

## Ode to E Pluribus Unum for Sunday January 26 2025

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### Big Picture Competition



*Winged Life*  
*Franco Banfi*

*The annual BigPicture: Natural World Photography Competition encourages photographers from around the world to contribute their work to this photo competition that will both celebrate and illustrate the rich diversity of life on Earth and inspire action to protect and conserve it through the power of imagery.*

*The winning images are exhibited at one of the most prestigious science institutions in the world in San Francisco, California, USA.*

Winged Life is just one of the winners.

Despite being nearly as large as an albatross, with a wingspan approaching seven feet in length, Northern gannets (*Morus bassanus*) are surprisingly agile divers. They owe it all to their amazing eyes, which are not only generally sharp, but have also structurally adapted for plunge-diving. This, combined with their robust vocalizations, allow them to be adept fish hunters.

Spending most of their lives at sea, these birds can dive nearly 72 feet deep for food, racking their prey from the air and catching them by making a jabbing dive. The photographer likens watching these birds to torpedoes as they break the surface of the cold Scottish waters at a speed of close to 60 mph to seize their prey. And thanks to their incredible vision, they're able to do so without barreling into one another.

<https://bit.ly/4abGqJT>

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## **EV Batteries May Last Years Longer Than We Thought**



*Gary Hershorn/Getty Images*

We already knew that electric vehicle batteries typically last longer than the batteries in their gas-fueled counterparts. But thanks to a recent study, we also now know that EV batteries may last up to 40% longer than researchers previously thought, meaning users could get an extra few years out of their packs and cars.

The old info was based on lab tests where engineers evaluated batteries at a constant rate of discharge. But a team at Stanford University discovered that when EV cars are subject to real-life driving conditions, their power sources are more durable than the original labs showed.

"We've not been testing EV batteries the right way," study co-author Simona Onori said in a statement. "To our surprise, real driving with frequent acceleration, braking that charges the batteries a bit, stopping to pop into a store, and letting the batteries rest for hours at a time, helps batteries last longer."

Plus, good news for drivers who like to put the pedal to the metal: It turns out pressing the pedal hard with your foot doesn't speed up aging, and may actually slow it down.

<https://bit.ly/3ZuQV6a>

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## **Air Pollution and the Public Health Costs of AI**



*rotageek.com*

With the growing adoption of large language models, such as OpenAI's ChatGPT, the enormous environmental footprint of artificial intelligence, or AI, is increasingly in the news. This cost is often discussed in terms of electricity consumed, carbon released into the atmosphere, and water needed to operate massive data centers.

But there is a hidden cost of AI that needs to be considered: The toll on public health associated with the resulting increase in air pollution. So says a new study by Caltech and UC Riverside (UCR) scientists published online December 9 on the arXiv preprint server

Adam Wierman, the Carl F Braun Professor of Computing and Mathematical Sciences and director of Information Science and Technology at Caltech, notes that AI is going to be a significant part of our lives, offering clear benefits that have the potential to improve societal systems. "At the same time," he says, "we need to make sure that we have our house in order, and that the negative impacts that come from it are recognized, quantified, minimized, and shared equitably."

<https://bit.ly/3Bpfvzk>

*One of the greatest burdens we as a society bear is the cost of dealing with environmental damage levied on us rather than those who produced and benefitted*

*from its existence. Here's a case where we have the opportunity to apply the costs where they belong.*

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## **In Japan, Designers Fit Big Ideas into Tiny Homes**



*Some newer houses around the country are barely wider than a common family car.*

*Mogura House stands on a narrow plot in Tokyo where a residential estate had been broken up. The home is less than six feet wide.*

*Credit...Souhei Kubo*

With some of the most densely populated cities in the world, the Japanese are old hands at living in close quarters. From the spread of nagaya tenements and machiya townhouses in the Edo period (1603-1867) to postwar "barrack" tenements, danchi apartment complexes and capsule hotels, Japan has long used innovative designs and multipurpose rooms to make the most of limited space on its archipelago.

<https://bit.ly/3DhS2P6>

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## **Trashman's World Record Car Collection**



*nbkomputer.com*

Harold LeMay started a waste management company in the Tacoma, Washington metro area. LeMay's car collection was listed in the Guinness Book of World Records as the



"Largest Antique & Vintage Vehicle Collection" with 3000 cars in 53 locations across Tacoma, Washington.

<https://youtu.be/fsccltsck7s>

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## **Moon Rover Designed to Survive the Frigid Lunar Night**

*"Endurance is a mission that pushes the envelope."*



*An illustration of the planned Endurance rover on the moon.  
(Image credit: NASA)*

Tagged as the Endurance sample return mission, it would collect bits and pieces from key lunar locations for later retrieval by future astronauts in NASA's Artemis program. Furthermore, high-value collectibles snagged from those distant spots would be hauled back to Earth by astronauts.

At the moment, NASA's Mars rover Perseverance is the most advanced rover in operation, Keane said. "Endurance would drive roughly 100 times further, drive far faster, and collect roughly 200 times more sample mass than Perseverance. Endurance would also be the first planetary rover to drive at night. This is a mission with a scope that we've never attempted before," James Keane, a JPL research scientist and science champion for the Endurance mission concept study, said.

<https://bit.ly/3P47NvL>

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## Why the Position of the Magnetic North Pole Is Officially Changing.

*The updated version of the World Magnetic Model was released on Dec. 17, with a new prediction of how the magnetic north pole will shift over the next five years. Here's why it was changed.*



*A planned update to the World Magnetic Model will help ensure that navigational systems keep users on track for years to come.*

*(Image credit: UniversalImagesGroup via Getty Images)*

The geographic North Pole is the point where Earth's axis of rotation meets the planet's surface and where all lines of longitude converge. The magnetic north pole, meanwhile, is the point in the Northern Hemisphere where Earth's magnetic field lines point directly into the planet.

The complex motion of the outer core causes the magnetic north pole to shift tens of miles per year. Because Earth's magnetic field is slightly asymmetrical and more complex than that of a regular bar magnet, the magnetic south pole — the point in the Southern Hemisphere where the magnetic field points straight into the planet — doesn't move in quite the same way. But changes in the strength of the magnetic field near the North Pole have caused it to shift from the Canadian Arctic toward Siberia in recent years.

<https://bit.ly/41GDKBY>

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## Alphabet's Wing Will Deliver Doordash by Drone in Dallas-Fort Worth

*Orders from 50 retailers and takeout providers can be flown to eligible locals at launch.*



*wing*

Wing, a subsidiary of Google's parent company Alphabet, is expanding its drone delivery service to DoorDash customers in the Dallas-Fort Worth Metroplex. 50 merchants from malls in Frisco and Fort Worth will be available for drone delivery through the DoorDash app, dropping meals and items to homes "in as little as 15 minutes," according to Wing.

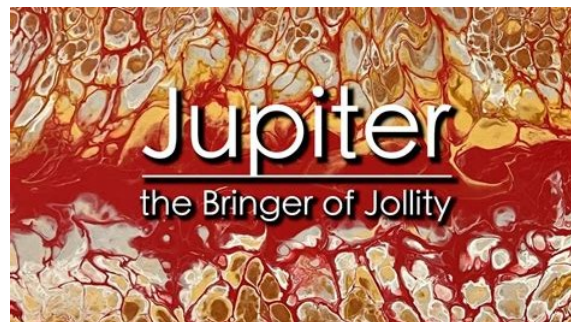
The drones can fly at up to 65 mph and reach a cruising height of about 150 feet before stopping to hover and safely lower orders to the ground at their delivery destinations.

<https://bit.ly/3ZJQgxJ>

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## FLASHMOB CENTRAL

### Gustav Holst - The Planets: Jupiter



*youtube*

<https://youtu.be/q3cpOrB1GW8>

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## TikTok, Will it Live On?



*chargedetail.co.uk*

### **Background**

Since 2018, the short-form video-sharing app TikTok has gone from launching in the US to becoming a habit-forming cultural force that's signed up more than half of the US population as users.

From fostering a robust influencer economy to turning ordinary users into viral stars (see top 50 accounts), the platform's ascendancy has also raised national security concerns. Despite concerns, TikTok is still growing—the platform was on track to reach 2 billion users by the end of 2024.

### **History**

TikTok is owned by the Chinese technology company ByteDance. Its origins date back to 2016 when ByteDance launched a video-sharing app called Douyin for the Chinese market. TikTok remains unavailable in China, which has much more stringent censorship.

A year later, two things happened—the company launched TikTok as a modified version of Douyin for international users, and ByteDance acquired Musical.ly, a social video app where users shared short lip-sync videos.

The two were merged in 2018, combining Musical.ly's established user base with TikTok's algorithm focused on driving viral binge-watching. The platform hit 1 billion downloads the following year.



Rapper Lil Nas X went from an unknown artist to No. 1 on the charts after his single "Old Town Road" went viral on TikTok in 2019, one of the earliest demonstrations of the platform's power.

The app saw supercharged growth during the COVID-19 pandemic, with users seeking social connections (and with ample idle time for online distractions) during lockdowns. TikTok was downloaded more than 850 million times in 2020 alone.

<https://youtu.be/XQw6Uc4QANA>

*I don't get it, nor have I ever used it. That puts me in the minority of U.S. people. You?*

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## Looking for an Alternative to Life in a Nursing Home?

*With the average cost for nursing home care being \$275.00 per day, there is a better way when we get old and feeble*



*touristwinnepeg.com*

Here's a "reasonable" alternative that deserves some consideration that my friend Holly Clayson claims he's already checked out while looking into reservations at The Fairfield Inn.

For a combined long term stay discount and senior discount, it's \$79.00 per night. Breakfast is included, and some have happy hours in the afternoon. That leaves \$196.00 a day for lunch and dinner in any restaurant we want, or room service, laundry, Gratuities and special TV movies. Plus, they provide a spa, swimming pool, a workout room, a lounge and washer dryer, etc.

- Most have free toothpaste and razors, and all have free shampoo and soap.
- \$10 worth of tips a day you'll have the entire staff scrambling to help you. They treat you like a customer, not a patient.
- There's a city bus stop out front, and seniors ride free.
- The handicap bus will also pick you up (if you fake a decent limp).
- To meet other nice people, call a church bus on Sundays.
- For a change of scenery, take the airport shuttle bus and eat at one of The nice restaurants there.
- While you're at the airport, fly somewhere.
- Otherwise, the cash keeps building up.

It takes months to get into decent nursing homes. Marriott will take your reservation today And you're not stuck in one place forever -- you can move from Marriott to Marriott, or even from city to city.

- Want to see Hawaii ? There's a Courtyard there too.
- TV broken? Light bulbs need changing? Need a mattress replaced? No problem.. They fix everything, and apologize for the inconvenience.
- The Marriott has a night security person and daily room service. The maid checks to see if you are ok. If not, they'll call an ambulance . . . Or the undertaker.
- If you fall and break a hip, Medicare will pay for the hip, and Marriott will upgrade you to a suite for the rest of your life.
- And no worries about visits from family. They will always be glad to find you, and probably check in for a few days mini vacation. The grand-kids can use the pool  
What more could I ask for

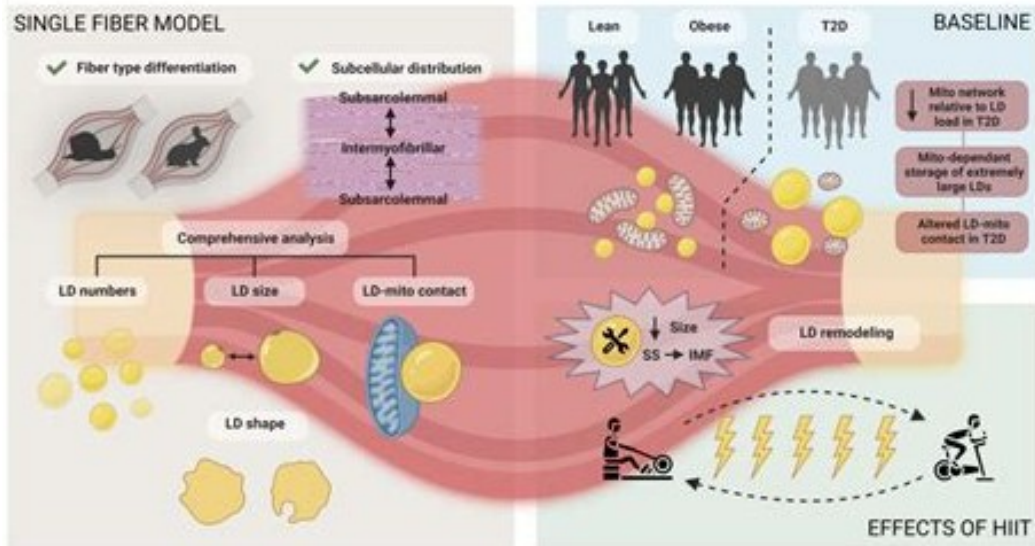
So, when you reach that golden age, you can face it with a grin

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## **Muscle Mitochondria Malfunction In Type 2 Diabetes**

Rizo-Roca, D et al. Decreased mitochondrial creatine kinase 2 impairs skeletal muscle mitochondrial function independently of insulin in type 2 diabetes. Science Translational Medicine 16 (2024). 10.1126/[scitranslmed.ado3022](https://doi.org/10.1126/scitranslmed.ado3022)

## Intramuscular Lipid Droplets and Mitochondria in Type 2 Diabetes



*journalsphysiology.org*

Mitochondria are organelles that coordinate metabolism in diverse ways by providing energy to our cells. It's probably not surprising, then, that their dysfunction is seen in all sorts of different diseases. But whether mitochondrial dysfunction causes disease—or is a consequence of it—is incredibly difficult to study because mitochondrial functions are entangled with all cellular processes that require energy.

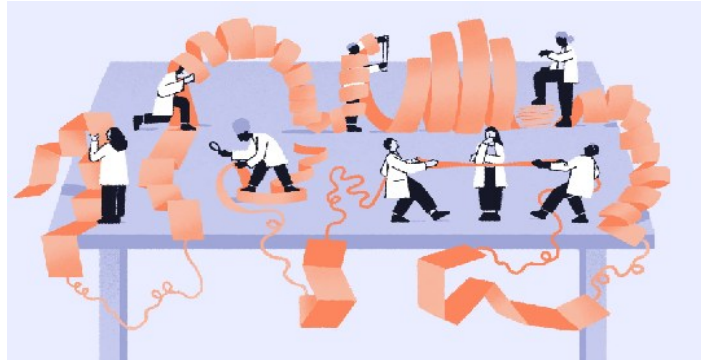
Rizo-Roca et al.'s work took on this challenge in the context of type 2 diabetes. The team found that men with type 2 diabetes had decreased phosphocreatine in their muscles, a metabolite that can quickly be used as 'energy currency' when muscles need fuel fast. Such depleted phosphocreatine in muscle has been associated with diabetes in the past. So, researchers gave mice with experimental type 2 diabetes a supplement to increase phosphocreatine, but this had no effect on their disease, suggesting changes in cellular energetics were a consequence and not a cause. Meanwhile, genetically increasing amounts of the enzyme that produces phosphocreatine (mitochondrial creatine kinase 2) did improve the functioning of their mitochondria. The team also found that this enzyme was increased in exercise-trained mice and humans, potentially helping explain why exercise can alleviate some type 2 diabetes symptoms.

Determining causation for why a disease has the effects it does—or why exercise is good for us—can be difficult when studying metabolism. This study adds a piece to the puzzle and carefully presents data that will help to build a clearer picture of human disease and mitochondrial function.

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## How AI Revolutionized Protein Science, but Didn't End It

*Three years ago, Google's AlphaFold pulled off the biggest artificial intelligence breakthrough in science to date, accelerating molecular research and kindling deep questions about why we do science.*



*How does a one-dimensional string of molecules fold correctly into its innate three-dimensional shape? This question, known as the protein folding problem, was recently solved by artificial intelligence.*

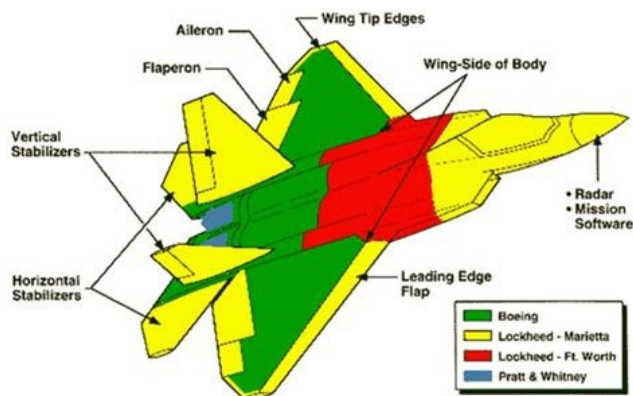
*Fran Pulido for Quanta Magazine*

AlphaFold2 has basically done much to solve the protein folding problem, shifting protein science forever.

<https://bit.ly/3BT5Hfi>

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## Special Lecture: F-22 Flight Controls



*Regroups.com*

Test pilot Randy Gordon's hour-long lecture takes you through it at the speed of heat. Give it a try and then see if you can just walk away from it

<https://youtu.be/n068fel-W9I>

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## How do DNA tests tell if two people are related?

*How can DNA from a cheek swab determine if someone is closely related to you?*



DNA tests can shed light on where your family is from and help connect you with potential relatives. How?

(Image credit: Yuichiro Chino via Getty Images)

DNA tests can tell people where in the world their ancestors came from, and if they're at risk of developing different genetic conditions. They can sometimes even help people connect with family members they never knew they had.

But how do these DNA tests work, and how can they tell if two people are related to each other?

<https://bit.ly/40IwU3>

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## SR-71B Blackbird Walkaround with a Former Crew Chief



*airzoo*

One of two two-seat trainer Blackbirds built. The other was lost in a crash.

<https://youtu.be/tSXckp6OP28>

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## Finding Life a Little Boring? Why Not Skydive Without a Chute?



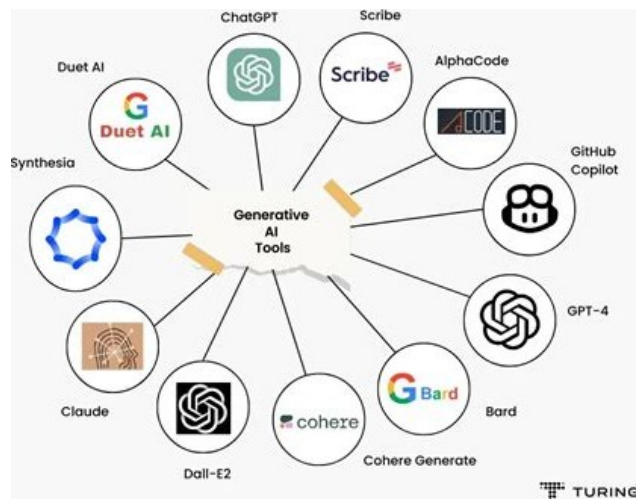
*npr.org*

Luke Aikins, the first person to accomplish a planned jump out of an airplane without a parachute or wing suit from a very high altitude (25,000 feet) (7,620 meters). Aikins eventually lands in a net.

<https://youtu.be/GaANi96Z-Wg>

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## Generative AI: Explained



*iqmguru.com*

Now that artificial intelligence can automate complex tasks, extract useful insights from large data sets, and help workers boost their productivity, AI has crossed over from science fiction to the mainstream. Generative AI, meanwhile, is an emergent form of AI that can actually mimic human imagination and creativity. The term “generative” refers to models’ ability to generate original content, including text, video, audio, and more.

[https://youtu.be/bc\\_0pn4OrDc](https://youtu.be/bc_0pn4OrDc)

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## **IVF May Raise Risk of Certain Disorders in Babies**

*Epigenetic 'signatures' in the placenta could explain why.*



*Assisted reproductive technologies are very safe but have been tied to an increased risk of some conditions in babies. Could epigenetics explain why?*

*(Image credit: Halfpoint Images via Getty Images)*

Researchers identified genes that could explain why some assisted reproductive technologies (ART), like In Vitro Fertilization (IVF), carry a higher risk of growth and metabolic issues in offspring.

To date, ART has helped usher in more than 10 million successful births worldwide. These technologies are safe, but compared with unassisted births, they come with some increased risk of reduced birth weight and [certain cardiovascular and metabolic disorders](#).

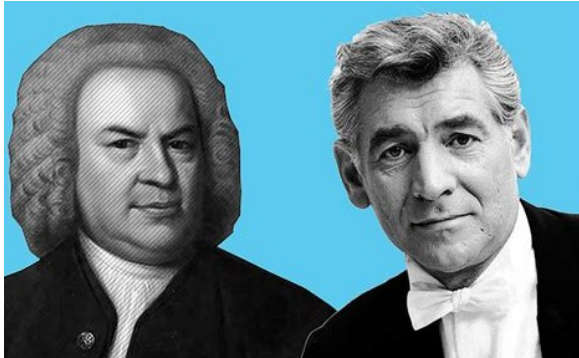
Studies also suggest that kids conceived with ART may show [disturbances in their epigenetics](#) — the chemical tags that sit on top of their DNA and regulate genes. Now, a first-of-its-kind study is taking a closer look at how this might affect child development.

<https://bit.ly/4ahvk6c>

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## Chords & Riffs

### Bernstein, the greatest 5 Minutes in Music Education



*exploreminnesota.com*

This amazing lecture series (The unanswered Question ), is actually an interdisciplinary overview about the evolution of Western European classical music from Bach through the 20th century crisis and beyond a bit .

Mr. Bernstein uses linguistics namely Chomskian Linguistics to provide a framework to illustrate how music and all the arts evolved toward greater and greater levels of ambiguity/expressivity over history until the 20th century crisis .

He manages this impressive feat of popular education , by dividing music into; Phonology (the study of sound); Syntax (the study of structure) and; Semantics (the study of meaning)

<https://youtu.be/Gt2zubHcER4?t=2>

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### The Bungle Bungles

*Towering domes in the Australian outback that contain traces of the earliest life-forms on Earth*



*Aerial view of the Bungle Bungles in Western Australia. We see towers of orange and gray*



*striped stone with vegetation growing in between.*  
(Image credit: Ripple100/Getty Images)

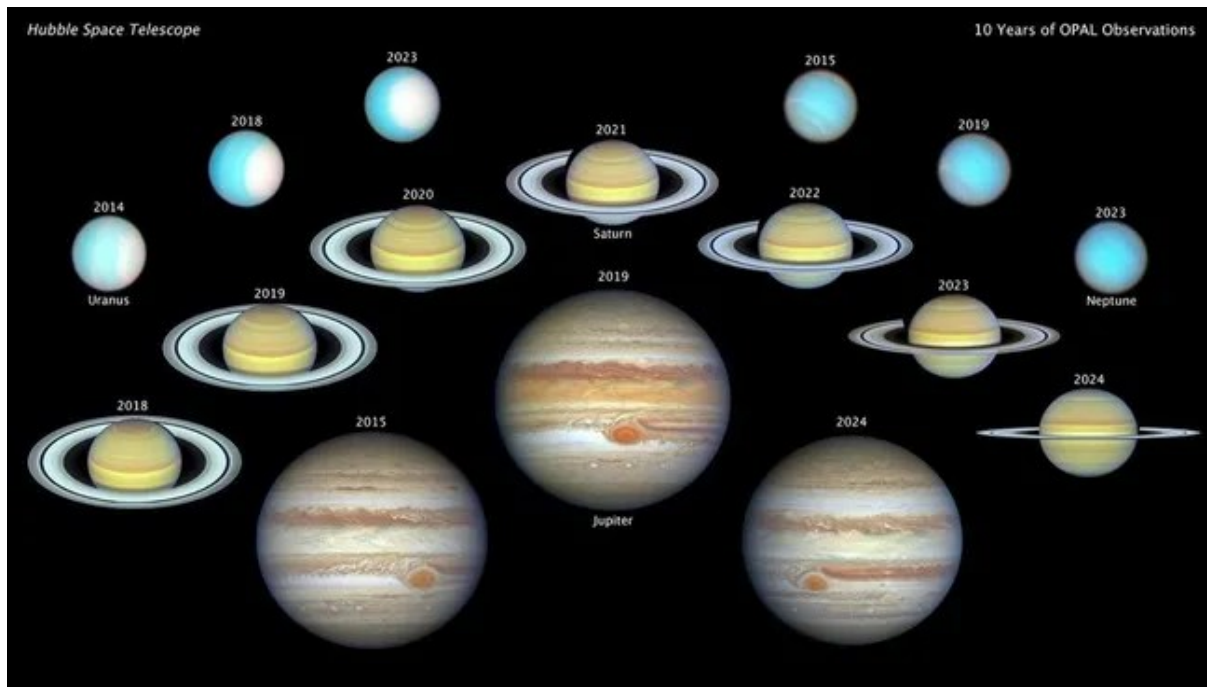
The Bungle Bungle Range in Western Australia is a collection of rock domes forged from ancient seabeds and flanked to the northeast by a prehistoric meteor impact crater.

The Bungle Bungles are the main feature of Purnululu National Park, a protected area spanning almost 600,000 acres (240,000 hectares) in the Kimberley region. Due to its areas of "incredible natural beauty" and "outstanding geological value," Purnululu National Park was named a UNESCO World Heritage Site in 2003.

<https://bit.ly/4alzxpv>

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## Hubble Celebrates 10 Years of Hunting Giants



A montage of 10 years of Hubble observations of the giant outer planets (Image credit: NASA, ESA, Amy Simon (NASA-GSFC), Michael H. Wong (UC Berkeley); Image Processing: Joseph DePasquale (STScI))

Behold, the giants! The Hubble Space Telescope has completed a decade of observing Jupiter, Saturn, Uranus and Neptune.

<https://bit.ly/4gbawib>

*Thank you J.P. Tristani*

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## What We Know About the Health Effects of Wildfire

*Wildfire smoke is about 10 times as toxic as the regular air pollution from the burning of fossil fuels, and there's no safe level of exposure, Stanford experts say: the more we breathe, the worse a range of health outcomes.*



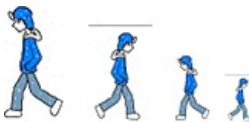
*Smoke and flames from the Palisades Fire fill the sky as seen from the Pacific Palisades neighborhood of Los Angeles.  
Getty Images*

As wildfires continue to rage across the Los Angeles area, their toll on lives, homes, and natural landscapes is undeniable. Less obvious are the health impacts, such as respiratory issues caused by smoke inhalation and mental health strains of evacuation and loss, that could stretch far beyond the burn zone and linger for years to come.

The data pretty clearly say that there is no safe level of exposure to wildfire smoke: the more exposure we get, the worse a range of health outcomes. The data also pretty clearly show that our notion of sensitive groups should probably be greatly expanded.

<https://bit.ly/40LwK5T>

## My Walking Thoughts



**For Sunday January 26 2025**

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## **Basic Instrument Flight Training in the F9F-8T**

Fun and games of aerobatic flight over, now came full retribution... the discomfort of climbing into the Cougar's back seat, blocking out the real world with a canvas bag, then waiting for the instructor to bend my mind in a new direction... to wit, the ability to deny what my senses were telling me and establish a new vision of the world around me from a motley collection of isolated and ignorant instruments.

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Actually there is one instrument—the attitude gyro displaying wing and nose positions against a backdrop of a gyroscopically stabilized globe—that does much of the work of helping students like me maintain situational awareness. Well this is true pretty much everywhere else in the aviation world except in Training Squadron Twenty-Two (and all the others at Kingsville and Beeville Naval Air Stations) where the instructors seemed honor bound to save this magical device from wear and tear by the simple expedient of popping out its enabling circuit breaker... sometimes in the middle of a complex procedure or as was more often the case, right after takeoff.

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All during such familiar activities as light-off, systems and control checks, taxi-out, and runway alignment I had nothing to do but fret, knowing that once airborne I would be put through the wringer... or so I believed, except...

"You ready back there?" Lieutenant Sells, a much feared by students hard-ass asked in a voice that at this moment seemed more a chortle.

"Yes sir," I responded waiting for him to get us into the air, but nothing happened. We just sat there for what seemed terribly close to forever.

"Well," his gnarly voice slapped me through the earphones, "are you going to just sit there... or maybe you'd rather go back to bed?"

Then it came to me. I was to make the takeoff, for all intents and purposes blindfolded.

"No sir. Sorry sir," I said with as much savoir faire as I could muster as I stuffed the throttle to the stop, and waited for something bad to happen in the very near future. But the heading indicator stayed pretty much locked at 230 degrees, maybe a wobble to 225 then back to 233. In the main however, with the help of little jabs on the rudder pedals by my spit-shined clodhoppers, the compass never strayed far from Runway 23's alignment

The airspeed needle seemed glued to Zero for an eternity before finally lumbering up to and through 80 knot mark, after which its upward progress became more resolute, achieving stick-back speed of 140 where we hopped into the air. Free of the ground, I

found myself struggling to keep up with events that in the past weeks had become almost boringly routine.

“Gear up,” I said into the hot mike as I thumped the handle into the UP position, noticing as I did so the slight bobble as the landing gear cycled into their coffins. With the altimeter showing a positive rate of climb passing 200 feet, I announced “Flaps Up,” toggled the handle up, and felt the slight sag before the aircraft steadied on its 210 knot trim speed for its initial climb.

“Watch your heading,” the voice told me just as I noticed I had sliced right to 245 degrees. I nudged the stick to the left and waited for things to happen... and waited... and waited some more... while nothing did.

And then a whole bunch of things did so in a hurry.

While the attitude gyro stayed resolutely wings level, showing the nose 10 degrees above the horizon, the heading indicator began to rotate back to the left, winding rapidly through 230...then 220...210... as about that time I saw the airspeed hit 250, the altimeter reverse its upward charge, the rate-of-climb indicator plunge to its lowest depths, and the little turn-and-bank indicator two-block its stance hard to the left.

*Omygosh*, I thought, realizing we were—at least I was—out of control. *What do I do now?*

*Level the wings by centering the turn-and-bank indicator*, that little voice in the back of my head told me, so I did, and the needle centered, arresting the heading indicator’s careen to the left.

*Stop the rate of descent*, my alter ego again came to my rescue, so I added backstick, *causing the rate-of-climb needle to unseat itself from the bottom of its range.*

*Ok, reduce the back pressure... watch your turn needle... come on stupid, keep your scan going. Airspeed a little slow...altimeter climbing a little too rapidly...heading 220...223... turn needle a little right...airspeed 245...altitude...uh...35...36...four thousand...*

“Let’s climb to 20 thou on a heading of 300,” Lieutenant Sells’ amused voice took charge after I had things under control. “Okay Jarhead, slow your breathing and relax a little.”

Feeling pretty cocky after the opening episode I was tempted to say something stupid,. But wisdom prevailed and I kept my trap shut, fearful of what might come next.

Which turned out to be a very good idea as for the next 40 minutes Lieutenant Sells led me through a long list of heading, altitude, and configuration changes, accompanied by



on again / off again games with the attitude gyro circuit breaker. When at last he decided we'd both had enough fun for the day and invited me to, "pop the hood," I was a mess.

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Tune in next week while I show you the under-the-hood exercises called 'unusual attitude recoveries.' You'll love them almost as much as I did.