

# Ode to E Pluribus Unum for Sunday July 23 2023

=====



=====

## Fireworks vs Supermoon



*Image Credit & Copyright: Michael Seeley*

On July 4, an almost Full Moon rose in planet Earth's evening skies. Also known as a Buck Moon, the full lunar phase (full on July 3 at 11:39 UTC) was near perigee, the closest point in the Moon's almost monthly orbit around planet Earth.

That qualified this July's Full Moon as a supermoon, the first of four supermoons in 2023.

Seen from Cocoa Beach along Florida's Space Coast on July 4, any big, bright, beautiful Full Moon would still have to compete for attention though. July's super-moonrise was captured here against a super-colorful fireworks display.

=====

## Scientists Drill a Window into Earth's Mantle



*Rebecca Kuehn of Halle University, Barbara John of the University of Wyoming and Andrew Parsons of the University of Plymouth discuss the structural properties of the core samples.  
© Lesley Anderson/U.S. Antarctic Program & IODP JRSO*

The record-breaking achievement has electrified geoscientists, who for decades have dreamed of punching through miles of Earth's crust to sample the mysterious realm that makes up most of the planet. The heat-driven churn of the mantle is what fuels plate tectonics in the crust, giving rise to mountains, volcanoes and earthquakes.

*By Carolyn Y. Johnson for the Washington Post*

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

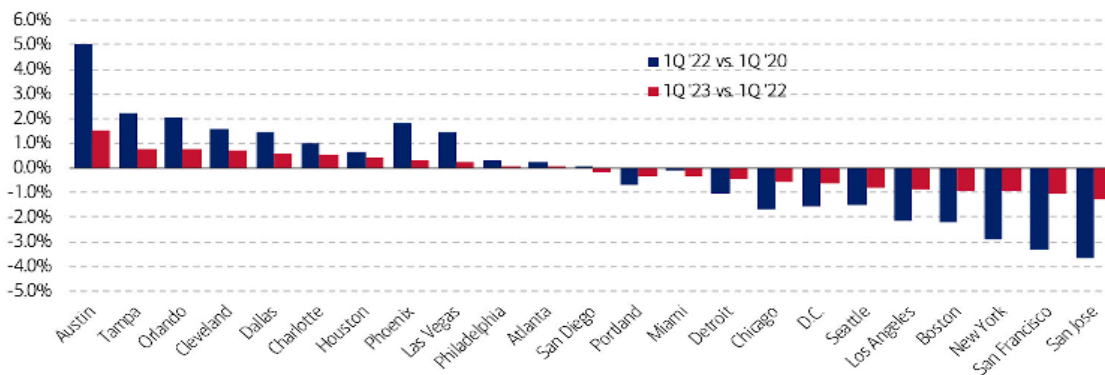
=====



=====

### Care to Guess Why the Shifts?

Net population change in major MSAs; % change 1Q 2023 and 1Q 2022



Anyway, it's a big win for San Francisco activists, who finally are getting rid of the gentrification they hate (i.e., art galleries and cafés, a hotel, shops...disgusting).

=====

### Physicists split bits of sound using quantum mechanics



Quantum weirdness applies to sound as well as to light and atomic particles

You can't divide the indivisible, unless you use quantum mechanics.

Physicists have now turned to quantum effects to [split phonons](#), the smallest bits of sound, researchers report in the June 9 *Science*.

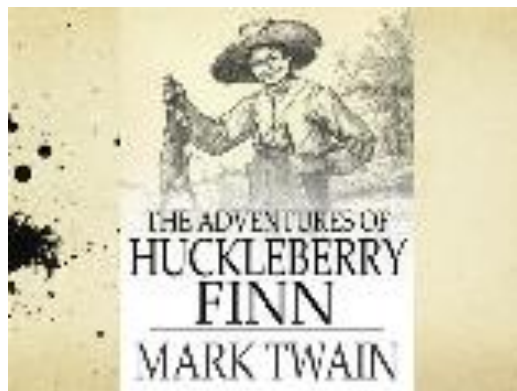
<https://bit.ly/43WtzXT>

*Yes, but will this make Rockabilly better?*

=====

## **8 Quotes from Banned Classic Books**

*Right is right, and wrong is wrong, and a body ain't got no business doing wrong when he ain't ignorant and knows better.*



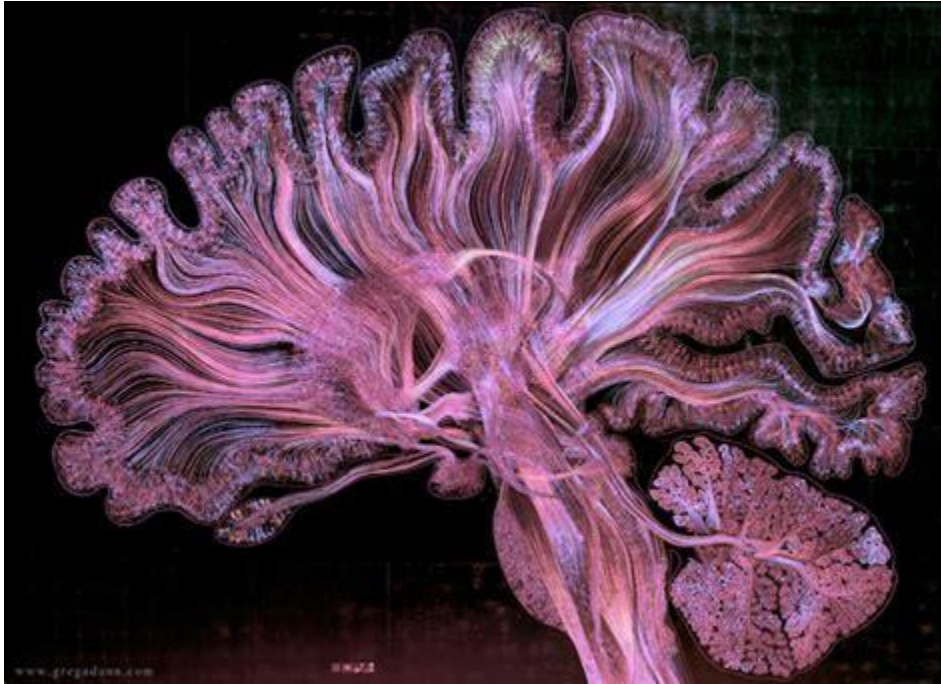
Many authors, artists, and philosophers have argued that no book should ever be banned, no matter how many people it may offend. As Salman Rushdie said, "What is freedom of expression? Without the freedom to offend, it ceases to exist."

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

=====

## What Do Psychedelics Do to the Brain

Researchers describe the effect of psychedelics as “letting the brain off its leash”, or firing the conductor to let the orchestra play.



*BeWellBuzz*

The US Food and Drug Administration released a draft of [guidelines](#) for research into the therapeutic use of psychedelics Friday, initiating a 60-day public comment period. Observers see the move as the latest step toward potentially legitimizing classic psychedelics like [psilocybin](#) and [MDMA](#), which have long faced cultural and medical stigma.

Michael Pollan explains what goes on during the mental fireworks of a psychedelic experience.

<https://bit.ly/3NMk4F7>

=====



=====

## **What Makes Quantum Computing So Hard to Explain?**

To understand what quantum computers can do — and what they can't — avoid falling for overly simple explanations.



*Google and IBM Clash Over Milestone Quantum Computing Experiment  
Quanta Magazine*

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

=====

## **Richard Branson Opened His Mallorca Estate to the Public.**

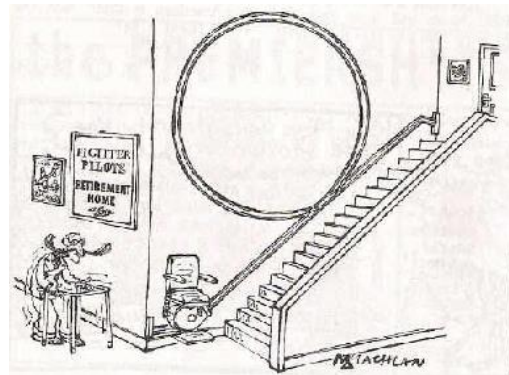
An exclusive first look at the most special features of Son Bunyola, a passion project more than 20 years in the making.



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

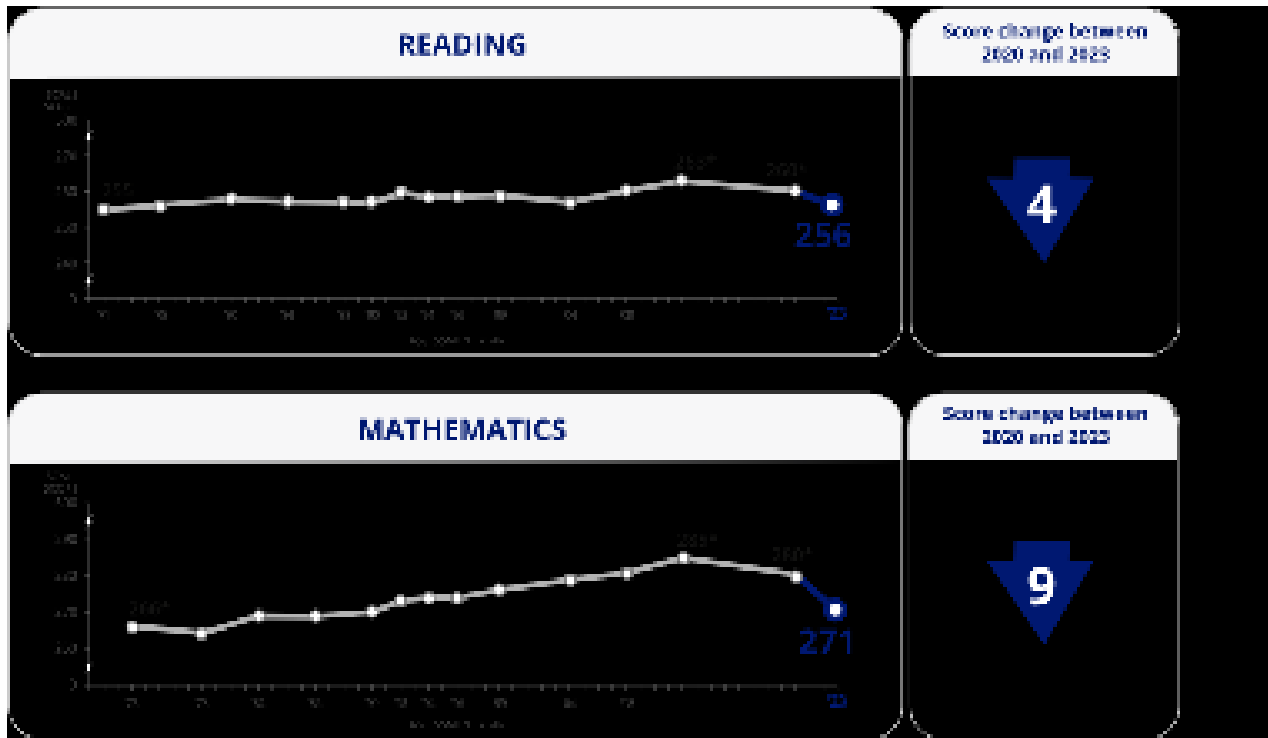
*If you need to ask...well, you know the drill.*

=====



=====

**2020-22 Reading and Math Performance for Nation's 13 Year Olds**



*Kindly ignore this if you're looking for good news.*

<https://www.nationsreportcard.gov/highlights/ltr/2023/>

=====

## The Physics of Languages



Much like a biological species, languages spread, evolve, compete, and even go extinct. To understand these mechanisms, physicists are applying their methods to linguistics, creating the interdisciplinary field of language dynamics.

<https://physicsworld.com/a/the-physics-of-languages/>

=====





=====

### **Why Does Coke at McDonald's Taste Different?**



It's just another case of Coca-Colonization

<https://www.youtube.com/watch?v=4VETXsKd0Z8>

=====



=====

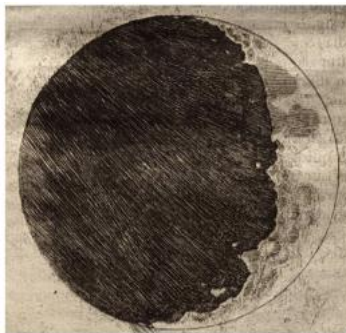
**Gang Violence Has to Stop**



=====

## **Cosmic Vision: Galileo to Webb**

By showing us a new cosmos, the discoveries of the James Webb Space Telescope will ripple through our moral universe.



*'Starry Messenger', by Galileo Galilei*

*I think you'll want to bookmark this URL for study.*

<https://bit.ly/3ro6C1D>

=====

## Why People Stop Using Drugs Like Ozempic

Drugs like semaglutide—better known as Ozempic or Wegovy—could be lifelong treatments for obesity, but what little data scientists have suggest that people don't stick with them for long.



*the kit*

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

=====

## OECD Panel on Women in STEM Highlights Educational Challenges

Data indicate the number of women globally in careers like engineering hasn't increased much since 2005.



*altogether.swe.org*

Keep up with the innovative tech transforming business

During a recent panel on educational policies that could advance women in STEM careers, representatives from the Organization for Economic Cooperation and Development (OECD) painted an unfortunate picture: Since 2005, the number of women in STEM hasn't actually increased all that much.

While OECD data indicates that more women globally are attending university, the percentage of women in fields like engineering hardly budged between 2005 and 2020. And in IT, the number of women actually decreased during that time.

"The trend is less girls going into technologies," Marta Encinas-Martin, OECD education gender ambassador, said. "And we don't think the trend is going to change," she added, pointing to career expectation data from the OECD's Program for International Student Assessment. At age 15, the top careers that girls say they want to pursue are doctors, teachers, nurses, psychologists, and veterinarians. Just 3% say they want to go into IT, Encinas-Martin said.

The panel also focused on the field of nuclear science, which is unique because of the immense amount of government funding and oversight it receives globally, Fiona Rayment, chief science and technology officer at the UK's National Nuclear Laboratory, explained.

Rayment pointed to OECD recommendations adopted this month to improve the gender balance in the nuclear sector. They include creating public communications campaigns and education initiatives, and addressing issues that may make it more challenging for women to take on roles in nuclear science, such as by offering remote work, better parental leave policies, and childcare.

And as to where in the education system girls should be introduced to nuclear science? "The answer is at all levels," Rayment said, recommending engagement in primary and secondary schools as well as at the university level. "At the end of the day, if we don't sort the STEM pipeline out, we'll never get the right people into nuclear."

Encinas-Martin agreed, pointing to a need to revisit existing education programs aimed at encouraging girls to go into STEM fields.

The education gap in STEM fields early on isn't significant, but girls still tend to choose non-STEM careers, she explained. By the time girls are 15 or 16, it's "too late."

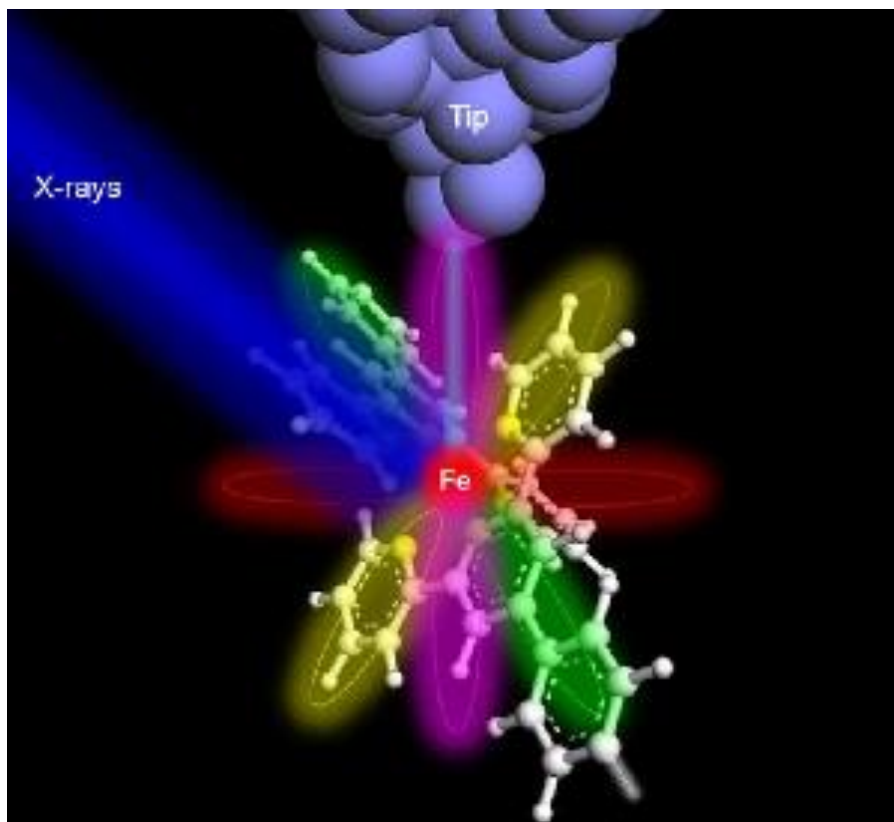
That's in part because stereotypes surrounding careers "for" men and women start forming much earlier, Encinas-Martin said. "You cannot be where you cannot see...stereotypes start forming around the age of five or earlier, even," she explained.

"We need to also see how the programs that are actually targeting girls are developed," she said. "We usually go to the schools, talk to girls, we think we are doing good, we leave. It doesn't look like this is...working to influence them."

By Maeve Allsup

=====

## Synchrotron X-Rays Image a Single Atom



*When X-rays illuminate an atom (red ball at the center of the molecule), core level electrons are excited.*

*(Courtesy: Saw-Wai Hla)*

<https://bit.ly/46Eu0I9>

=====



=====

## **The Science of Attraction: Why Do We Fall for Certain People?**

We're attracted to people who like the same things as us—politics, music, books. But why? And could it mean we're judging those who aren't like us too harshly?



*A series of Boston University–led studies found people who believe they have a core essence that drives their likes and dislikes were more likely to be drawn to people with similar interests.  
Photo by The Gender Spectrum Collection*

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

=====

## **Why Human Brains Were Bigger 3,000 Years Ago**

Our modern civilization may be the most advanced to ever exist on Earth, but around 100 generations ago, our ancestors had brains that were larger than our own.



*Scientists were somewhat surprised to find human brains had shrunk as recently as 3,000 years ago*

*(Credit: Mohamed El Shahed/Getty Images)*

<https://bit.ly/46oRIIA>

*I don't know about you, but I knew a lot more back then.*

=====

## **Boring Machine Chews Stockholm into an Emissions-Free Future**

Deep below the Swedish capital, an ambitious tunneling project is bringing the city closer to going fully green.



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

=====





=====

## What Is the Metaverse, Exactly?

Everything you never wanted to know about the future of talking about the future.



<https://bit.ly/3NthG4K>

Huh. And here I thought it was some PR agent's outgas.

=====



=====

## **NASA Axes X-57 Maxwell Before First Flight**



*NASA*

NASA says electric aircraft technology isn't ready for prime time and its much-hyped X-57 Maxwell test aircraft will never fly. The \$87 million program (including \$47 million in cost overruns) will wind up at the end of this year, and the knowledge gained by trying to get the plane into the air will be available for anyone who can apply it to their project.

The plan was to modify a Tecnam P2006 with an array of small electric motors on the leading edge of a high-lift wing for vertical takeoff and shift the power to two larger wingtip motors and props for cruise flight. NASA officials said in a streamed news conference on Friday they can't do it safely in the time available. The announcement comes on the heels of Tecnam's announcement that it was suspending its own electrification project, the P-Volt, because battery technology isn't advanced enough for economically viable aircraft.

In the conference, Bradley Flick, director of NASA's Armstrong Flight Research Center at Edwards Air Force Base, said NASA based the program on assumptions that existing electric propulsion technology was advanced enough to be incorporated into the Maxwell. He said the researchers discovered those assumptions were incorrect. "What

we learned is that many of those necessary subsystems were not sufficiently mature for safe flight," he said.

In 2021 the team decided to fund the research through the end of 2023, and they thought they'd get the plane into the air. Flick said that earlier this year researchers discovered a problem with the technology that would make flying the plane unsafe and there wouldn't be enough time to fix it before the scheduled end of the program.

*By Russ Niles for AVweb*

*This one in a series of NASA cost miscalculations in recent years that call into question the agency's ability to run speculative programs without oversight by private firms*

=====

## **The State of US Logistics 2023**



Is It Time for Logistics to Hit the Reset Button?

CSCMP's State of Logistics Report confronts 2022's state of confusion and 2023's supply chain threats.

<https://bit.ly/3PH538X>

=====

## **Marine Sundown Parade**



<https://youtu.be/427gFBgDqj0?t=5>

*If ever you're offered the chance to attend, by all means do.*

=====

## **Lewis and Clark Air Gun**

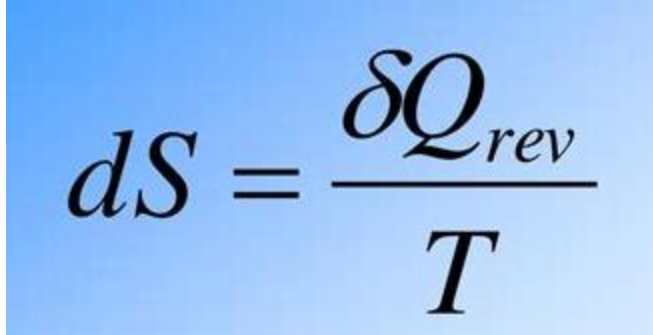


Lewis and Clark's secret weapon – a late 18th Century .46 cal. 20 shot repeating air rifle by Girandoni , as used in the Napoleonic Wars. A Treasure Gun from the NRA National Firearms Museum.

<https://youtu.be/-pqFyKh-rUI>

=====

## Entropy


$$dS = \frac{\delta Q_{rev}}{T}$$

<https://www.youtube.com/watch?v=DxL2HoqLbyA>

=====

## Murphy's Other 15-16 Laws

1. Light travels faster than sound. This is why some people appear bright until you hear them speak.
2. A fine is a tax for doing wrong. A tax is a fine for doing well.
3. He who laughs last, thinks slowest.
4. A day without sunshine is like, well, night.
5. Change is inevitable, except from a vending machine.
6. Those who live by the sword get shot by those who don't.
7. Nothing is foolproof to a sufficiently talented fool.
8. The 50-50-90 rule: Anytime you have a 50-50 chance of getting something right, there's a 90% probability you'll get it wrong.
9. It is said that if you line up all the cars in the world end-to-end, someone from California would be stupid enough to try to pass them.
10. If the shoe fits, get another one just like it.
11. The things that come to those who wait, may be the things left by those who got there first.
12. Give a man a fish and he will eat for a day. Teach a man to fish and he will sit in a boat all day drinking beer.

13. Flashlight: A case for holding dead batteries.

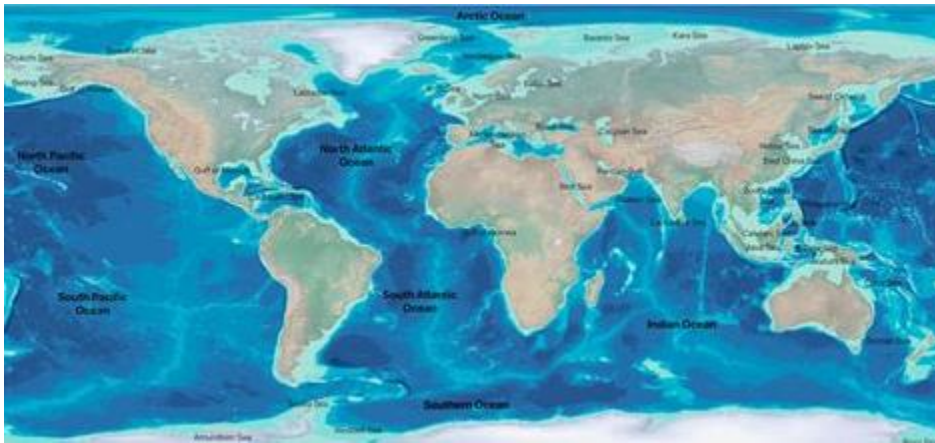
14 . God gave you toes as a device for finding furniture in the dark.

15. When you go into court, you are putting yourself in the hands of twelve people who weren't smart enough to get out of jury duty.

And, of course, we mustn't forget, 16. No battle plan ever survives first contact with the enemy intact."

=====

## **USGS' Ocean 101**



Whether you live near the water or not, the ocean influences all our lives in numerous ways. The properties and processes of our ocean basins can influence our climate, pose natural hazards risk, and produce valuable resources from food to minerals.

<https://www.usgs.gov/science/science-explorer/ocean/ocean-101>

=====

## **Golden Retrievers Meet to Celebrate 155 Years of Goldens**

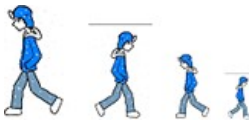


The Guisachan House in the Scottish Highlands is said to be the birthplace of the three dogs that formed the standard for the golden retriever breed

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

=====

## My Walking Thoughts



**For Sunday July 23 2023**

=====

## Codes We Live By: From RNA to Exons



According to the RNA hypothesis, self-replicating RNA molecules could have arisen spontaneously on early Earth, acting as both genetic material and catalysts (enzymes) involved in the replication and evolution of primitive life forms. Additionally, other molecules such as peptides or even different types of polymers might have contributed to the formation of early protocells similar to those of living cells.

Current thinking holds that RNA may have given rise to DNA as a more stable and efficient genetic storage molecule, eventually becoming the dominant genetic material. Regardless of the process by which DNA arrived, it seems that ATCG--standing for adenine, thymine, cytosine, and guanine--are the specific sequence of nucleotides of a DNA molecule, is a good place to begin our discussion of codes.

You don't need to go any further if you're not interested, yet when it comes to codes, I actually think it's worth hanging in there. Consider where this leads.

In the DNA double helix structure, these nucleotides pair up to form base pairs. The simplest known naturally occurring genetic codes are found in viruses with relatively small genomes. Take for instance bacteriophage Phi-X174 with a single-stranded DNA molecule containing 5,386 nucleotides and encodes 11 genes.

By comparison, the human genome is approximately 3.2 billion base pairs typically containing 46 chromosomes organized into 23 pairs. Of these, 22 pairs are autosomes while the 23rd house the sex chromosomes—XX for females and XY for males.

Still with me?

Each chromosome is subdivided into regions called genes that contain instructions for the synthesis of proteins or other functional molecules. Genes make up only a small portion (1 -2%) of the soup. The remaining non-coding DNA includes regulatory regions, repetitive sequences, and other elements that contribute to genome organization and function.

DNA sequence is organized into exons and introns, the former contain instructions for protein synthesis, the latter are non-coding regions that are transcribed but later removed during a process called splicing.

In addition to DNA, there are various other types of codes and systems that exist in biology and other fields that we'll look at another time, but I'd like to add one more thought concerning our primordial soup.

There is evidence suggesting that certain aspects of DNA can remain dormant or inactive until triggered by specific environmental or physiological factors and that various triggers can influence gene expression. For example, environmental factors such as diet, stress, toxins, and exposure to certain chemicals or drugs can affect gene expression patterns. Hormonal signals, cellular signaling pathways, and developmental cues that can play a role in activating or silencing genes.

A topic of ongoing research is that certain genetic elements have been activated or gained functionality during evolutionary history. One example of such activation is the human gene FOXP2, involved in language and speech development. While this gene is found in other vertebrate species, in humans it has undergone specific changes that have increased its functionality.

Today's thoughts set the stage for the fun stuff to follow, starting with next week's 'Talking Drums.'

=====

## **Phantoms from Vietnam Outtake**

This is from the first version. In it Gordon has returned after spending 3 years as a POW in rough shape and gone downhill despite the efforts of his wife and daughter.



=====

Gordon levered himself upright, whimpering in sweat-soaked covers...humiliated, lifeless, bound by memories of his fervent desire to die.

"Oh Christ," Martha's thick-tongued voice sawed into him, and he felt the sheets tug, giving emphasis to the realization he had done it again.

"I can't get any sleep like this," she added with a bitterness that brought bile to the base of his throat. "I'm going to GiGi's room," she concluded as she yanked the comforter to her and made good her threat.

It hadn't always been like this. At first when he returned, he would cry out for no apparent reason, but Martha had been there to comfort him--to bring him a sense of peace and reality.

"It's over, baby," she'd croon. "It's over."

And for a nearly a year it seemed as if it really had been. Then the demons returned, wraithlike in the beginning, then swelling with threats more real, more devastating than those his waking mind could fashion. Once he tried to tell Martha about his terrible memories, about having his hands bound so tightly by sharp leather thongs that except for the ice cold void below his wrists he lost awareness of their presence. But even as he began, he realized the hopelessness of the task.

In one of these midnight phantasms, Gordon found himself bowed impossibly backward by a leash looped around his neck, anchored by a wrap on his ankles. It was a posture that forced him constantly to arch against the thongs in order to breathe...one of the rope tricks designed to pin him in a bitter no-man's land between madness and death until he no longer cared. And when he no longer cared about his life; the lives of his fellow captives; his family, flag, or creed; then did his tormentors relent and loosen the thongs that allowed life-giving blood to bring white-hot sheaves of pain to his extremities and hotter yet assaults of shame and remorse to his miserable soul.

He gave them an inch but was able to take it back when his fellow captives, all of whom had suffered the same torments, signaled their support and reassurance by rapping on the walls of their confinement.

"Let tomorrow take care of tomorrow." The drumming said. "You've done good today so sleep and recover tonight so you can stand up straight tomorrow."

\*\*\*

"You're killing yourself," Martha said when he stumbled down the stairs into the kitchen. "You're killing yourself and dragging me and GiGi down with you."

She sat quietly at the counter waiting for Gordon to pour himself coffee, but Gordon knew this morning's confrontation would be different. Before, there had been tears and pleas and recriminations, but this time there was something final etched in the corners of her mouth. Or was it the set of her eyes? Where before they seemed soft and rounded and vulnerable, now there was a glint that blocked communication with an unassailable hardness.

"At first I knew all I had to do was help you put things into perspective, and you'd snap out of it." She held up her hand to forestall any comment. "Then I hoped if GiGi and I gave you enough love, you would want to reassemble your life." For an instant it seemed her resolve would weaken, but she straightened and pressed on.

"Finally it dawned on me it wasn't me, or GiGi...or even your expectations for yourself that were important--that made you want to drink and forget. It was the drinking you loved."

Gordon blazed to say something, temporize, lie, delay--anything but face the stinging truth her words held. Anything but acknowledge what she said churned up a bitterness not even the nightly deluge of scotch could drown into submission. Such was his demon lover--the consuming mistress of his every action to which all the other pieces of his life must conform or rot in hell - yet it was not enough.

"I'm going now," was all Martha said, but Gordon knew she wasn't coming back

-----