Ode to E Pluribus Unum for Sunday March 2 2025

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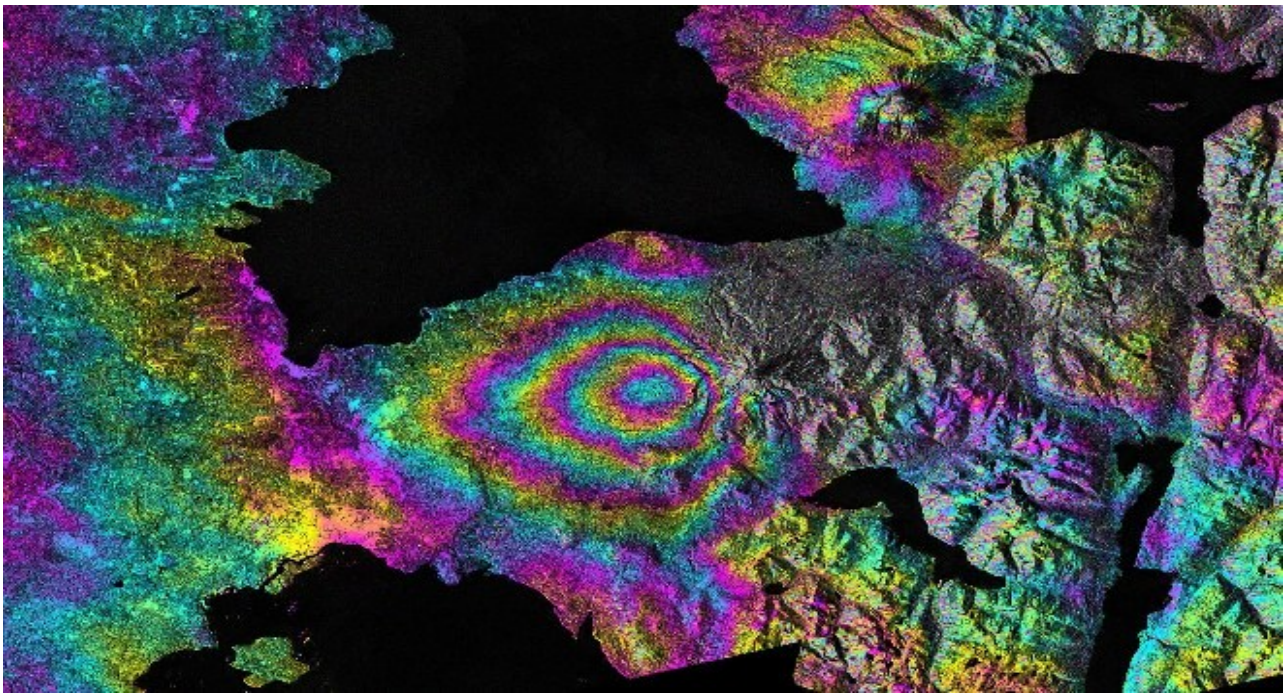
How New NASA, India Earth Satellite NISAR Will See Earth



Interferogram from ESA's Sentinel 1 showing land deformation. The color bands west of the volcano indicate land shrinking. NISAR will produce similar images.
NASA

When NASA and the Indian Space Research Organization's (ISRO) new Earth satellite NISAR (NASA-ISRO Synthetic Aperture Radar) launches in coming months, it will capture images of Earth's surface so detailed they will show how much small plots of land and ice are moving, down to fractions of an inch.Imaging nearly all of Earth's solid surfaces twice every 12 days, it will see the flex of Earth's crust before and after natural disasters such as earthquakes; it will monitor the motion of glaciers and ice sheets; and it will track ecosystem changes, including forest growth and deforestation.

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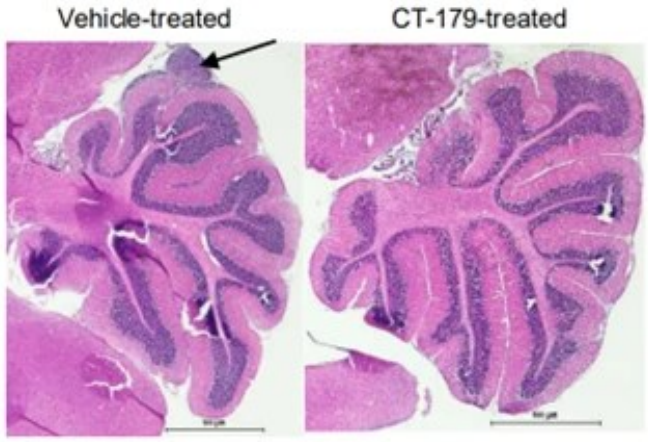
Research Discovery Halts Childhood Brain Tumor Before It Forms

A SickKids research team has identified a critical event driving tumour growth in a type of medulloblastoma – and a way to block it.



CT-179 treatment administered prior to tumor formation blocks their growth.
SickKids

In a new study published in Nature Communications, the researchers identify that a protein is responsible for the waking up of 'sleeping' stem cells and driving SHH medulloblastoma tumour formation and regrowth.By blocking this protein and preventing the stem cells from waking, the study demonstrates what could be a pivotal treatment strategy for the cancer, utilizing cutting-edge genomic approaches in combination with functional experiments in a preclinical model.

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Chords & Riffs

Vangelis (1943–2022) the Best Composer of the 20th Century?

writersedition.com

With a career in music spanning over 50 years and having composed and performed more than 50 albums, Vangelis is one of the most important figures in the history of electronic music.

Born in Agria and raised in Athens, Vangelis began his career in the 1960s as a member of the rock bands the Forminx and Aphrodite's Child; the latter's album 666 (1972) is recognized as a progressive-psychedelic rock classic.

Vangelis reached his commercial peak in the 1980s and 1990s. His score for Chariots of Fire (1981) won him an Academy Award for Best Original Score, while his score for 1492: Conquest of Paradise (1992) was nominated for a Golden Globe Award for Best Original Score and the film's soundtrack and main theme topped the European charts selling millions of copies.

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Chariots of Fire https://youtu.be/8a-HfNE3EIo

Conquest of Paradise https://youtu.be/7ufkMTshjz8

Blade Runner- Love theme - https://youtu.be/h9ezypI-yc4

Song of the Seas https://youtu.be/55SVonv-sio

Vangelis documentary https://youtu.be/jbnOZ-j_gT8

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FLASHMOB CENTRAL

Christmas Food Court Flash Mob, Hallelujah Chorus

youtube

https://youtu.be/SXh7JR9oKVE

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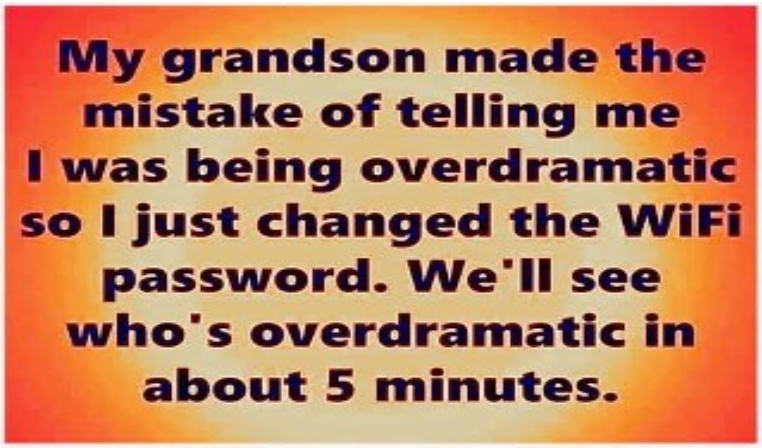

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Does Blood Type Explain Neanderthal Demise?

Human populations that left Africa evolved quickly whereas Neanderthals stayed the same, according to an analysis of blood group systems.

Skulls of a Neanderthal (front) and early Homo sapiens (back).
(Image credit: Alamy)

When modern humans journeyed out of Africa, a rapid evolution in their red blood cells may have helped them survive — but it may have also led to the eventual disappearance of Neanderthals, a new study finds.

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Women Speak 3,000 More Words Daily Than Men During Midlife

Credit: Pixabay/CC0 Public Domain

The stereotype that women are much more talkative than men is pervasive across many cultures, but a widely reported study by University of Arizona researchers in 2007 refuted the claim, finding that men and women speak roughly the same number of words per day—around 16,000.

A new, larger follow-up to that study paints a more nuanced picture, suggesting that women may be the chattier gender, but only during a certain period of life.

https://bit.ly/4jOfVyK

Who knew?

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Antarctic Cretaceous Fossil the Earliest Known Modern Bird

The nearly complete fossilized skull of an ancient extinct bird might lay to rest controversial debate amongst paleontologists about the first avians.

The Late Cretaceous modern (crown) bird, Vegavis iaai, pursuit diving for fish in the shallow ocean off the coast of the Antarctic peninsula, with ammonites and plesiosaurs for company.
Credit: Mark Witton, 2025.

The extinct species, Vegavis iaai, lived in what is now Antarctica about 69 million years ago, during the late Cretaceous Period. The newly described fossil places the earliest known modern bird firmly as an early relative of ducks and geese (waterfowl).

Modern bird fossils are exceptionally rare prior to 66 million years ago, when an asteroid impact near Mexico's Yucatán Peninsula triggered the extinction of all known non-bird dinosaurs, and more recent studies have cast doubt on the evolutionary position of Vegavis.

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"The Power of Predators"

How wolves helped restore a Yellowstone ecosystem

NPS / Jacob W. Frank

"Wolves are to Yellowstone what water is to the Everglades," Doug Smith, the former director of the Yellowstone Wolf Recovery Project and current National Park Service wildlife biologist, once said. That sentiment is especially evident in a recent study highlighting the predators' slow yet steady role in bringing an ecosystem back into balance — all the way down the food chain, from elk populations to plants.

Researchers found that willow volume increased by 1,500% over the span of 20 years, spurred by the reintroduction of wolves to Yellowstone in 1995. As willow is a common food source for elk and elk are a primary food source for wolves, more wolves means fewer elk and more willow.

"Our findings emphasize the power of predators as ecosystem architects," lead study author William Ripple said in a statement, noting the importance of abundant willow as a vital food resource and habitat for birds and other animal species.

"The restoration of wolves and other large predators has transformed parts of Yellowstone, benefiting not only willows but other woody species such as aspen, alder, and berry-producing shrubs. It's a compelling reminder of how predators, prey, and plants are interconnected in nature," he added. See the before-and-after photos of the transformation.

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Why Are Scientists Watching Krill From Space?

WWF, the University of Strathclyde and the British Antarctic Survey (BAS) have teamed up to work on a pioneering project to monitor krill from space.

WWF

Krill (Euphausia superba) – small, shrimp-like animals – are known as climate's tiny superheroes. Growing up to about 6cm in length, they are a key species in Antarctic marine ecosystems that play an important role in drawing down and storing vast quantities of carbon in the ocean depths, helping to stabilise the planet's climate.

Living in dense swarms of up to 10,000 krill in each cubic metre of water, they feed many predators, including fish and squid, seals, penguins and whales, including blue whales. Even though they form an integral part of the Southern Ocean food web, the species has become vulnerable to climate change and unsustainable fishing methods.

To safeguard one of the planet's most vital species and inform decision makers, WWF, the University of Strathclyde and the British Antarctic Survey have now joined forces to determine whether we can monitor Antarctic krill from space.

https://bit.ly/42JTi8v

This seems to align with my foundation, 'Who Cries for the Krill.' Maybe they'll send money.

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Orcas off Antarctica Filmed Teaching Calves to Hunt*PBS show*

"Nature: Expedition Killer Whale" reveals an hour-long lesson where adult orca teach calves how to hunt seals off Antarctica.

nationalgeographic.com

Stunning new footage captures the moment adult orcas carefully teach their calves how to hunt, demonstrating how to push a seal off a bit of ice before getting the young to give it a go themselves.

The clip shows a group of seven orcas — four adults and three calves — as they circle a seal on a tiny chunk of ice in western Antarctica's Marguerite Bay. The lesson, which lasted over an hour, was filmed for the new PBS show "Nature: Expedition Killer Whale," which follows a remarkable group of pack ice orcas (Orcinus orca) that live off the coast of Antarctica.

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Boom’s Supersonic Flight Went Unheard

X-B1’s sonic boom did not reach the ground during historic flight.

Credit: Boom Supersonic

Boom Supersonic's XB-1 test aircraft made a splash with its first supersonic flight two weeks ago, but it didn't make a boom and that, after all, was the point. The startup's XB-1 prototype exceeded Mach 1 three times on the Jan.28 flight but those in the flight path wouldn't have been able to tell. "Specialized microphone arrays placed in strategic locations under the flight path confirmed that sonic booms did not reach the ground as XB-1 flew at a top speed of Mach 1.12," company founder Blake Scholl told Fox News.

Scholl said the flight profile was calculated to keep quiet by using physics. "It's actually well-known physics called Mach cutoff," Scholl said. "When an aircraft breaks the sound barrier at a sufficiently high altitude, the boom refracts in the atmosphere and curls upward without reaching the ground. It makes a U-turn before anyone can hear it."

Mach cutoff varies with atmospheric conditions and aircraft speed so technology to address those variables in flight is needed to keep the planes quiet. Scholl said he's confident they can do that reliably. A bigger barrier facing Boom is political and regulatory. Scholl said he hopes the sonic flatline from the Jan. 28 flight will convince federal authorities to end a ban on overland supersonic flight as his company gets ready to build airliners. The first Overture supersonic airliner is projected to come off the assembly line in three years and enter service by the end of 2029.

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Quips to Consider, But Friend Holly Clayson Suggests You Don’t

- The closest I ever got to a 4.0 in college was my blood alcohol content.
- I live in my own little world, but it's OK. Everyone knows me here.
- I saw a large woman wearing a sweatshirt with "Guess" on it. I said: "Left-Tackle?"
- I don't do drugs. I find I get the same effect just by standing up really fast.
- I don't like political jokes. I've seen too many get elected.
- The most precious thing we have is life, yet it has absolutely no trade-in value.
- If life deals you lemons, make lemonade. If tomatoes, make a Bloody Mary
- Shopping tip: You can get shoes for a buck at bowling alleys.
- Every day I beat my previous record of consecutive days I've stayed alive.
- People never say, "It's only a game!" when their team's winning
- Ever notice that people who spend money on beer, cigarettes and lottery tickets are always complaining about being broke and not feeling well?
- A smoking section in a restaurant is like having a peeing section in a swimming pool
- Marriage changes passion. Suddenly you're in bed with a relative.
- Snowmen fall from Heaven unassembled.

- I signed up for an exercise class and was told to wear loose fitting clothing.
  If I had any loose fitting clothing, I wouldn't need the class!
- Don't argue with an idiot; people watching may not be able to tell the difference.
- Wouldn't you know it! Brain cells come and brain cells go, but fat cells live forever.
- Why is it that our children can't read a Bible in school, but they can in prison?

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Some Hammerhead Sharks Seem to 'Hold Their Breath' During Dives

These fish may close their gills to stay warm when going deep

Scalloped hammerhead sharks off the coast of Hawaii may close their gills to hold on to their warmth when diving hundreds of meters below the surface, new research suggests.
Deron Verbeck

Even fish sometimes hold their breath in cold, dark, deep water.

Scalloped hammerhead sharks living near Hawaii spend their days basking in warm surface waters. But at night, these fish hunt for squid and other prey in the cold ocean depths hundreds of meters below the surface. The sharks may hold on to body heat in the frigid waters by suppressing the use of their gills while diving, essentially "holding their breath" for around an hour at a time, researchers report in the May 12 Science.

Whales and other deep-diving mammals are known to hold their breath (SN: 9/23/20). But this is the first time the behavior has been spotted in diving fish, says Mark Royer, a shark physiology and behavior researcher at the University of Hawaii at Manoa in Honolulu.

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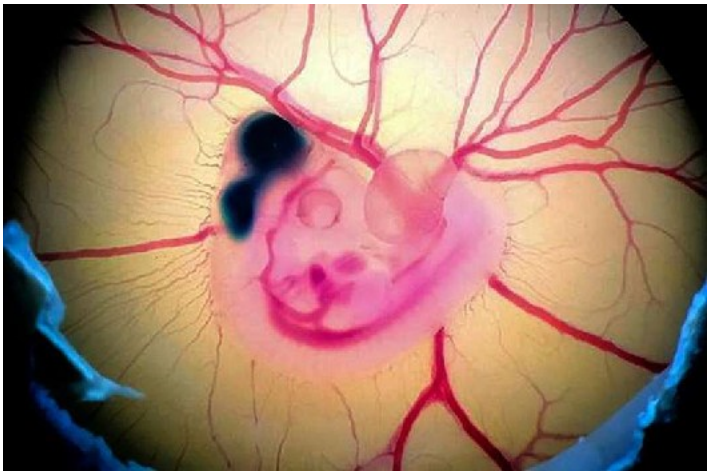
Birds Developed Complex Brains Independently from Mammals



Chick embryo after experimental manipulation.
Credit: Fernando García-Moreno

Two studies published in the latest issue of Science have revealed that birds, reptiles, and mammals have developed complex brain circuits independently, despite sharing a common ancestor. These findings challenge the traditional view of brain evolution and demonstrate that, while comparable brain functions exist among these groups, embryonic formation mechanisms and cell types have followed divergent evolutionary trajectories.

Previous studies had identified the presence of shared excitatory and inhibitory neurons, as well as general connectivity patterns suggesting a similar evolutionary path in these vertebrate species.

However, the new studies reveal that, although the general functions of the pallium are equivalent among these groups, its developmental mechanisms and the molecular identity of its neurons have diverged substantially throughout evolution.

The first study

The second study

The results show that birds have retained most inhibitory neurons present in all other vertebrates for hundreds of millions of years. However, their excitatory neurons, responsible for transmitting information in the pallium, have evolved in a unique way.

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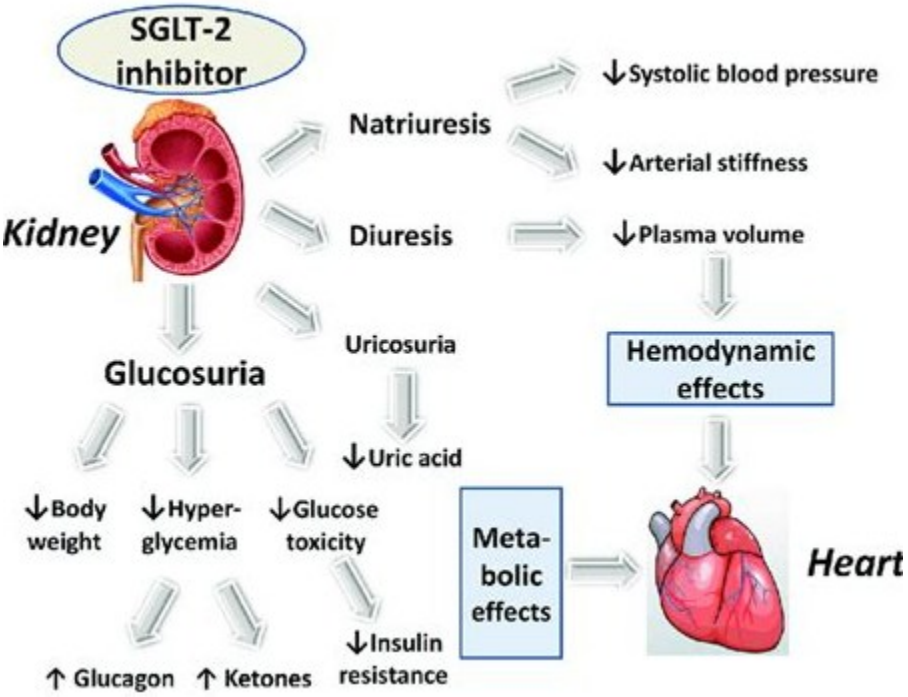
Semaglutides: What Are They and How Do They Work?



mavink.com

Semaglutide is in a class of drugs called GLP-1 agonists, which mimic the hormone GLP-1. Humans produce GLP-1 when they eat, and the hormone causes the body to produce insulin—hence its use to treat diabetes (1440 Topics: Diabetes).

However, GLP-1 also activates receptors in the nervous system, the stomach, and the gut. Each receptor triggers a different response, including slowing the passage of food through the digestive system and prompting the brain to send signals of fullness.

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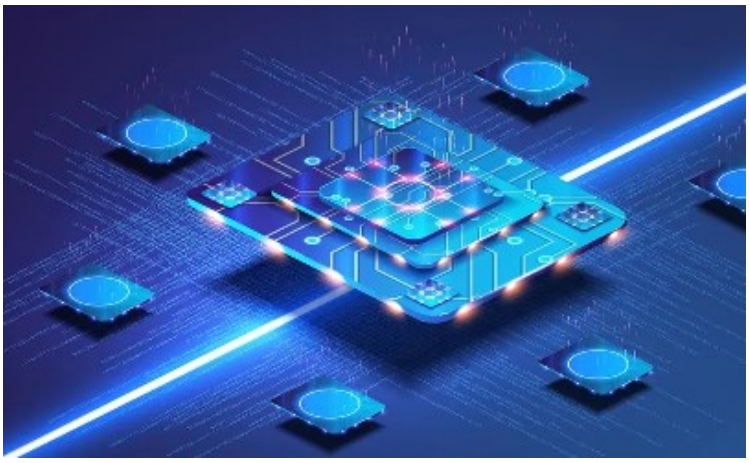
Microsoft, Others Introduce Breakthroughs in Quantum Computing

"We really feel very confident about where we are in the trajectory of growth with superconducting quantum computing."



Natalyaburova/Getty Images

Microsoft's new Majorana 1 chip, announced Feb. 19, could provide the jumping off point for a quantum leap. The chip utilizes Majorana particles—particles that are cooled to exist in a state of having no charge—through its topological superconductor, a world-first technological breakthrough that could accelerate the quantum computing timeline.

The breakthrough isn't the only big news in quantum computing this month. On Feb. 11, quantum technology firms QphoX, Rigetti, and Qblox published research indicating that microwave-to-optical transduction could be used to connect optical fibers to superconducting qubits via the necessary microwave signals.

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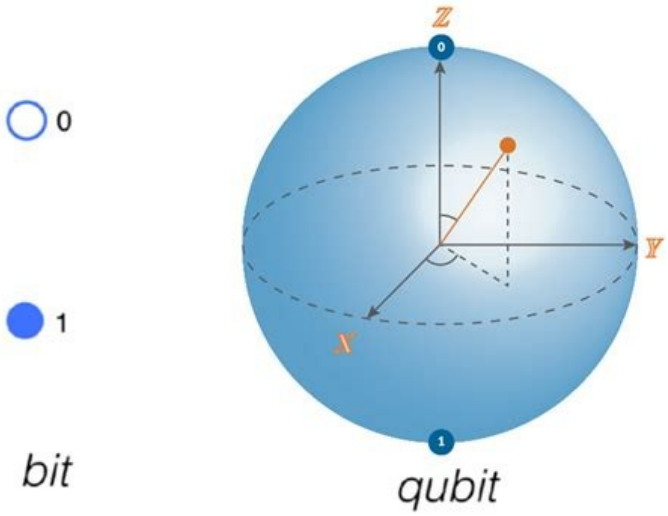
How Quantum Computing Works



quantumtech.blog

Built on the mind-bending properties of quantum physics—how things behave at very, very small scales—quantum computers, in principle, can solve problems and perform tasks that would take centuries for classical computers to perform.

The fundamental units of information in quantum computers are qubits. Like bits, they have distinct states, but they behave much differently than classical bits. Two principles of quantum mechanics are helpful to illustrate why.

The first is superposition. At very small scales, particles and matter are described by probability waves. This means qubits can simultaneously exist in two states—both 0 and 1—simultaneously, whereas classical bits can only be 0 or 1 at all times.

The second is entanglement. Not only do tiny particles exist in multiple states at once, but in certain configurations, their probability waves become linked (or entangled). Now, not only is each particle simultaneously in multiple states, but the whole group exists in multiple connected states that can be manipulated all at once.

Together, these properties allow quantum computers to carry out complex operations orders of magnitudes faster than traditional computers. Roughly speaking, the speed increases exponentially with the number of qubits—a Google prototype recently solved a math problem that would take a supercomputer 47 years using just 70 qubits.

A key requirement among all types is that it must maintain quantum coherence. Most existing qubits lose their connected states—or decohere—in a millisecond or less.

https://bit.ly/4hHyKC0

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Ranked: The 20 Most Popular Dog Breeds in America

Dogs remain America's favorite pet, but which furry friends are the most popular among U.S. dog owners?

This infographic highlights America's 20 most popular dog breeds in 2023 based on annual registration statistics from the American Kennel Club, the world's largest purebred dog registry.

Several factors contribute to a dog breed's favoritism among modern pet owners. Adaptability remains a key attribute, with pet owners living in both urban and suburban settings.

Additionally, many of the most popular dogs—like the Golden Retriever and the Labrador—tend to have family-friendly temperaments and playful attributes. Cultural influences like TV, celebrities, and social media also play a role in pet owners' choices.

https://bit.ly/434uqZ5

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Scarab Recreation? I Want One

A mere $140K gets you into the ballpark…maybe.

Scarab Motorsports

The original Scarab race cars were the vision of Woolworth heir Lance Reventlow, who in 1957 at the age of 21 recruited a team of specialists to design an all-American sports racer in Hollywood, California. Led by Warren Olsen, Reventlow Automobiles completed the left-hand-drive, Chevrolet-powered Scarab Mk I in early 1958 before building two right-hand-drive Mk II variants later that year. After a dominating season for the Scarabs, the second two cars were sold to other teams, while the lone Mk I was converted to a street car for Reventlow.

This re-creation was built by Scarab Motorsports, who began offering its modernized re-creations of the sports racers in 2010. The hand-made aluminum bodywork is finished in metallic blue and wrapped over a TIG-welded 4130 chromium-molybdenum steel frame that was powder-coated in black.

https://youtu.be/yFfmemC4ri4?t=2

Well, maybe not. The bidding got violent in its last day of being on "Bring a Trailer," so when the smoke cleared, the car sold for $235,000.

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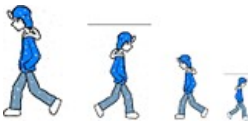
My Walking Thoughts



For Sunday March 2 2025

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My Walking Thoughts for Sunday March 2 2025

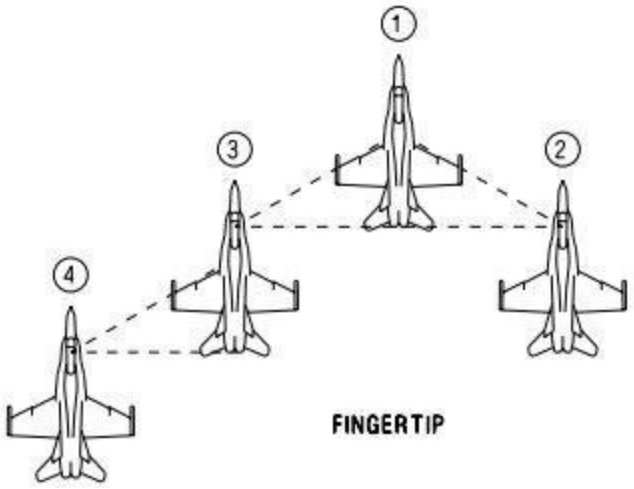
Formations

Last week I talked about flying wing in a parade formation, but I was reminded by a friend that it would have been better had I begun by describing the full range of formation flights as I had in my 1983 book, Phantom Over Vietnam. So yes, and here goes:

Flight Elements

Section: Two-plane element comprising a leader and wingman—the basic unit for tactics.

Division: A flight made up of two or more sections that, while still adhering to section integrity doctrine, work as mutually supporting elements. (see the accompanying example of 'fingertip' formation.)



Gaggles: While you may see larger element such as found in mass bombing formations in WWII to maximize defensive firepower against German fighters, or flight demonstration team performances such as the Canadian Snowbirds or Italian 313th Acrobatic Training Group flying 10 Aermacchi MB-339-A/PAN jet trainers, in today's combat environment, smaller elements predominate.

Formations

Parade: A dress formation used for close maneuvering at night, in the clouds, around the field, and for showing off. The position varies from airplane to airplane, unit-to-unit, and even as to purpose. In the Phantom, the gouge was to line up the intake ramp with the leader's helmet, maintained a three-foot wingtip-to wingtip separation and a three-foot step-down.

Cruise: Essentially, a loosened parade formation used to facilitate close-quarter maneuvering in a nonhostile environment. Here, the wingman drops back to a 45-degree bearing and loosens out to allow for nose-to-tail separation. Thus, if the leader wishes to initiate radical action, he can do so without inordinate fear of being eaten up by his wingman. As the leader maneuvers, the wingman maintains fore and aft separation by sliding to match the leader's radius of turn.

Recce: Close combat spread, with supporting units elements maintaining position within a 45-60-degree cone aft of the lead. In recce, mutual support is sacrificed for maneuverability and massed firepower. Vietnamese (Soviet) fighter pilots took advantage of this practice because of its vulnerability to rear-quadrant attacks. In today's highly instrumented environment, this may be a more acceptable combat tactic.

Combat Spread: This is the basic fighting position where supporting units or elements maintain a position abeam the leader, stepped up or down as fits the situation and at a distance that approximates two-thirds the level turning radius of the aircraft at cruise.

Maneuvering involves the use of both the horizontal and vertical planes, the mix reflecting the seventy of the situation.

While there is a leader assigned to the flight, in actual practice, changing tactical circumstances – essentially the element with the best view of the situation will be the one to call the shots. In a furball, this will constantly shift back and forth throughout the fight.

The best way I can explain this is to have you hold your hands out even with each other at shoulder width showing the relationship between two aircraft (or elements)to one another. In this setup each element is in position to see and cover the other's rear quadrant.

Let me put this into scene:

If a bogie initiates an attack on your wingman from say his 4:00 o'clock position, your job is to decide when and how best to counter the attack. There will be a number of factors leading to your determination, but essentially your approach will be to foil the enemy's attack by turning the flight into him. Depending on the severity of the situation, you might have your wingman roll into a nose high turn to increase the attacker's angle-off while you turn harder nose down, passing behind him after 90 degrees of turn and achieving what is essentially the initial starting position after 180 degrees of turn.

Try this with your hands, and envision what this does to the attacker. If he delays breaking off and skedaddling early enough in the encounter, he'll likely live to fight another day. If, however, he continues on or waits to long to withdraw, he's now become the quarry.

Have I left you hopelessly confused? Don't worry, after two or three max performance turns, all will become obvious to someone… hopefully you rather than the adversary.

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Phantoms from Vietnam Outtakes

Real novelists know what they're doing from start to finish… or that's I've been told. Since I'm a rookie you'll see I didn't come close with this effort, a fact that will become patently obvious in the next several weeks as I demonstrate my chaotic journey with outtakes that show I hadn't a clue where I was headed until almost the last moment.

I began the novel in first person, assuming it would be Gordon who was spirited away to the Soviet Union, all the while listed in at home as Missing in Action. In this, the very first piece in the effort, I had him explain a small piece of the backdrop and a choice he would have to make. Here was the opening shot in 2019.

Chapter One: Gordon's Manifesto

For all the time I spent in the Soviet Union, you'd think I'd learned to speak Russian like a native. Unfortunately except for a rare slip of the tongue, the people I was around were under orders not to speak anything but English. More precisely, the ones I was responsible for spoke 'California educated American English,' which turned out to be the reason the Soviets went to so much trouble to smuggle me out of Laos… just how much and why I didn't realize until after I'd been there for nearly a year.

Before I go any farther, I need to point out I'm under orders not to say anything about my Russian adventures, a threat that comes not from my former hosts but from one of those three-letter organizations that have proliferated in my absence and whose methods that today are more frightening than I had ever imagined.

Despite rumors and hints about the Soviets spiriting away Americans listed as Missing in Action in Vietnam, no one has come forth to substantiate the situation, so what's the possibility that anyone will listen to me?

Well that's a problem for another day. Meanwhile I'm here and I've got a hell of story to tell. What you do with it is your business.

William Gordon Talbott, Jr.
Lieutenant Colonel
United States Marine Corps, Retired

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I'll follow up on this in future Walking Thoughts;

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