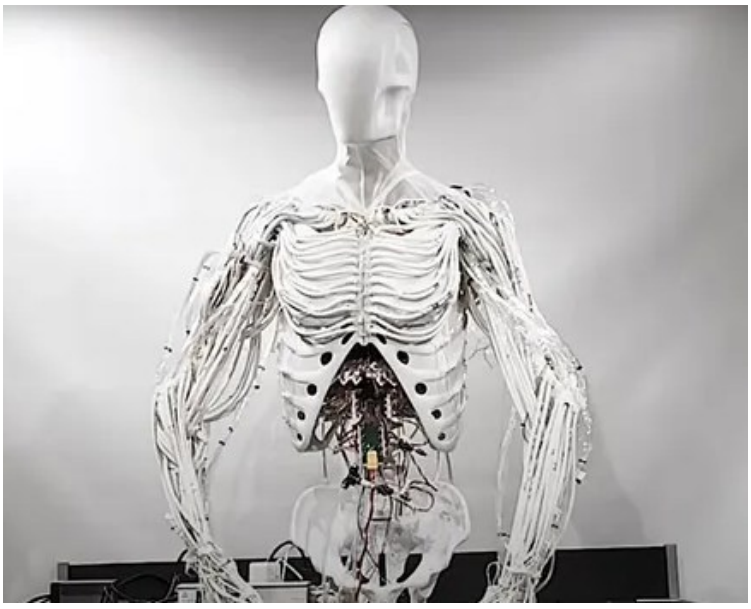
8 Of The Weirdest Robots in the World Right Now

From humanoid AI-powered machines to tiny spider-like bots, 2024's robots are weird.



From human-like torsos to nanobots, robots got weirder in 2024.
(Image credit: Clone Robotics)

Robots were once consigned mainly to routine tasks in manufacturing and logistics, but now they are slowly spreading their mechanical limbs and stretching into many other areas of life and science.

While many of these recent robots are useful, some are just plain weird. Some use advanced algorithms to render them unsettlingly human-like, while others have bizarre designs aimed at specific tasks.

https://bit.ly/4awwjzH

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Humanoid Robot Learns to Waltz By Mirroring People's Movements

An AI trained on motion capture recordings can help robots smoothly imitate human actions, such as dancing, walking and throwing punches

A humanoid robot waltzes with help from an AI trained on human motion capture recordings
Xuxin Cheng and Mazeyu Ji

An AI that helps humanoid robots mirror a person’s movement could allow robots to walk, dance and fight in more convincingly human ways.

The most agile and fluid robotic movements, such as Boston Dynamics’s impressive demonstrations of robot acrobatics, are typically narrow, pre-programmed sequences.

Teaching robots to perform a wider repertoire of convincingly human movements is still difficult.

https://bit.ly/4hkUJhG

Maybe AI could do for me what dancing school never managed

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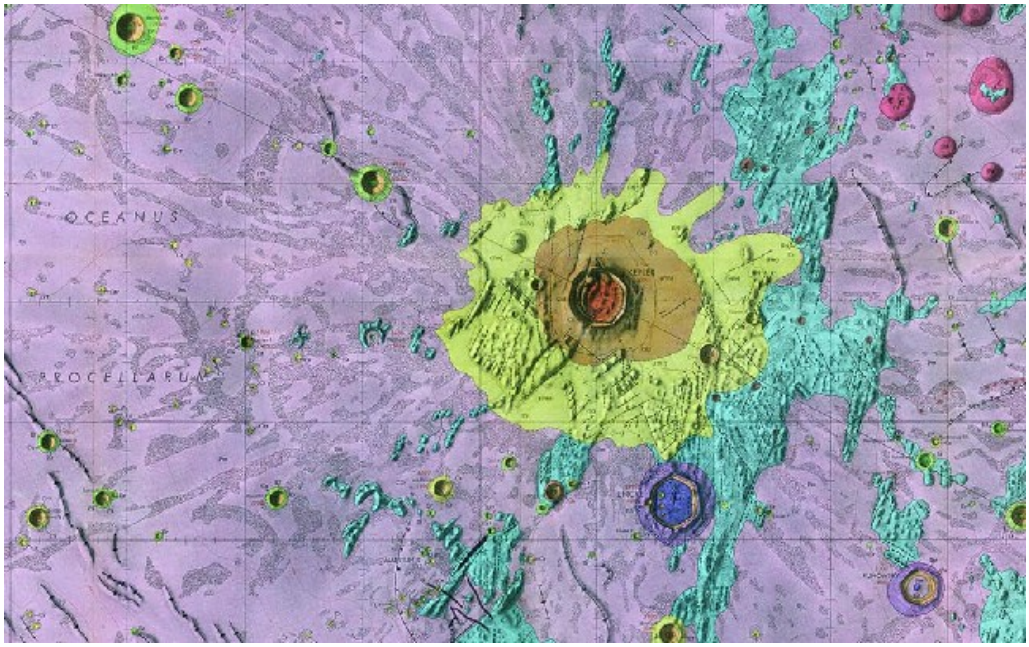
Moonstruck

Art and science collide in stunning collection of lunar maps and essays



Stunning stratigraphy An excerpt from the 1962 geological map of the lunar surface, showing the Kepler crater in the centre.
(US Geological Survey, Courtesy: David Rumsey Map Collection, Stanford Libraries)

The exquisite new Thames & Hudson book that presents the stunning Apollo-era Lunar Atlas alongside a collection of charming essays – madness has long been associated with the Moon. One suspects there was a good kind of mania behind the drawing up of the Lunar Atlas, a series of geological maps plotting the rock formations on the Moon's surface that are as much art as they are a visualization of data. And having drooled over LUNAR, truly the crème de la crème of coffee table books, one cannot fail but to become a little mad for the Moon too.

Many faces of the Moon

As well as an exploration of the Moon's connections (both etymologically and philosophically) to lunacy by science writer Kate Golembiewski, the varied and captivating essays of 20 authors collected in LUNAR cover the gamut from the Moon's

role in ancient times (did you know that the Greeks believed that the souls of the dead gather around the Moon?) through to natural philosophy, eclipses, the space race and the Artemis Programme. My favourite essays were the more off-beat ones: the Moon in silent cinema, for example, or its fascinating influence on "cartes de visite", the short-lived 19th-century miniature images whose popularity was boosted by Queen Victoria and Prince Albert.

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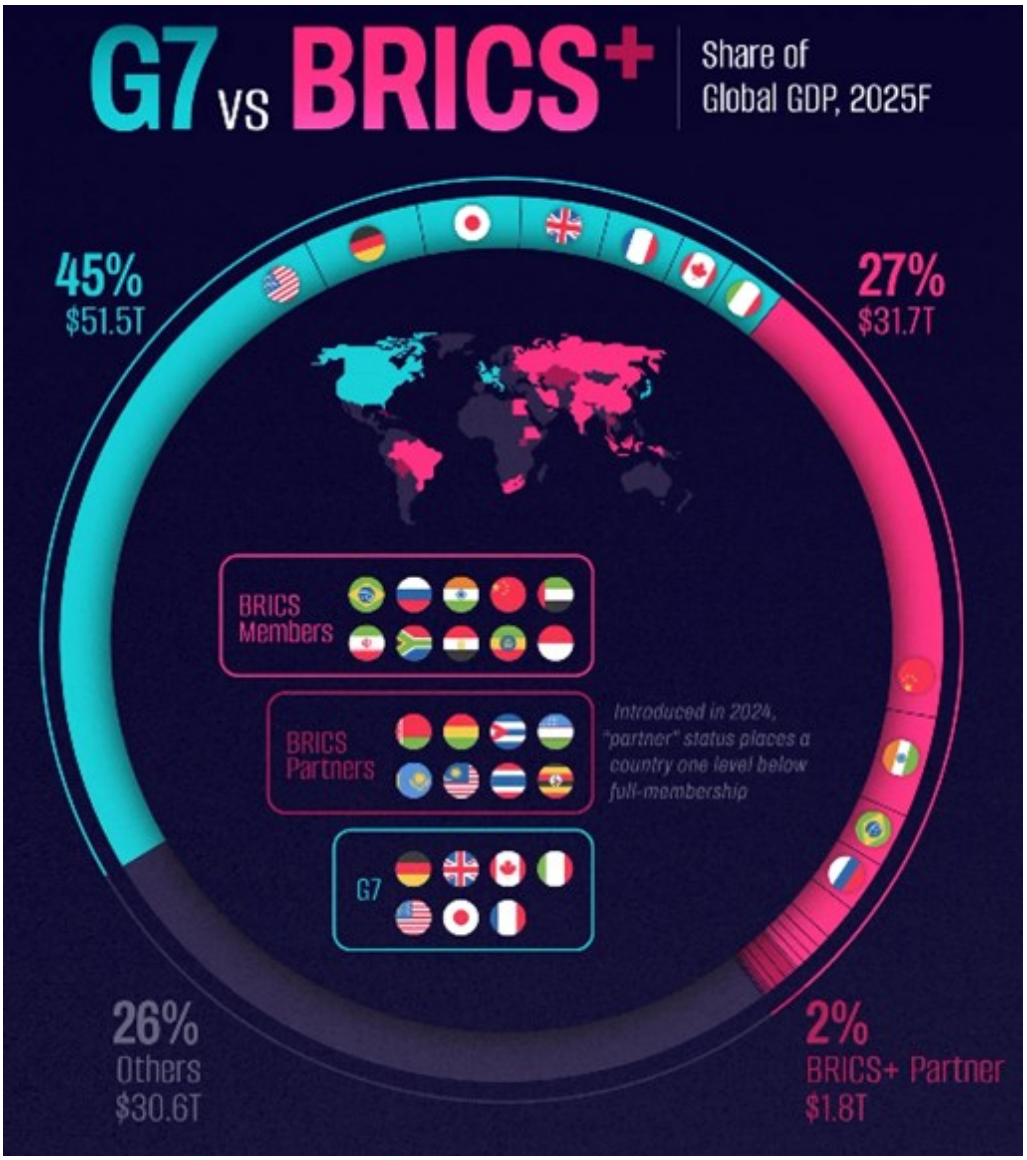
How BRICS Stacks Up Against the G7 Economies

This chart tracks the G7 and BRICS+ share of the world economy in 2025.



Voroni

https://bit.ly/3Wypho3

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Ozempic-Style Drugs Tied to More Than 60 Health Benefits and Risks

A large new study has shed light on the wider health impacts of taking Ozempic-style drugs.

Ozempic-style drugs may have an array of beneficial effects on the body, but not without risks, hints a large new study.
(Image credit: Iuliia Burmistrova via Getty Images)

Weight-loss drugs like Ozempic may decrease your risk of developing 42 health conditions, but increase your chance of experiencing 19 others, according to one of the most comprehensive studies-of-its-kind to date.

In the study, researchers assessed the impact of taking GLP-1RAs on the health of 215,000 people with type 2 diabetes over around four years. They then compared these effects to a control group of more than one million individuals who received different types of anti-diabetic drugs. Data on all participants was obtained from the U.S. Department of Veteran Affairs.

Evidence is additionally emerging to suggest that GLP-1RAs may help prevent the onset of conditions such as Alzheimer's disease and help patients to manage others like substance-use disorders. However, concerns have also been raised regarding the negative side effects of taking GLP-1RAs, including reports of gastrointestinal issues.

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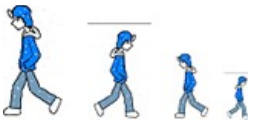
My Walking Thoughts



For Sunday February 9 2025

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Navigating Your Way from Hither to Yon

First off, I want to warn you that today's Walking Thoughts may be senseless gobbledygook to many of you, and that if you decide to abandon the task at any point I won't feel let down.

Anyway, what's here is a primer on Radio Navigation, from the dark ages up until GPS tossed all the came before into the history books. Still and all, knowing how to navigate the hard way might come in handy since nav satellites make tempting and relatively easy targets for people with ill intentions.

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Unlike Christopher Columbus who didn't know where he was going, where he was when they got there, and where he had been when he returned home, by the end of WWI aviators had those things pretty well in hand… so long as they could see the land beneath and perhaps in the case of Blimp drivers, SR-71 Jockeys, and astronauts, the heavens above.

100 years ago, traveling by air from say Chicago to St. Louis, the small band of intrepid aviators—U.S. Airmail pilots in the main--had several navigational options from which to chose:

- Take up a heading of roughly 210 degrees magnetic and fly until they hit the Mississippi River, then with no city in sight, flip a coin for which way to turn.

- After takeoff, follow the winding Chicago River past Peoria until they hit the Mississippi River, then do the coin trick.

- Follow Route 66 through the farmlands of Illinois, eventually arriving in St. Louis in what might be called an early version of IFR—not Instrument Flight Rules as now exist--but what in aviation parlance stood for "I Follow Roads."

The trouble these rarely led to satisfactory conclusions if the aviator couldn't see the ground.

Electronics to the rescue

Introduced in the late 1920s, a Four Course Radio Range system became the standard for airway navigation. Four courses roughly 90 degrees apart, allowed pilots to orient themselves and follow 'courses' by means of audio signals. The radio range consisted of specialized loop antennas that created four quadrants where a Morse code "A" (dit-dash) or "N" (dash-dit) signal predominated. Where the signals merged and became equal, a steady tone would be heard for a pilot using earphones. This method was used to create the four courses basically ninety degrees apart. It was a start.

As late as the 1960s at Pensacola's Naval Aviation Ground School, students practiced radio range navigation in the classroom. We also learned about celestial navigation, which made even less sense when you considered how useful carrying a sextant to shoot stars and determine one's position would be traveling at 420 knots with less than amount of fuel on board than doing so would take.

[While SR-71 pilots did not directly perform celestial navigation, the aircraft was equipped with an advanced Astro-inertial Navigation System (ANS) that used celestial navigation principles. This system, nicknamed "R2-D2" after the Star Wars character, ANS worked by automatically tracking at least two stars at a time from an onboard catalog. It used a special quartz window located behind the Reconnaissance Systems Officer's cockpit allowing the star tracker to detect stars in broad daylight. The system would then calculate the aircraft's position to within 300 feet of its flight path.]

The first cockpit system for radio navigation was the Radio Direction Finder, or RDF, where by tuning in a radio station and then using a directional antenna, the pilot could determine the direction to the broadcasting antenna. While commercial AM radio stations could be used for this task, strings of low-power radio beacons were also set up specifically for this task, especially near airports and harbors. In September 1929, Lt. James H. Doolittle performed the first fully instrument-guided flight using radio range and marker beacons.

Following WWII. Very High Frequency (VHF) Omnidirectional Radio Range (VOR) static-free systems allowed pilots to navigate using cockpit displays rather than audio signals. Unlike RDF, a VOR site transmits 360 individual signals – Radials-- that project discrete electronic paths through the sky that a receiver in the aircraft intercepts and displays the direction to or from the transmitting station.

Tactical Air Navigation (TACAN) operating in the Ultra High Frequency (UHF) band was developed for the military, presenting both azimuth and range information to a single receiver. It simplified the process for the pilot, at the same time increasing the accuracy because of its use of a higher frequency band.

If you're still here you've got guts.

The key to TACAN's effectiveness back in the 1960s was rooted in the aircraft's Horizontal Situation Indicator (HSI) containing Course Deviation Indicator (CDI) on top of a magnetic compass card. For the pilot to fly a specific course to the station, he or she would dial in that course—let's say 240 degrees—and the CDI would show where that course lay relative to the aircraft's heading. At the same time the Distance Measuring Equipment (DME) could show the distance on that radial from the transmitting station… a fairly precise point over the ground.

The accompanying photo shows that the aircraft is on a heading of 010 degrees, that the selected VORTAC radial to the station, and that it is slightly right of course' If the pilot were to hold this heading, the deviation indicator (center portion of the selected radial would center, then continue moving to the other side indicating the aircraft is now left of course.)

Now thinking back to the things Columbus couldn't do, pretent that you're out there on the 235 degree radial at 30 miles from the Walla Walla VORTAC and you want to go directly to a point on Walla Walla's 100 radial at 20 miles, you could do it by putting (or imagining) those two points on your HSI, drawing a line between them, and transferring that line from the center of the instrument to the heading card, and voila… magically us see that the heading is roughly 070 and the distance around 20 miles, which at 6 miles a minute should take you slightly more than three minutes.

Getting to the area is one thing, the bird on the ground is another.

If you've got all that down pat, all you have left is how to make an approach to a runway. Back in the day, you had your choice of three types; two non-precision types using ADF or TACAN equipment, and one precision type responding to heading and altitude commands from a ground controller known as a GCA.

In the 1960s, the minimums for the different types would likely be in the areas of 800 feet above ground level and 2 miles visibility for the ADF approach, 400 feet AGL and one mile for a TACAN approach, and 200 feet and half mile visibility for a GCA. While GCA approaches can be provided by most terminal facilities, most Air Force and commercial flights made use of a different system displaying glide slope and heading information that Navy and Marine aircraft lacked.

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In next week's Walking Thoughts I'll go back to storytelling, relating the circumstance of my instrument check ride and receipt of my Instrument Card. A happy day indeed.