

## Ode to E Pluribus Unum for Sunday July 30 2023

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## The Busy Center of the Lagoon Nebula



*Image Credit: NASA, ESA, Hubble; Processing: Francisco Javier Pobes Serrano*

The center of the Lagoon Nebula is a whirlwind of spectacular star formation.

Visible near the image center, at least two long funnel-shaped clouds, each roughly half a light-year long, have been formed by extreme stellar winds and intense energetic starlight. A tremendously bright nearby star, Herschel 36, lights the area.

Vast walls of dust hide and redden other hot young stars. As energy from these stars pours into the cool dust and gas, large temperature differences in adjoining regions can be created generating shearing winds which may cause the funnels.

This picture, spanning about 15 light years, combines images taken in four colors by the orbiting Hubble Space Telescope. The Lagoon Nebula, also known as M8, lies about 5000 light years distant toward the constellation of the Archer (Sagittarius).

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## Hunters to Heroes

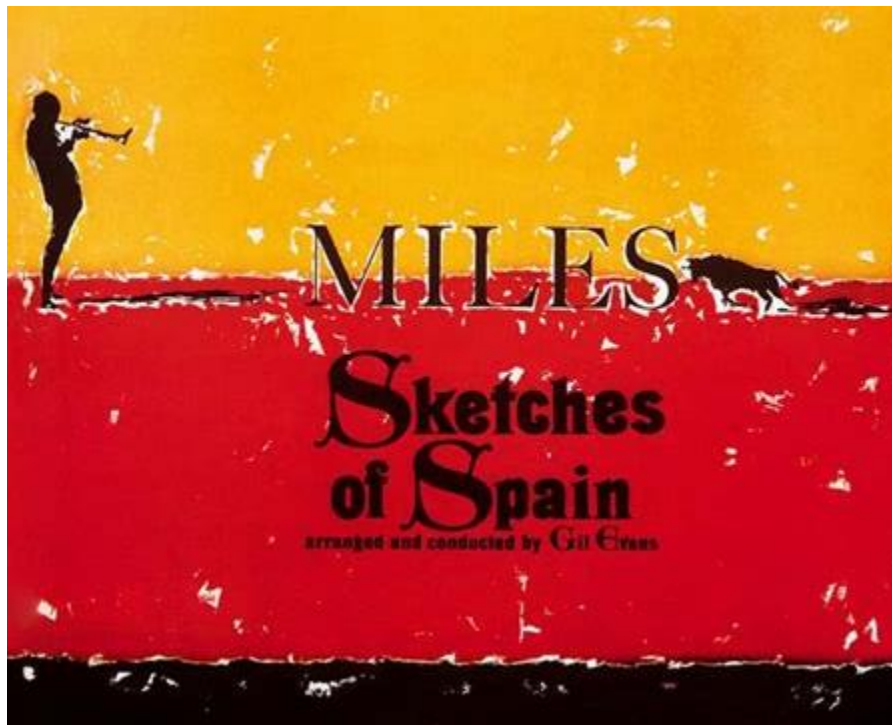
In Indonesia, fishermen are turning the tide on whale shark conservation.



<https://bit.ly/42UhLUN>

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## Miles Davis and Gil Evans: Perfection and How They Achieved it.



Concierto de Aranjuez <https://bit.ly/455a8ML>

Will o' the Wisp <https://bit.ly/3KeSrmc>

The Pan Piper <https://bit.ly/47mitxM>

Saeta <https://bit.ly/3OcesDm>

Solea <https://bit.ly/3Ycrs08>

Song of Our Country <https://bit.ly/3DxwN8Q>

Concierto de Aranjuez (alternative take; Part 1) <https://bit.ly/3YfmJLg>

Concierto de Aranjuez (Alternative take; Part 2) <https://bit.ly/3rKZVa1>

Sketches of Spain, was Miles' third project with arranger Gil Evans. The pinched, lonely sound he effected on his trumpet was the perfect fit for the traditional Spanish melodies interpreted by a well-rehearsed brass ensemble. The combination created a timeless tapestry of Iberian sounds, exotic and earthy, yet somehow familiar to American ears.

The result was as majestic as it was mysterious. Evans took apart and reassembled the music like a master jeweler carefully crafting the perfect setting for the jewel that was Miles' mature trumpet sound. Besides the adagio from Joaquin Rodrigo's "Concierto De Aranjuez," he borrowed "Will O' The Wisp" (originally "Canción del fuego fatuo") from Manuel de Falla's gypsy ballet El Amor Brujo, and adapted three folk tunes originally recorded by Lomax: a Galician panpipe aria "The Pan Piper," an Andalusian melody "Solea," and the ritual chant "Saeta," normally sung to the accompaniment of brass bands during Holy Week in Seville.

*Was Davis or Evans the maestro? The answer is "uh-huh, both."*

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## Ingenious Construction Work



<https://youtu.be/gHkDoAWBEVE>

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PEOPLE GIVING DIRECTIONS  
LIKE "HEAD SOUTH"

LISTEN LEWIS AND CLARK  
DO I TURN AT THE  
CHICK-FIL-A OR GO  
TOWARDS TARGET?

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## Shockwaves: What You See You Can Also Hear



*Photo shows light distortion caused by shock waves generated by an F-35C Lightning II flying low and fast on the Sidewinder low level training route.*

*@point\_mugu\_skies f*

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

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**The Universe Is Humming with Gravitational Waves.**



Here's why scientists are so excited about the discovery

<https://bit.ly/43fMpZd>

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## Quantum Physicists Design Secure System for Digital Payments



*Artistic image of digital payments secured by quantum technology.*

*Credit: Christine Schiansky*

Have you ever been compelled to enter sensitive payment data on the website of an unknown merchant? Would you be willing to consign your credit card data or passwords to untrustworthy hands? Scientists from the University of Vienna have now designed an unconditionally secure system for shopping in such settings, combining modern cryptographic techniques with the fundamental properties of quantum light. The demonstration of such "quantum-digital payments" in a realistic environment has been published in Nature Communications.

Digital payments have replaced physical banknotes in many aspects of our daily lives. Similar to banknotes, they should be easy to use, unique, tamper-resistant and untraceable, but additionally withstand digital attackers and data breaches.

In today's payment ecosystem, customers' sensitive data is substituted by sequences of random numbers, and the uniqueness of each transaction is secured by a classical cryptographic method or code. However, adversaries and merchants with powerful computational resources can crack these codes and recover the customers' private data, and for example, make payments in their name.

A research team led by Prof. Philip Walther from the University of Vienna has shown how the quantum properties of light particles or photons can ensure unconditional security for digital payments.

In an experiment the researchers have demonstrated that each transaction cannot be duplicated or diverted by malicious parties, and that the user's sensitive data stays private. "I am really impressed how the quantum properties of light can be used for protecting new applications such as digital payments that are relevant in our every day's life," says Tobias Guggemos.

For enabling absolute secure digital payments, the scientists replaced classical cryptographic techniques with a quantum protocol exploiting single photons. During the course of a classical digital payment transaction the client shares a classical code—called cryptogram—with his payment provider (e.g. a bank or credit card company).

This cryptogram is then passed on between customer, merchant and payment provider. In the demonstrated quantum protocol this cryptogram is generated by having the payment provider sending particularly prepared single photons to the client.

For the payment procedure, the client measures these photons whereby the measurement settings depend on the transaction parameters. Since quantum states of light cannot be copied, the transaction can only be executed once. This, together with the fact that any deviation of the intended payment alters the measurement outcomes, which are verified by the payment provider, makes this digital payment unconditionally secure.

The researchers successfully implemented quantum-digital payments over an urban optical fiber link of 641m, connecting two university buildings in down-town Vienna. Digital payments currently operate within a few seconds.

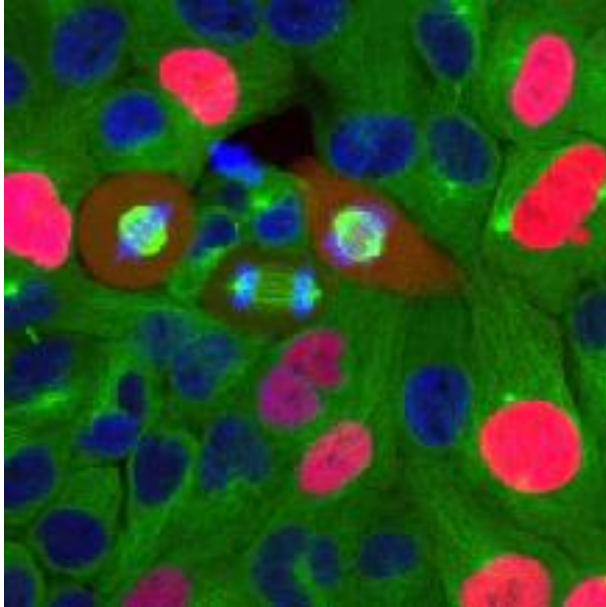
"At present, our protocol takes a few minutes of quantum communication to complete a transaction. This is to guarantee security in the presence of noise and losses," says Peter Schiansky, first author of the paper. "However, these time limitations are only of technological nature," adds Matthieu Bozzio, who is convinced that "we will witness that quantum-digital payments reach practical performance in the very near future."

*by University of Vienna*

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## **NIH Study Offers Insights into How Cells Reverse Their Decision to Divide**

Finding may point toward more effective treatments that could potentially prevent cancer relapse.



*Breast cancer cells going through the cell cycle.*  
NCI

<https://bit.ly/44exqQv>

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## **Lake Powell Low Water Levels Reveals a 'Lost National Park'**



*Len Necefer, a member of the Navajo Nation and founder of Natives Outdoors, takes a picture*

*in Glen Canyon in April 2023. At the muddy, messy delta where the Escalante River meets Lake Powell, Necefer posited that "nature bats last."  
[Photo: Alex Hager/KUNC]*

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

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## **Want to Know What \$108 Mil + Change Will Buy These Days?**



Gu

Gustav Klimt's Lady with a Fan

The portrait, which is one of the few remaining Klimt works not hanging in a museum, last sold in 1994 for just \$11.6 million. Not a bad ROI.

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## **Finally, a Solution for People Who Hate Flying**





Anxious fliers can now literally call a pilot to help them calm down.

What's causing all that bumpy turbulence? What's that loud noise you just heard? These are common questions nervous fliers think about while aboard an airplane. Enter Dial A Pilot, a new service established earlier this year, that allows anxious fliers to chat with a pilot before their flight.

According to their website, Dial a Pilot utilizes the skills of a team of U.S.-based professional pilots with decades of experience to help travelers more effectively understand the basics of air travel. For just \$50, you'll be connected to a pilot for a 15-minute call where you have free reign to ask all your flying questions—none too big or too small.

According to Travel + Leisure, the idea came about when a pilot who frequently fielded phone calls from his sister-in-law before her flights realized that he wasn't alone in answering questions about air travel. Many pilots find themselves explaining the rules of the cloud-covered roads in the sky to friends and family and are now turning their services over to the masses.

The pilots at your service have years of experience flying all types of aircraft, from Boeings to Airbuses, and everything in between. Next time you need to put your overactive mind at ease, you need only pick up the phone.

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## **The Life of a Fighter Pilot. Battle of Britain 1940.**



4 am. Woken with a hand on my shoulder.

Tea Sir! 4 o'clock.

Tea is hot, strong and scolds as I try and get ready.

Quick dry shave, quick wash- no warm water yet. Quickly dressing into uniform, Irvin jacket, I pick up gloves, stuff feet into boots, I finish slurping my tea as I walk to get breakfast.

"Morning Adams, says Parky, my Flight Leader. "Another Beautiful day!" he says heavy with irony.

For now I get toast, jam, more tea- The second breakfast usually follows the first early mission when we get egg and bacon, toast and coffee, for those lucky to return. Sometimes you can bag an unclaimed egg!

I quickly glance up and read the orders, the notes, check what time we are due out to Dispersal-"What time Jonesey?"... Oh! It is now!

Off we troop to the waiting lorry, pile in and drive around the perimeter track the quarter mile. Shriek of brakes binding on. Shouts, humorous jokes to the driver-off we jump and walk through the dew glistened, sun bleached grass to the wooden dispersal hut. I go over to my Spit, check everything is set, that the helmet sits on the sight, the straps set ready for a quick strap in, parachute on wingtip, I wipe the dew off before placing it there. Damp parachutes do not open.

I walk back to the musty smelling wood dispersal hut with its dead flies, the smelly Cocker spaniel dog-friend to all, it`s assortment of chairs, fold up camp beds and look over at Jonesy, he is reading yesterdays papers, looking at Jane in a state of undress, yet again.

I fall down into a deck chair, put a newspaper over my face lie back into the warmth of my fleece lined Irvin jacket with its collar up and am soon asleep again.

WHAT? Sounds of running, furniture scraping, chair falling, some rude words aimed at me being lazy! I am up and running to my Spitfire. There she is: "G" is parked further away than my section leader, flight leader and squadron leader`s Spits so I have to run at double speed to catch up, a quick swing of the parachute off the wingtip hits me in the back of the legs, groundcrew help pass straps, click, click, click all in. Up onto wing with its resonate metallic clang sound. "Careful Sir! I slipped on the dew." Righto, thanks errr. I dont know his name yet.

Into the cockpit, helmet on top of gunsight, put it on. push the radio and microphone connection in, oxygen tube plugged in, adjust chin strap, over the shoulder appear my seat straps held by the groundcrew, new bloke this one as Smithy is on a charge-I am told. Out on a date and back late!

Right, to business-fast as others are starting up. Flaps checked UP. Both Fuel Cock levers to ON, Throttle a half inch open. Mixture Control to RICH. RotoI Airscrew Lever to Fully FORWARD. Radiator Shutter-OPEN. Three strokes of Primer today. Call

groundcrew. Clear Prop. Switch ON ignition and pull priming handle. Press the Starter button and give one stroke of Primer at the same time. Keep pressed as engine fires, Screw down priming pump, Call Chocks away. Check instruments, temperatures, revs, Mag drop. Okay! Off we go taxiing quickly- falling in behind my Section leader who follows the three in front led by the Flt Leader, then the Squadron Leader`s section and A Flight way down the field. Taxiing fast, swinging rudder to see each side of the long 8 foot nose, gentle on brakes, sensitive fore and aft the Spit!

Reach end of field, check temps, turn into wind, there they go, 1, 2, 3 then 4, 5, 6, then B flight`s turn, 7, 8, 9, now my Section leader opens up and I am with him with Jonesy on the other side behind. Make this look good. Bouncing, throttle more fed in, off we go, unsticking, climbing, pumping the undercarriage up, jamming elbow into cockpit side to stop porpoising with stick in sympathy. Airfield grows smaller in my mirror.

Climbing, hanging on the prop, desperately trying to get height so that we might be above the escort fighters, usually arriving above the bombers but with 109s coming down upon us. We climb in a spiral over base-airfield protection. Leader acknowledges course change and height, we reach 22000 feet and see the Stukas coming in below us at 16000. Glints above, ignore them, down we go: I see the Spitfires in front gradually turning over on their back and falling rapidly down behind the Stukas I am near the back. I am aware that only Jones is between me and the escort fighters now coming down but yet unseen in the sun. His eyes are glued to me and the ones in front, staying in formation line astern, so I look over my shoulder into the bright sky every 5 seconds.

Spitfire is hit in front of me by the rear gunner of a Stuka out to one side, flame spreading from his engine, he falls away smoking. I fire on him a brief burst as I flash past. I turn, just in time to see a flash behind me where Jones should be and am aware of something coming fast from above and behind me, I jam full left stick and left rudder and fall away in a quick spiral downward then rising into a climbing, spiralling turn, looking for a target-trying not to be a target.

There! I see a 109 has overshoot and is going away down in front, I latch onto him. I look behind, Clear, clear in the mirror also. I close slowly I fire when his wings are just inside the sight reflector range indicated and close, firing a two second burst. Something clangs off my wing, something came off him. He suddenly emits smoke and falls away. I turn rapidly to clear my tail and lose sight of him below against the fields. Ah Well, a Damaged, or is it a Probable?

I look around, No one else in sight. I stooge around, climbing in a spiral looking for a mate but see no one so after looking at the coast for stragglers, seeing none, I return to the airfield.

Right. Call up and advise returning. I turn onto the correct compass course, hard to see down there in the darkness of the cockpit after my eyes adjust to the bright glare of the sun. I settle back in my seat, reflecting upon where that Messerschmitt ended up. Letting down slowly. I look around as something casts a shadow in my mirr.....

Flight Lieutenant Parks- The B Flight Leader to some ground crew: Sorry, Sgt but P/O Adams and Sgt Jones bought it. You might as well see Chiefy for getting ready two of the newly arrived Spits, they need the guns harmonizing at the butts.

A simple story, I wrote to reflect upon what happened often in the Battle of Britain. Killed by the one you did not see.

*Paul Davies aviation historian*

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## Large Language Models Explained



Large language models (LLMs) are deep learning algorithms that can recognize, summarize, translate, predict, and generate content using very large datasets.

<https://www.nvidia.com/en-us/glossary/data-science/large-language-models/>

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## U.S. Air Force's Next Generation Air Dominance [NGAD] Platform



*The 2021 NGAD notional design released by the U.S. Air Force.  
(Image: Department of the Air Force)*

The 6th generation aircraft is expected to start replacing the F-22 Raptor by the end of the decade.

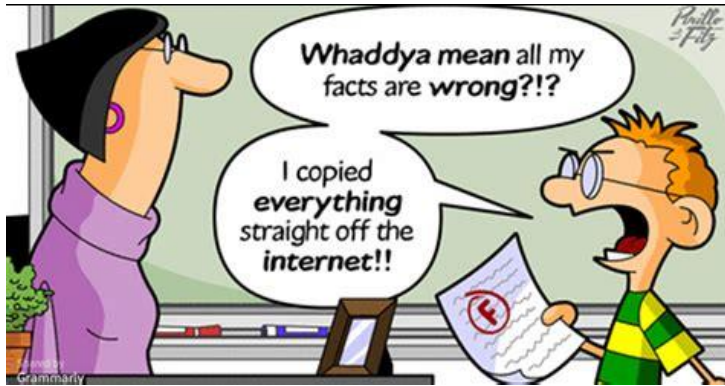
The U.S. Air Force formally started the selection process for the design of the NGAD sixth generation platform. On May 18, 2023, the Department of the Air Force released a classified solicitation to industry, providing the expected requirements of the program, with a contract award expected in 2024.

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

*Now if they can find some pilots willing to fly them.*

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## Best Free Plagiarism Checking Sites



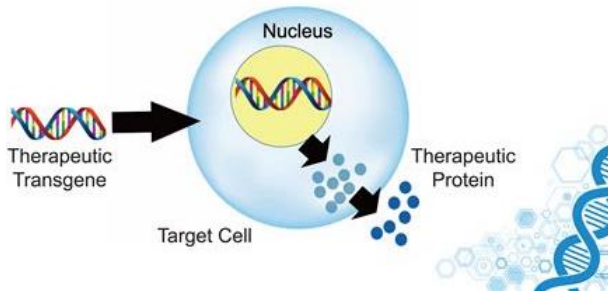
Slideshare

In our modern world the ability of students to find and copy others' work is greater than ever before. While there are a number of in-depth and effective paid solutions that allow educators to verify the originality of student work, there are only a few free solutions that are worth trying.

<https://bit.ly/439XdYY>

## Gene Therapy Inside Out

### The Principle of Gene Therapy



Gene therapy is the process of replacing defective genes with healthy ones, adding new genes to help the body fight or treat disease, or deactivating problem genes. It holds the promise to transform medicine and create options for patients who are living with difficult, and even incurable, diseases. Learn how this innovative therapy works.

<https://www.youtube.com/watch?v=GbJasFgJkLg&t=1s>

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## Schnucks Is Betting on the Future of Smart Grocery Carts

The company is starting with a multi-store pilot in the St. Louis area, placing 10 to 20 carts in each location.

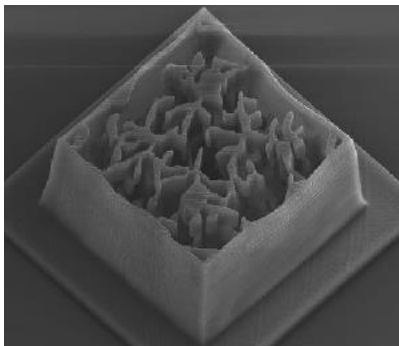


*Instacart*

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

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## **Evolving and 3D Printing New Nanoscale Optical Devices**



A new technology being pioneered at Caltech is allowing researchers to "evolve" optical devices and then print them out using a specialized type of 3D printer.

<https://bit.ly/3K2b78z>

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## **Crews Prep New SWOT Water Satellite**

A lot of hard work goes into ensuring a spacecraft like the Surface Water and Ocean Topography satellite delivers accurate data.



*Freshwater bodies like this braided river in New Zealand are among those that researchers measured with water-level sensors and GPS during validation efforts for the international SWOT satellite, which launched in December.*

*hbrc.gov.nz*

<https://bit.ly/471Z0lw>

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## **10 Unusual Castles from Around the World**

Whether a fantastic feat of architecture or merely a fancy folly, these curious castles are far from ordinary.





*Kelburn Castle*

*Jeff J Mitchell/Getty Images News*

<https://bit.ly/4711ctF>

*If you can't stop them from pillaging, you can at least make them smile.*

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## **Another Chance to Fly with the Blues**

This time you get to see what it looks like from every position.



<https://www.youtube.com/watch?v=Ynvoriv09Ks>

Thanks to Pat Healy for sending this along.

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## Einstein the Patent Clerk and his Relative Window Washer



<https://youtu.be/tzQC3uYL67U?t=144>

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## FDA and WHO Disagree Over Whether Aspartame Is a 'Possible Carcinogen'



The Transcript showing the opposing views.

The World Health Organization has designated aspartame as a possible carcinogen. But the FDA disagrees saying the evidence is flawed and artificial sweetener is safe. How much is safe to consume?

STEVE INSKEEP, HOST:

The World Health Organization has classified aspartame as a possible - possible - carcinogen. Aspartame is an artificial sweetener which is used in everything from diet soda to yogurt to chewing gum. But U.S. authorities at the Food and Drug Administration stand behind its safety. NPR's Allison Aubrey reports.

ALLISON AUBREY, BYLINE: Aspartame has been around nearly 50 years, and the U.S. Food and Drug Administration has long maintained its safety. But recently, there have been a few studies pointing to a slight increase in cancer among people who consumed the highest amounts. The WHO's International Agency for Research on Cancer reviewed all the evidence and came to the conclusion that aspartame may possibly cause cancer, though they acknowledged the evidence was limited. Here's Francesco Branca, director of nutrition and food safety at the WHO. He spoke during a press conference in Geneva, Switzerland.

FRANCESCO BRANCA: Our results do not indicate that occasional consumption should pose a risk to most consumers. The problem is for high consumers.

AUBREY: The agency had long ago established an allowable daily intake of up to 40 milligrams of aspartame per kilogram of body weight. That amounts to something close to 12 Diet Cokes a day for a 130-pound person, and clearly most people don't consume that much. Dr. Branca says what they're suggesting is a bit of moderation, given the potential risks. He also points to a recent WHO analysis that found no clear long-term benefit of using nonsugar sweeteners to control weight.

BRANCA: If you want to curb your energy intake in the longer term, it doesn't help. So basically the benefit is not there.

AUBREY: The Food and Drug Administration has come out in defense of aspartame. An agency official says they disagree with the decision to classify it as a possible carcinogen, saying the artificial sweetener has been well studied and is safe. The agency said its own scientists reviewed the same studies the WHO reviewed and determined that these studies have significant shortcomings with inconsistent findings, and they say quite strongly they do not have safety concerns. They point out that some consumers may rely on products with aspartame to help reduce their sugar consumption. And Kevin Keane, interim president and CEO of the American Beverage Association, whose members include the Coca-Cola Company, PepsiCo and many other beverage manufacturers, say consumers should not be confused by the WHO classification.

KEVIN KEANE: Consumers should take all of this compendium of science, the overwhelming weight of the science, and be confident moving forward that aspartame is a safe choice.

AUBREY: Whether diet sodas help people manage body weight and limit sugar may vary from person to person. And when it comes to a potential cancer risk, Dr. William Dahut of the American Cancer Society says it's very clear that things like tobacco and obesity are linked to higher rates of cancer. But with aspartame, there's still unknowns.

WILLIAM DAHUT: The bottom line is that there is not current evidence that definitively leads ingestion of aspartame to cancer. However, since there is a possible link, it is certainly reasonable to limit one's intake until more definitive studies are available.

AUBREY: His group is calling for more research. In the meantime, the FDA says consumers should feel confident that aspartame consumed in moderation is safe.

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## **Airline First Officers Turning Down Promotion Offers**



Young pilots are increasingly putting golden moments above gold stripes and that could mean more delays and cancellations for passengers. The Regional Airline Association first flagged the issue of first officers avoiding promotion and said up to 20 percent of its members' flights were canceled because of the captain shortage. The promotion can be unappealing because it often results in life-disrupting commutes and unpredictable schedules. Now the majors are reporting a similar trend, and the numbers are significant.

According to Reuters, there are almost 1,000 unfilled captain positions at United Airlines and Dennis Tager, the president of the Allied Pilots Association at American Airlines, said twice as many right-seaters are resisting the shift to the left seat than seven years ago.

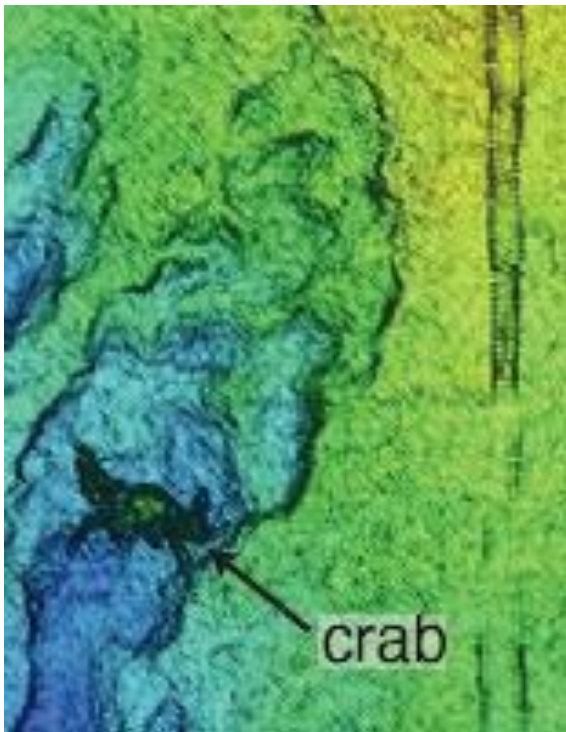
He said about 7,000 FOs had avoided promotion in that time. The airlines are addressing the issue with quality-of-life enhancements in contracts like scheduling changes to try to avoid the four- and five-day grinds that some junior captains face and bonus pay to compensate for the misery.

United Airlines CEO Scott Kirby said lifestyle enhancements were a significant part of the \$9 billion contract offer the airline has made to its pilots, and American Airlines has now increased the package it's offering its pilots. The company announced on Sunday it has sweetened the pot by \$1 billion to \$9 billion and most of that is going into working conditions improvements.

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## Seafloor Maps Show 'Grand Canyon' Off US Coast in Detail

By combining high-definition maps with sensors that detect changes in the water column, researchers have created a "centimeter-scale" picture of how currents and tides shape the Monterey Canyon.



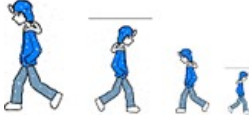
*The resolution of the new maps is so high that small seafloor creatures, like this crab, can be clearly seen in the final images.*

*(Image credit: Monica Wolfson-Schwehr © 2023 MBARI)*

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

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## My Walking Thoughts



## For Sunday July 30 2023

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I planned to regale you with a story about the use of drums in communication as part 3 of the series on 'Codes we Live by,' but the farther I got into the subject the more I realized how much more work I had to do, so it will have to wait until next week.

Instead, here's another outtake from Phantoms from Vietnam.

### **Phantoms from Vietnam Outtakes: Gordon's Childhood**

Miss A

Entering the third grade meant many things to Gordon, beginning with the fact that he was to celebrate his 9<sup>th</sup> birthday on September 10<sup>th</sup>, the second day of school. Another was that his class' teacher this year was Miss Apfelbaum, a firm fixture in the school's pantheon of task mistresses.

Miss A, as she was known to teachers and students alike, was of solid German descent and indeterminate age with a penetrating gaze that warned those in her presence to mind their Ps and Qs. If Miss A had a first name, Gordon nor anyone else had ever heard it spoken. Nor was the destination of her frequent Friday afternoon Greyhound bus trips southward to somewhere on the far side of the Tehachapi range known, though there was much time wasted throughout the community in speculation. Additionally for the sake of possible biographers, Miss A eschewed drinking, smoking, or smiling except when safely sheltered within the confines of her tidy one-bedroom home next to Arvin's Memorial Park. There she exhibited a different persona.

Miss A had no use for a great number of modern conveniences, automobiles at the top of that list. Instead, she kept a blue and ivory Schwinn Hollywood bicycle hanging on pegs on the wall of her garage, "just in case," she told Randy, the feral cat who showed up each evening in time for the day's leftovers and saucer of milk before attending to his duties as solacer of lonely felines in the fen by the railroad siding. Miss A marveled at the fact that Randy could prowl night-after-night the evil haunts possessed of bobcats, coyotes, kit foxes, and the occasional black bear, and live to tell the tale.

Luckily for all in the community, whatever cataclysmic events might cause her to fetch her doomsday device from the pegs were few and far between, no one more thankful than Randy who depended on the source of nourishment that allowed his nightly activities.

Satisfied she had completed her daily tasks, like her revered papa Herr Doctor Alphonse Apfelbaum--professor emeritus of Agronomy at the Northern Branch of the College of Agriculture at Davis--she'd pour herself a generous snifter of Teacher's Highland Cream, fire up a fat Cuban cigar, and settle in for an evening's study of faraway places.

All of this was, of course, of no consequence to Gordon and his classmates as they awaited in silent anticipation the beginning of the school year, announced by the strident clangor of the 8 o'clock bell, followed immediately by the Miss A's unmistakable footfalls in the short corridor that led from the faculty coffee lounge to the line of classrooms, theirs being number 4.

"Good morning, students," she greeted her new class before she was halfway into the room, the tember of her voice leaving no doubt in anyone's mind that summer foolishness was over.

The first order of business as Gordon and his classmates had learned from her former students was baseball, or more particularly the Pittsburgh Pirates, or even more precisely how a certain shortstop, Gunther Apfelbaum had performed at bat and in the field against the St. Louis Cardinals in the previous Sunday's double header.

Gunther Apfelbaum—known around the league as Gunner for the way he could make the little horsehide ball sing on its way from the left side of the diamond to its target at first base—had gone three-for-five with a double and triple in the first game and two-for-three with a triple and stolen base in the seven inning nightcap...an above average outing for the shortstop who sported a 297 batting average, 443 slugging rating, and a 633 onboard percentage. At 36 sporting a damaged left leg that made him run with a sort of hippity-hop gait, Gunner had been pronounced 4-F by his draft board, allowing him to avoid military service, a situation some thought a bit odd considering he might be better suited tossing hand grenades than moving down base runners.

Of course, everyone knew that Miss A used this daily exercise from April to October each year, to glorify her cousin, everyone that is but Mr. Chalmers, the school principal, who watched these proceedings with great interest. Hidden from the other school teachers and officials was the fact that Miss A thought baseball a silly pursuit for grown men and a terrible waste of Gunther's intellect. Nonetheless, she saw it as an almost perfect tool for sneaking such advanced subjects as statistics, geometry, and national tradition into the curriculum without anyone being any the wiser. Ditto her use of world geography to provide a basis for understanding the factors that knitted one group of people into a unified whole, at the same time putting them at odds with other groups.

Her visions descended from the venerable Professor Apfelbaum—Alfie to his cohorts--who thought such subjects should be taught to kids while still in their nappies. "A shame they have to wait until high school," he complained to his unsympathetic companions at Anthony's Study Hall, a comfortable if a little seedy watering hole on the

west side of Sacramento frequented by an eclectic assemblage of academic castoffs. The lackluster town—blazingly hot in the summer and agonizing cold in the winter with an alleged fortnight of endurable weather at the either equinox—was for some unknown reason the state's capitol, "a waste of good farmland" in the pious opinion of most longtime residents. Taxpayers in other parts of the state considered it a reasonable place to stick the state's political scum-suckers who had managed thus far to avoid the offer of free room and board at San Quentin or Alcatraz.

The more probable reason for its selection as the state's throne, and the one Miss A, passed on to her students, was that since, unlike its predecessors—Oakland, San Francisco, and Monterey—Sacramento was land-locked and therefore of little value to anyone wishing to take the jurisdiction over by amphibious assault.

Though she would never show it, Miss A looked forward to this year's third grade class more eagerly than was her wont, an expectation rooted in the regard of the group's prior teachers, that there were some of Miss A's *Specials* in its ranks. The terms *Specials* was not necessarily one of approbation, indeed quite the opposite in many of her colleagues' minds, referring to students who made things difficult for those of an authoritarian bent, a fair representation of whom could be found in the teachers' lounge across the hall.

Top of the list of annoyances was that the group, as the district's psychiatrist, Helen Durkee was fond of saying, was "spring-loaded to the *why* question." While it could be argued that most of the kids weren't necessarily interested in learning the answers, it was just that the likes of Nancy Goldsmith, Bonnie Alvarez, and Gordon Talbott in this new batch of hooligans were greatly admired by their peers for their ability to rattle their teachers' cages with their persistent demands for more information.

Miss A, however, reveled in such disruptive behavior, looking forward to matching wits with minds that were still open to nearly everything, and not ashamed to question simple authority. She saw in their youthful enthusiasm the opportunity to turn the table on the bright ones, asking them the *whys* underlying their questions and thoughts, a technique she put into practice within two minutes of the start of the school year, neglecting the exploits of her brother on a manicured grass field 3,000 miles to the east where the leaves were just beginning to take on their autumn colors.

"What is it that you want to know about why school begins at eight in the morning?" she responded to Bonnie Alvarez's challenge, putting the little fireball on the hot seat for a moment.

"Because my family begins its day at 4:30, my father and brothers tend the farm before going to work at the Kern Canyon Hydroelectric Project. They have to be there at 6:45 and don't get home until nearly six in the evening."



"That's important work, Bonnie" she skillfully guided the subject along a more fruitful path. "Do you know why?"

"They keep power going to this whole area."

"Do you know how it works?"

"It uses water in the Kern River to turn huge...uhh they call them dynamos...to generate electricity that is then transmitted to power stations around the area." Bonnie words were reminiscent of those found in the electric utility's handout.

"It sounds as if you know quite a lot about the system," and turning to the class as a whole, "Does anyone want to ask Bonnie some questions?" And right from the start the rest of the morning or afternoon as was the case would be taken up on topics such as this introduced by students.

Miss A loved watching the students get into such things, thinking that with her *specials* like Bonnie, Nancy, or Gordon, she really didn't have much to do in the way of lesson planning. Moreover, as September passed into October, the number of *why* questioners had grown to where there were only three of her 30 charges yet to find the thrill of challenging the status quo.

Miss A was careful in conducting discussions on current events—the war in particular—convinced that the majority of information passed to the public by the radio, newspapers, and especially magazines was doctored to fit the agenda of the Washington bigwigs. So, when Jimmy Hartley made the flat statement that "All the dirty Japs in the country should be taken out and shot," his reaction to a piece in Time magazine about atrocities in the Pacific Theater, she was on the verge of shutting down discussion of the topic when Gordon spoke up in rebuttal.

"Jimmy," he said firmly but without rancor, "there may be enemy sympathizers among the thousands of Americans of Japanese descent, but they aren't a threat to the nation. Most, are like the Nakanos; honest citizens who are being treated as criminals for no good reason." Jimmy as well as the majority of the class sat silent waiting for Gordon to continue, which he did after looking at Miss A for a reaction that was not forthcoming.

"Every other month or so, my father and Pastor Jacobs make the trip to the other side of the Sierras to visit them at Manzanar, taking items like soap and toothpaste and cold weather clothing for them and their friends. My father calls Manzanar a concentration camp no better than some our soldiers are forced to endure while in enemy hands, yet George's older brother, Ralph Jr. signed up with the Army and is now somewhere in Europe fighting for us...not Japan.

"We all ought to be ashamed of ourselves," he concluded.

Silence. More silence. It was as if no one in the class was even breathing. Finally, Miss A got things moving again.

"Anyone like to respond to Gordon?" No, she thought. He had stepped out from the curtain behind which he had hidden since the beginning of the school year and in so doing proved to be the most special of the *specials*.

"How many of you remember George Nakano?" she asked, challenging the class to take part in a discussion she hoped they might carry with them for the rest of their lives...a watershed challenge to the empty beliefs that surrounded them, she opined, her blood warming to a hoped for battle. Ragged at first but within a half dozen seconds all but two—maybe three—hands were in the air.

What do you think, Nancy" she put the onus on another of the specials to kick-start some discussion.

"My father says the same thing," she said, kindling the fire. "He says that after the war is over, the President is going to have a lot to answer for."

"Yes, but what do you think?"

Nancy frowned for a moment before continuing.

"My mother thinks that we're a lot safer with the Japanese locked away where they can't attack us in the middle of the night."

"Yes, Nancy, but I'll ask again. What do you think."

"I don't know," she said, looking as if she were about to cry. "We hear all these terrible things about their soldiers. What's to say that the Japanese who are here are not just as bad?"

"Yeh," called Peter Randolph from the back row. "My Uncle Bill was wounded at Guadalcanal. He says that the Jap soldiers are fanatics, willing to die rather than be captured. They're different from us."

Back and forth the discussion wove along various pathways, veering this way and that but always coming back to Jimmy's condemnation and Gordon's defense of the Japanese being held in relocation camps with no consensus looking to emerge. Finally, Miss A felt it time to step in.

"Tell me Jimmy, how about Americans of German descent like Nancy Goldsmith, or Greta Steinberg, or me. Should we be hauled away in trucks and put into relocation camps?" No answer from Jimmy.

"How about Paulo Frascatti, or Joey Rossi? We're fighting the Italian army. Should they and their families be incarcerated so the rest of us will be safe?"

"Well...no," Jimmy began haltingly."

"Why not?" Miss A pounced, but certain where this would lead."

"Well, they're like us."

"And Japanese like the Nakanos aren't? Why's that?"

"Because...because..."

"Because what? Because their skin is a different color? Because they are racially different? Is that what you have in mind, Jimmy?" She let the challenges hang there in mid-air until she sensed that she had gone far enough for the time being.

"I'm sorry Jimmy. I need to apologize to all of you, but I want to make sure you understand the terrible risks we run in stereotyping." After several seconds in which she allowed for the change in direction, she continued.

"We are all afraid of differences. Terrified of things we don't understand. These are normal and rational reactions to a world filled with threats as well as opportunities; mechanisms that have allowed us to survive throughout the ages yet still move forward. Do we fight or flee? Or do we hang out to see if there are better options? There are no simple answers here, rather questions that I hope you'll spend time thinking about and discussing with others for the rest of your lives.