Ode to Happiness for Sunday June 13 2021

'Ring of Fire' Solar Eclipse of 2021 Thrills Stargazers with Sunrise Spectacle

A plane flies in front of the partially eclipse sun in this stunning photo from photographers Imelda Joson and Edwin Aguirre at Black Falcon Cruise Ship Terminal in Boston on June 10, 2021.

(Image credit: Imelda Joson and Edwin Aguirre/Joson Images)

The moon blocked part of the sun in a solar eclipse Thursday (June 10), appearing as a partial solar eclipse to potentially millions of spectators and as a stunning "ring of fire" to some well-placed observers.

The annular solar eclipse of 2021 was at its best for spectators in northernmost latitudes — northern Canada, Greenland and Scandinavia — had the best seats. From there, the moon appeared to block (but not fully cover) the sun, leaving a glowing "ring of fire" effect visible around the moon.

Where weather permitted, a partial eclipse could be seen from northern latitudes in Europe and America. The sight was a special treat for those in eastern parts of North America, where eclipse occurred just as the sun was rising, leading to a spectacular sight.

While observers on the U.S. East Coast had to get up early to enjoy the spectacle, they were rewarded with magnificent views of a sunrise eclipse, which at many locations

covered over 70% of the sun. However, in the U.S., too, weather conditions tested the early-rising observers' nerves to the limits.

Annular solar eclipses occur when the moon is a bit too close to the Earth to completely block the face of the sun (a total solar eclipse) as seen from our planet's surface. Instead, it leaves a thin fiery ring called an annulus around the shadowed moon.

The moon's orbit around Earth is tilted, so it does not always line up with the sun when it is in its "new" phase. When they align perfectly, we see a total solar eclipse, while other times a partial solar eclipse or annular event like today's are visible.

By Tereza Pultarova – Space.com Senior Writer

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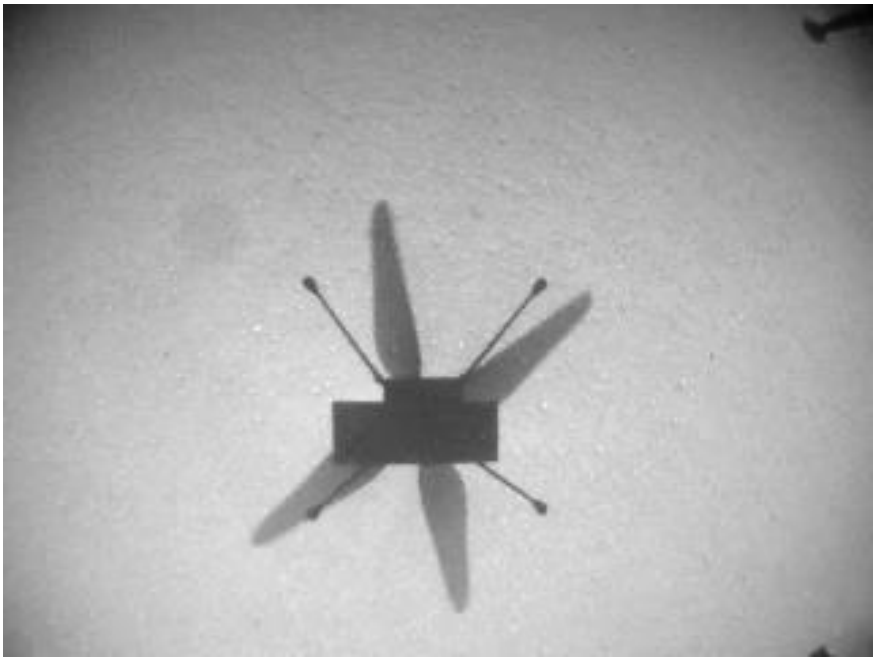
Mars helicopter Ingenuity Aces 7th flight on the Red Planet

By Mike Wall for Space.com

Ingenuity made its way to another new airfield.



NASA's Mars helicopter Ingenuity took this photo of its own shadow with its navigation camera during its seventh Red Planet flight, on June 8, 2021.
(Image credit: NASA/JPL-Caltech via Twitter)

NASA's Mars helicopter Ingenuity now has seven Red Planet flights under its belt.

The 4-lb. (1.8 kilograms) chopper took to the Martian skies again on June 8, making its first sortie since battling through an in-flight anomaly on May 22. And there were no problems this time around.

"From a helicopter team member: 'No anomalies in flight 7, Ingenuity is healthy!' NASA's Jet Propulsion Laboratory (JPL), which manages Ingenuity's mission, wrote via Twitter on Tuesday evening

Video: See the view on Mars from Ingenuity helicopter's fourth flight
https://www.youtube.com/watch?v=4-eccALKlLE

Ingenuity fifth flight
https://www.youtube.com/watch?v=ZQ6F1Wt6_wU

Ingenuity Seventh Flight
https://www.youtube.com/watch?v=5BuNExAORJg

The Mars helicopter Ingenuity "flew for 62.8 seconds and traveled ~106 meters south to a new landing spot," according to NASA's Jet Propulsion Laboratory. See black and white imagery captured by the helicopter's navigation camera (acquired by NASA on June 8, 2021) and highlights from the 6th flight.

Ingenuity lifted off around 12:34 local mean solar time on Tuesday, which corresponds to 11:54 a.m. EDT (1554 GMT). As planned, the chopper then traveled 348 feet (106 meters) south from its previous location on the floor of Mars' Jezero Crater, staying aloft for nearly 63 seconds, JPL officials wrote in another tweet. The solar-powered rotorcraft set down at a new airfield, the fourth one it has reached since landing on the Red Planet with NASA's Perseverance rover on Feb. 18.

Ingenuity deployed from Perseverance's belly on April 3. That milestone started the clock ticking on the helicopter's 30-day flight campaign, which was designed to show that powered, controlled flight is possible in the Red Planet's thin air.

Ingenuity performed five flights during that technology-demonstrating campaign, then embarked on an extended mission, which aims to showcase the scouting potential of Martian rotorcraft.

The first flight of that extended phase, the May 22 sortie, did not go entirely smoothly: Ingenuity suffered a glitch that briefly interrupted the flow of photos from its navigation camera to its onboard computer. But the chopper powered through the problem, managing to land safely near its intended destination. And there were no lasting issues, if Tuesday's success is any guide.

Perseverance captured video and, at times, audio of Ingenuity's first five flights. But the car-size rover then relinquished its documentarian role to start focusing on its science mission, which is devoted to hunting for signs of ancient Mars life and collecting samples for future return to Earth.

Mike Wall is the author of "Out There" (Grand Central Publishing, 2018; illustrated by Karl Tate), a book about the search for alien life. Follow him on Twitter @michaeldwall. Follow us on Twitter @Spacedotcom or Facebook.

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Venus is so Very Nice, NASA is Going There Twice

"The Venus community is absolutely elated."

By Eric Berger for ARS Technica

NASA has not launched a mission to Venus since 1989.
NASA/JPL-Caltech

NASA announced Wednesday that it will send, not one, but two spacecraft to Venus this decade as part of its efforts to ramp up exploration of the closest planet to Earth.

The decision was hailed by scientists who study Venus and have felt neglected by a space agency decidedly more interested in Mars. NASA has not sent a robotic spacecraft to Venus since the launch of the Magellan orbiter in 1989. Launched by space shuttle Atlantis, Magellan made a controlled entry into the Venusian atmosphere in 1994 after collecting reams of data that have tantalized scientists ever since.

"The Venus community is absolutely elated and excited and wants to just get to work and see this happen," said Venus researcher Ellen Stofan, the Smithsonian Under Secretary for Science and Research, in an interview. "We all are so hungry for data, for moving the science forward. A lot of us worked in this field since Magellan. We've had these really fundamental science questions for so long."

The missions, named DAVINCI+ and VERITAS, have a cost cap of $500 million apiece and were selected as part of NASA's "Discovery" program. Two other finalists in the competition, an Io Volcano Observer and a mission to Neptune's icy moon Triton, will be eligible for future awards.

NASA scientists said the two Venus missions were selected on their merits, scoring highest on the agency's assessments. Although both are going to Venus, each mission is different from the other and will provide complementary data.

The DAVINCI+ mission will be the first NASA probe to sample the Venusian atmosphere since 1978. The space agency said DAVINCI+ will study how the atmosphere formed and evolved as well as determine whether the planet ever had an ocean. It will also carry a "descent sphere" that will plunge through the planet's thick atmosphere, making precise measurements of noble gases and other elements to understand why Venus' atmosphere is a runaway hothouse compared the Earth's. This sphere will return the first high-resolution pictures of the unique geological features on Venus known as "tesserae," which may be comparable to Earth's continents.

VERITAS, by contrast, will map Venus' surface to determine the planet's geologic history and understand why it developed so differently than Earth. Orbiting Venus with a synthetic aperture radar, the probe will chart surface elevations over nearly the entire planet to create 3D reconstructions of topography and confirm whether processes such as plate tectonics and volcanism are still active on Venus. VERITAS also will map infrared emissions from Venus' surface to map its rock types.

Stofan said the overriding goal of these missions will be to assess how Venus and Earth came to follow such divergent paths in their evolution. Both are of similar size, and while Venus is closer to the Sun, that does not account for the differences in the hellish conditions on the surface of Venus—especially in terms of atmospheric pressure and temperature—compared to Earth.

"If we really understood how Venus and Earth became so different, we would be a lot closer to understanding how common or rare Earths are," Stofan said. This research would greatly inform scientists who are studying Earth-like worlds in the "habitable zone" around other stars, she added.

Both missions are slated to launch during the 2028 to 2030 timeframe, NASA said.

NASA's spending on dedicated Venus missions compared to the agency's total planetary science program budget. All values adjusted to 2019 dollars via NASA's New Start Index.

NASA's spending on dedicated Venus missions compared to the agency's total planetary science program budget. All values adjusted to 2019 dollars via NASA's New Start Index.
Planetary Exploration Budget Dataset

Over its history, NASA has sent many more probes to Mars than Venus. This is because Mars, although it is significantly smaller than Earth, has some common characteristics, including a thin atmosphere and ice at its poles, and imagining humans walking on Mars one day is not farfetched. Venus, not so much.

The disparity in expenditures is striking. According to Casey Dreier of The Planetary Society, through 2020, NASA has spent $3.7 billion (adjusted for inflation) on its Venus missions, compared to $28.5 billion on Mars missions and related programs, out of a total of $96.9 billion for its Planetary Science program.

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Ransomware Attacks

By Shelly Palmer

depositphotos.com

A ransomware attack forced the Colonial Pipeline, the largest fuel pipeline in the U.S., to shut itself down on Friday. In response, the U.S. government has declared a state of emergency to keep fuel supply lines open while the Colonial Pipeline Company does its best to get the pipeline back online. It is unclear what impact this shutdown will have on gas supply or gas prices. Experts say it depends on how quickly operations resume.

With ransomware attacks are on the rise, this is a good time to remind you what they are and what you can do to protect your computer(s).

Ransomware (aka cryptoviral extortion) is a particularly nasty type of covert malware attack that either blocks access to your computer or, worse, encrypts all the data on your computer until you pay the ransom. Attackers almost always demand that the victim pay the ransom in cryptocurrency because it is extremely difficult (and sometimes impossible) to trace the owner of a digital wallet.

Importantly, the vast majority of ransomware attacks happen because the victim has been tricked (socially engineered) to open a file containing the ransomware. This is almost always accomplished by disguising an email attachment as something the victim will click.

The number one way to protect your digital world is to never click on an email attachment that you didn't specifically ask to receive or one from a source you do not know. You can (and should) also make sure that you use antivirus software that scans your email attachments when they arrive and flags the ones that may contain malware.

Please take a moment to ensure that all of your software (including your antivirus software) is up to date.

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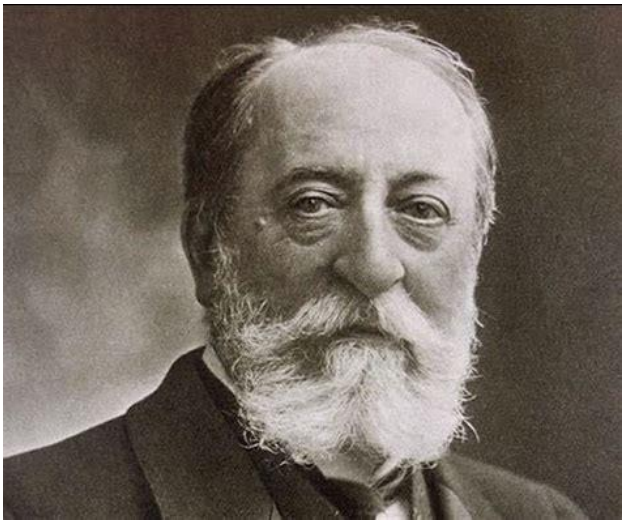
Camille Saint-Saëns (1835-1921)



Saint-Saëns is chiefly remembered for his symphonic poems and for his opera Samson et Dalila. Saint-Saëns was notable for his pioneering efforts on behalf of French music, and he was a gifted pianist and organist.

His concerti and symphonies incorporated the virtuosity of Franz Liszt's style into French traditions of harmony and form, his Symphony No. 3 (Organ) is a staple in concert halls the world over.

You will probably be familiar each of the following—all worth your time and attention—none more than the wonderful Symphony #3.

Camille Saint-Saëns - La danse macabre
https://www.youtube.com/watch?v=71fZhMXlGT4

Arthur Rubinstein - Saint-Saëns - Piano Concerto No 2 in G minor, Op 22
https://www.youtube.com/watch?v=tVCvJZtzkqQ

Yo-Yo Ma, Kathryn Stott - The Swan (Saint-Saëns)
https://www.youtube.com/watch?v=3qrKjywjo7Q

Saint-Saëns - Symphony No 3 in C minor, Op 78 – Järvi
https://www.youtube.com/watch?v=ZWCZq33BrOo

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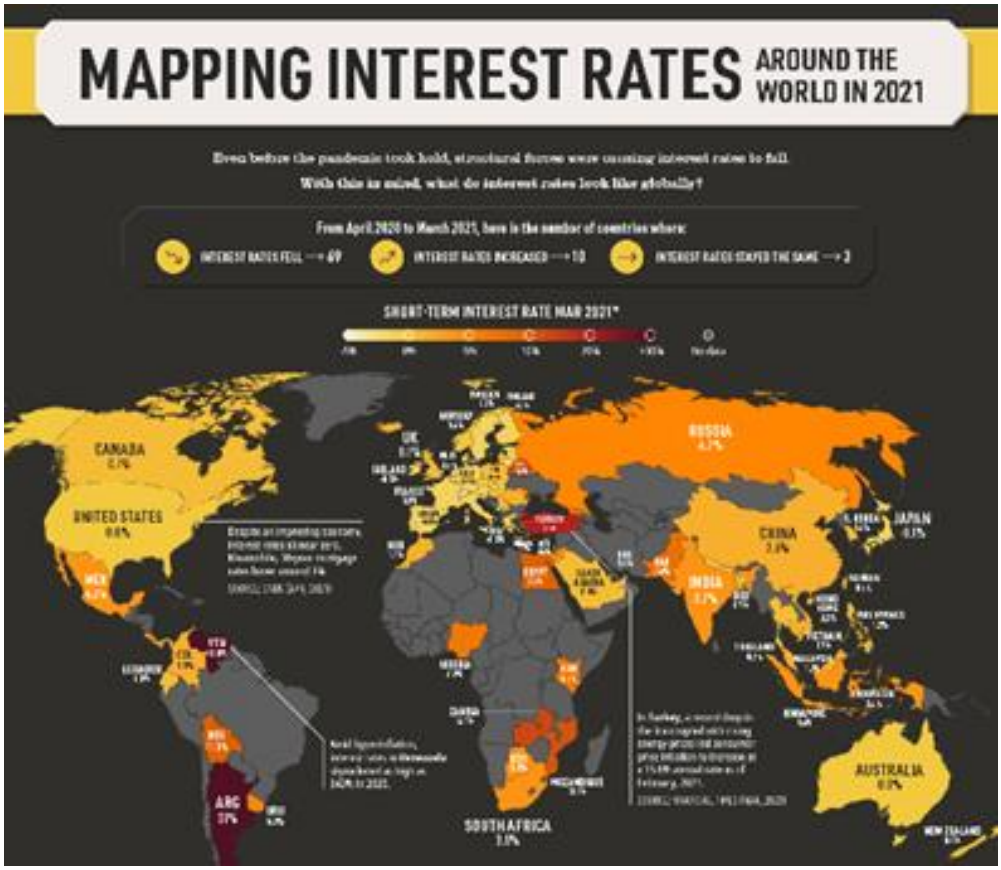
Visualizing Interest Rates by Country in 2021

Going as far back as the 14th century, pandemics have been found to have a negative effect on interest rates.



History shows that this effect is even greater than that of financial crises. Across a study of 19 pandemics since the mid-1300s, real interest rates fell an average of 1.5 percentage points lower in the following two decades than they would have otherwise. And yet, even before COVID-19, structural forces, such as rising debt, were causing interest rates to fall.

The above Markets in a Minute chart from New York Life Investments shows interest rates by country in 2021.

How Have Interest Rates Changed?

Broadly speaking, the majority of countries' short-term interest rates have declined since COVID-19 began. Using data from CEIC as of April 2021, short-term interest rates are measured by three-month money market rates where available.

Interest rate change Apr 2020 – Mar 2021

- Interest rates fell: 69 countries
- Interest rates increased: 10 countries
- Interest rates stayed the same: 3 countries

Across nearly every continent, interest rates have decreased as central banks enacted measures to combat the economic fallout of COVID-19.

Country/ Region	Mar 2021	Apr 2020	Change
Argentina	31	12.4	18.6

Australia	0.0	0.1	-0.1
Austria	-0.5	-0.3	-0.2
Bangladesh	0.7	7.1	-6.4
Belarus	13.9	10.6	3.3
Belgium	-0.5	-0.3	-0.2
Bolivia	11.5	8.6	2.9
Botswana	3.5	4.4	-0.9
Cambodia	1.8	1.6	0.2
Canada	0.1	0.3	-0.2
China	2.6	1.4	1.2
Colombia	1.8	4.6	-2.8
Costa Rica	3.6	4.1	-0.5
Cyprus	-0.5	-0.3	-0.2
Czech Republic	0.4	0.9	-0.5
Denmark	-0.2	-0.4	0.2
Ecuador	1.0	1.3	-0.3
Egypt	9.9	9.6	0.3
Estonia	-0.5	-0.3	-0.2
Finland	-0.5	-0.3	-0.2
France	-0.5	-0.3	-0.2
Georgia	8.0	9.0	-1.0
Germany	-0.5	-0.3	-0.2
Greece	-0.5	-0.3	-0.2
Hong Kong	0.2	1.7	-1.5
Hungary	0.8	1.1	-0.3
Iceland	1.4	2.4	-1.0
India	3.7	5.3	-1.6
Indonesia	3.8	4.9	-1.1
Ireland	-0.5	-0.3	-0.2
Israel	-0.1	0.1	-0.2
Italy	-0.5	-0.3	-0.2
Japan	-0.1	0.1	-0.2
Jordan	4.6	4.7	-0.1
Kenya	6.9	7.2	-0.3
Kosovo	-0.5	-0.3	-0.2
Kuwait	1.5	1.8	-0.3
Latvia	-0.5	-0.3	-0.2
Lithuania	-0.5	-0.3	-0.2
Luxembourg	-0.5	-0.3	-0.2
Macau SAR	0.3	1.7	-1.4
Malaysia	1.9	2.8	-0.9
Malta	-0.5	-0.3	-0.2
Mauritius	0.1	1.2	-1.1
Mexico	4.2	6.2	-2.0

Moldova	7.0	8.0	-1.0
Montenegro	-0.5	-0.3	-0.2
Morocco	1.5	2.0	-0.5
Mozambique	13.3	10.0	3.3
Nepal	1.1	2.1	-1.0
Netherlands	-0.5	-0.3	-0.2
New Zealand	0.3	0.3	0.0
Nigeria	6.9	10.1	-3.2
Norway	0.4	1.4	-1.0
Pakistan	7.6	8.2	-0.6
Panama	0.2	0.7	-0.5
Philippines	1.2	3.2	-2.0
Poland	0.2	0.7	-0.5
Portugal	-0.5	-0.3	-0.2
Qatar	1.1	1.1	0.0
Romania	1.7	2.5	-0.8
Russia	4.7	6.7	-2.0
Saudi Arabia	0.8	1.2	-0.4
Serbia	0.9	1.2	-0.3
Singapore	0.4	0.9	-0.5
Slovakia	-0.5	-0.3	-0.2
Slovenia	-0.5	-0.3	-0.2
South Africa	3.8	4.2	-0.4
South Korea	0.8	1.0	-0.2
Spain	-0.5	-0.3	-0.2
Sweden	-0.2	0.3	-0.5
Switzerland	-0.8	-0.7	-0.1
Taiwan	0.5	0.5	0.0
Thailand	0.6	0.9	-0.3
Turkey	20	8.4	11.6
UAE	0.3	1.9	-1.6
United Kingdom	0.1	0.6	-0.5
United States	0.0	0.1	-0.1
Uruguay	5.0	10.1	-5.1
Venezuela	73.8	23.5	50.3
Vietnam	1.7	4.2	-2.5
Zambia	14.0	16.5	-2.5

Source: CEIC (Apr, 2021)

*Bolivia, Botswana, Costa Rica, Japan, Mauritius, Nepal, Qatar, Russia, Slovakia, Zambia have most recent data as of Feb ’21

**Costa Rica, Denmark, Mauritius, Norway & Russia have 2020 data as of Mar 2020

In the U.S., interest rates fell to record lows, dropping by 0.1 percentage points between April 2020 and March 2021. As vaccine rollouts accelerated in 2021, real GDP

grew by an annual rate of 6.4% in the first quarter. Unemployment slightly improved to 6.1%, but still remains well above pre-pandemic levels of 3.5%.

Given these variables, the question of whether interest rates will rise is an open one.

Like the U.S., interest rates in the European Union declined, although at a greater rate—from -0.3% to -0.5%. To help improve economic conditions, the European Central Bank promises to purchase $2.2 trillion in government bonds until March 2022.

Together, the euro area, the U.S., Japan, and Britain have produced at least $3.8 trillion in new money supply since early 2020.

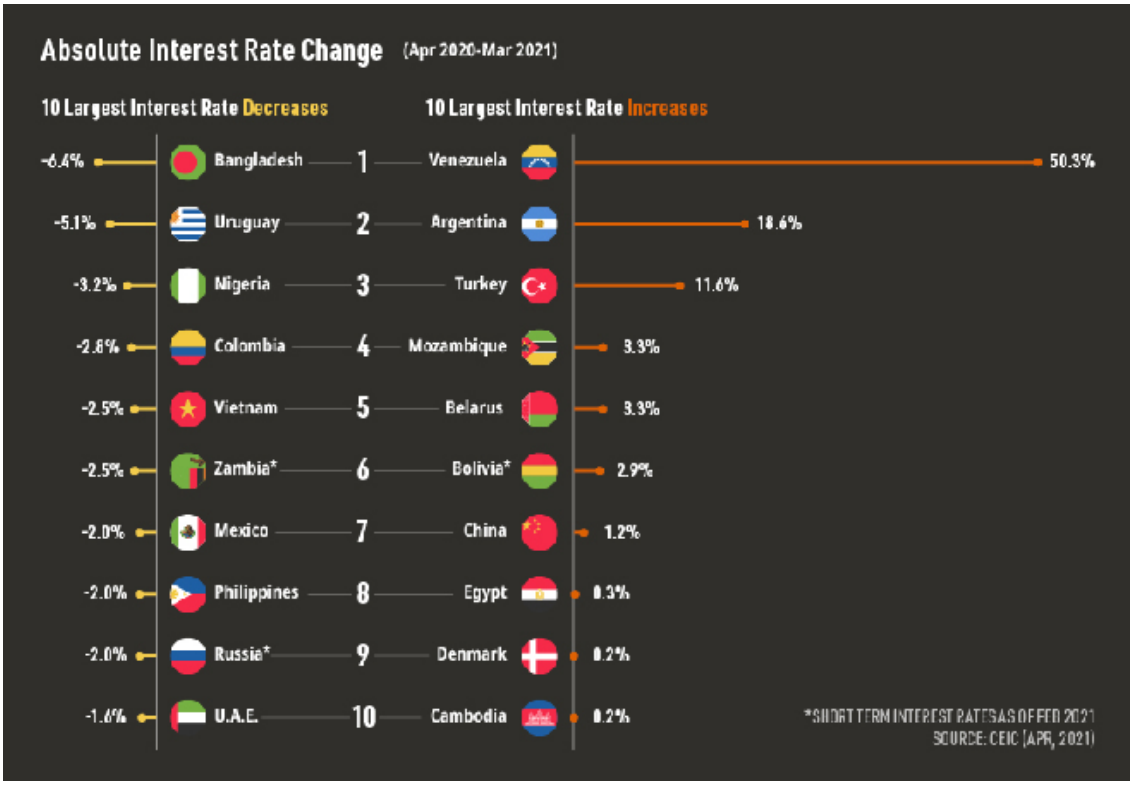
Interest Rates: The Steepest Gains and Declines

As money creation and low interest rates have become increasingly common phenomena, the focus has shifted to inflation.

With interest rates reaching 343% in 2020, Venezuela has been a poster child for hyperinflationary forces. Energy shortages only compounded the effect which was well underway before the pandemic. Between April 2020 and March 2021, interest rates jumped over 50 percentage points.

In addition, Turkey and Brazil raised interest rates in March 2021 to dampen inflation. Interest rates in Turkey have increased 11.6 percentage points over the time frame, one of the highest absolute changes globally.

In 2020, the lira faced historic declines, causing the price of imports to climb significantly.



On the other hand, Bangladesh has seen its interest rates decline 6.4 percentage points, the steepest drop across the dataset. To help offset the effects of COVID-19, the Bangladesh Bank lowered interest rates from 7.1% to 0.7%.

With rates falling 3.2 percentage points, Nigeria has also seen one of the greatest interest rate drops. In March, Fitch Ratings gave the country a B rating with a stable outlook, supported by its low government debt-to-GDP ratio and large economy.

Research has found that countries with better credit ratings and transparent fiscal infrastructure had greater ability for central banks to lower interest rates in response to the crisis.

Sign of the Times

Policy rate changes, a key central bank maneuver, have been an important tool in response to COVID-19.

As economic activity in some countries picks up, interest rates could rise. However, progress in vaccination distribution remains uncertain, especially in emerging markets.

In tandem with this, global central banks are applying unproven monetary policy frameworks, including money creation and large-scale bond purchases. While studies show that interest rates have been falling over the past several centuries, the confluence of these factors will be revealing in the years that follow.

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Rare Plutonium from Space Found in Deep-Sea Crust

By Stephanie Pappas - Live Science Contributor

The plutonium-244 hints at how heavy metals form in stars.

This image shows SN2014J, one of the closest type Ia supernovas in recent decades. Star explosions like these are thought to generate heavy metals.
(Image credit: NASA, ESA, A. Goobar (Stockholm University), and the Hubble Heritage Team)

A rare version of the radioactive element plutonium embedded in Earth's crust below the deep sea is providing new clues as to how heavy metals form in the stars.

The new research finds that the isotope, called plutonium-244, may arrive on Earth in tandem with iron-60, a lighter metal known to form in supernovas, explosions that occur during the death throes of many types of stars. This finding suggests that supernovas may create both heavy metals — although it's possible that other events, such as the mergers of neutron stars, are responsible for at least some of the plutonium-244.

Understanding how heavy elements formed is one of the top three most burning questions in physics, said Anton Wallner, a nuclear physicist at the Australian National University and the Helmholtz Center Dresden-Rossendorf, a research center in Germany. Half of elements heavier than iron are built in the hearts of stars through a fairly well-understood process of fusion. The other half, though, requires a high density of free neutrons to form. This means they must form in a more explosive environment than a typical star core — supernovas, perhaps, or massive events such as a neutron-star merger or a collision of a black hole and a neutron star.

Along with collaborators in Japan, Australia and Europe, Wallner was interested in finding out if he could discover fingerprints of these celestial events on Earth. There are some radioactive versions of heavy metals that don't occur naturally on the planet. In particular, the researchers were on the hunt for plutonium-244, a variation of plutonium with a half-life of 80.6 million years. This means it takes 80.6 million years for radioactive decay to eat away at half of the initial plutonium produced. Any plutonium-244 originally present during Earth's formation has long since decayed, so any atoms the researchers could find would have to be extraterrestrial in origin.

"Can we find plutonium-244 on Earth?" Wallner said. "Then we know it's coming from space."

Rare metals

To hunt for these rare atoms, the researchers turned to samples of Earth's crust from nearly 5,000 feet (1,500 meters) below the Pacific Ocean. These rocks form so slowly that a millimeter of crust records 400,000 years of history, Wallner told Live Science. The sample covered the past 10 million years.

The researchers then probed the samples for iron-60 — the extraterrestrial version of iron that forms in supernovas — and for plutonium-244. They found both.

It was no surprise to find iron-60, Wallner said, as previous research had already shown fluctuations in iron-60 levels in deep-sea sediments and crust over time. The findings confirmed what researchers had previously suspected: There were two increases in iron-60 — one that occurred between 4.2 million and 55 million years ago, and one that happened sometime before 7 million years ago. These influxes of the metal may have been the result of two fairly nearby supernovas, Wallner said.

"The supernova that happened and produced the iron-60 must have been spectacular at the time," he said. "It must have been similar [in brightness] to the full moon, so you would see it even in daytime."

In the past, the researchers did not have sensitive enough methods to accurately count the extremely rare atoms of plutonium-244 scattered in Earth's crust. But in the new study, using cutting-edge technology and methods, they did. The timing of this extraterrestrial plutonium's arrival on Earth is a bit harder to pin down, as the researchers had to search layers of crust corresponding to between 3 million and 5 million years of history. However, the influx of plutonium-244 did correlate with the influx of iron-60.

"The ratio of plutonium-244 to iron-60 seems to be constant," Wallner said. This suggests that both might come from a common origin.

Forged in stars

Although the coordinated arrival of plutonium-244 and iron-60 suggests that both could have come from supernovas, a lot of questions remain. Computer models that attempt to mimic the formation of elements within supernovas really struggle to generate heavy-element formation, Wallner said. The ratio of iron-60 to plutonium-244 found in the new study suggests that the plutonium-244 would be a lot less prevalent than iron-60 after the stellar explosion, perhaps just a small percentage of the total elements formed.

It's also possible, Wallner noted, that the plutonium-244 atoms discovered in the deep-sea crust didn't come from a supernova at all. The plutonium-244 could have been formed in an earlier event and may have been floating aimlessly in deep space when a blast of iron-60 whooshed through, pushing the heavier plutonium-244 along with it. In that situation, both elements would have arrived on Earth at the same time, but the plutonium-244 would be a lot older.

To explore that possibility, the researchers want to look at different classes of atoms with different half-lives. The half-lives act like a clock so that scientists can determine a range of estimates for the ages of the elements. If the plutonium-244 were found in concert with an element of a much shorter half-life, for example, it would suggest that both were younger and fresher. It would also suggest that the amount of plutonium-244 produced in a supernova was lower and that more of it may have come from other events, like a neutron-star merger.

The research team is already studying a piece of crust 10 times larger than the one in this research. Having a larger piece of crust will allow researchers to expand their search for plutonium-244 atoms and get a more precise timeline of when those atoms arrived on Earth.

"What is fascinating is that you find some six or 10 atoms which you can identify in the end as not from Earth but from space, and then you get some hints about where it had been produced and when it had been produced," Wallner said.

The research was published May 13 in the journal Science.
Originally published on Live Science.

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Pat Benatar

thefamouspeople.com

The rock singer-songwriter and four-time Grammy Award winnershe has two multi-Platinum albums, five Platinum albums, and 15 Billboard Top 40 singles in the US, while in Canada she had eight straight Platinum albums.

We Belong
https://youtu.be/qxZInIyOBXk

Many times I've tried to tell you
Many times I've cried alone
Always I'm surprised how well you
Cut my feelings to the bone

Don't want to leave you really
I've invested too much time
To give you up that easy
To the doubts that complicate your mind

We Belong to the light
We Belong to the thunder
We Belong to the sound of the words
We've both fallen under
Whatever we deny or embrace
For worse or for better
We Belong, We Belong
We Belong together

Maybe it's a sign of weakness

When I don't know what to say
Maybe I just wouldn't know
What to do with my strength anyway
Have we become a habit
Do we distort the facts
Now there's no looking forward
Now there's no turning back
When you say

Close your eyes and try to sleep now
Close your eyes and try to dream
Clear your mind and do your best
To try and wash the palette clean
We can't begin to know it
How much we really care
I hear your voice inside me
I see your face everywhere
Still you say

Hit me with your best shot
https://www.youtube.com/watch?v=PoX_W6VuFf0

Well you're a real tough cookie with a long history
Of breaking little hearts, like the one in me
That's O.K., lets see how you do it
Put up your dukes, let's get down to it!
Hit Me With Your Best Shot!
Why Don't You Hit Me With Your Best Shot!
Hit Me With Your Best Shot!
Fire Away!

You come on with your come-ons, you don't fight fair
That's O.K., see if I care!
Knock me down, it's all in vain
I'll get right back on my feet again!

Hit Me With Your Best Shot!
Why Don't You Hit Me With Your Best Shot!
Hit Me With Your Best Shot!
Fire Away!

Well you're a real tough cookie with a long history
Of breaking little hearts, like the one in me
Before I put another notch in my lipstick case
You better make sure you put me in my place

Hit Me With Your Best Shot!
Come On, Hit Me With Your Best Shot!
Hit Me With Your Best Shot!
Fire Away!

Hit Me With Your Best Shot!
Why Don't You Hit Me With Your Best Shot!
Hit Me With Your Best Shot!
Fire Away!

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Can We Stop Time?

By Adam Mann - Live Science Contributor

Time keeps on slipping, slipping ...

Can we stop time?
(Image credit: Bruce Rolff/Stocktrek Images via Getty Images)

The relentless march of time can be a source of anxiety. Who hasn't sometimes wished for the ability to freeze themselves in a happy moment or even prevent a loved one from slipping away.

Every once in a while, a science-fiction book, movie or TV show will feature characters who can do what we all wish: Stop time.

But is such a thing possible? Answering that question requires a deep dive into the farthest corners of physics, philosophy and human perception.

First, we have to define time. "To a physicist, it's not that mysterious," Sean Carroll, a theoretical physicist at the California Institute of Technology, told Live Science. "Time is just a label on different parts of the universe. It tells us when something is happening."

Many physics equations make little distinction among the past, present and future, Carroll added. One place time appears is in Albert Einstein's theory of relativity. According to Einstein's theory, time is measured by clocks. Because the parts of a clock must move through space, time gets tangled up with space into a larger concept known as space-time that underpins the universe.

Relativity famously showed that time can become pretty wonky depending on how fast an observer is moving relative to another observer. If you send a person with a clock on a spaceship at near light speed, time will seem to pass more slowly for them than it would for a stationary friend left on Earth. And an astronaut falling into a black hole, whose immense gravity can warp time, might also appear to slow down relative to a distant observer.

But that's not really a way to stop time, Carroll said. Two clocks may disagree in relativity, but each will still record the usual passage of time within their own reference frame.

If you were nearing a black hole, "you wouldn't notice anything different," Carroll said. "You would look at your wristwatch, and it would pass at one second per second."

For him, it makes little sense to talk about stopping time. We know that a car is moving because, at different moments of time, it's at a different location in space, he said. "Motion is change with respect to time, so time itself can't move." In other words, if time stopped, all motion would stop too.

While sci-fi has sometimes given us protagonists who can pause time for everyone else, such situations raise a great deal of questions. "Are you stopping the air from moving?" Carroll asked. "Because if so, then you're imprisoned by the air."

A time-stopping character would also likely be unable to see anything, he added, because light rays would no longer reach their eyeballs. "There's not really any consistent scenario in which time stops."

So much for physics. But time is more than just something read on a clock. It's also a feeling that we have in our heads and bodies, as well as the natural rhythms of the world. Yet in those cases, time can become something subject to personal whims.

"Thinking about the subjective impression of time gets interesting," Craig Callender, a philosopher who specializes in time at the University of California, San Diego, told Live Science.

He described a well-known psychological illusion known as "chronostasis," in which a person places a clock at the edge of their vision and then stares at something else for a moment. Glancing back at the timepiece and focusing on the second hand will make it pause. (It can be a quirky way to stay entertained during fifth period math class in high school.)

"The second hand definitely hangs there a little bit," Callender said. "You can make time seem like it freezes."

The illusion has to do with tiny eye movements called saccades, in which your eyeballs rapidly flick back and forth to constantly take in their surroundings. To prevent you from seeing a chaotic blur, your brain actually edits what it sees in real time and creates the impression of a continuous field of view, Callender said.

The question then becomes, what is the relationship between our perceptions of time and the time physicists are talking about? Callender has written a number of books that attempt to explore the connection between the two, and as yet, there isn't much consensus on a final answer.

Regarding the ultimate flow of time, Callender favors a picture "where there's nothing flowing, but the story of yourself is flowing."

And what does he believe regarding the possibility of stopping time? "If we think of our subjective sense of time, then we can stop portions of it with chronostasis," Callender said. "But that's probably the closest we can do."

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Worldwide Radio

http://radio.garden/visit/taos-nm/4AwcLrjW

The green dots on this Google Earth map represent radio stations all over the world. Click on any one of the dots and you will immediately hear that station with particularly good reception.

I've set this in motion with a Taos, NM station, so when you've had your fill of native American music, just click on another dot and see what you get.

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If you are stubborn,

... the solution can often evade you..!

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Utopia on Mars

Image Credit: NASA, The Viking Project, M. Dale-Bannister (Washington University)

Expansive Utopia Planitia on Mars is strewn with rocks and boulders in this 1976 image.

Constructed from the Viking 2 lander's color and black and white image data, the scene approximates the appearance of the high northern Martian plain to the human eye.

For scale, the prominent rounded rock near center is about 20 centimeters (just under 8 inches) across.

Farther back on the right side of the frame a dark angular boulder spans about 1.5 meters (5 feet). Also in view are two trenches dug by the lander's sampler arm, the ejected protective shroud that covered the soil collector head, and one of the lander's dust covered footpads at the lower right.

On May 14, China’s Zhurong Mars rover successfully touchdown on Mars and has returned the first images of` its landing site in Utopia Planitia.

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A Face in the Clouds of Jupiter from Juno

Image Credit: NASA/JPL-Caltech/SwRI/MSSS/Jason Major

What do you see in the clouds of Jupiter? On the largest scale, circling the planet, Jupiter has alternating light zones and reddish-brown belts. Rising zone gas, mostly hydrogen and helium, usually swirls around regions of high pressure. Conversely, falling belt gas usually whirls around regions of low pressure, like cyclones and hurricanes on Earth. Belt storms can form into large and long-lasting white ovals and elongated red spots.

NASA's robotic Juno spacecraft captured most of these cloud features in 2017 during perijove 6, its sixth pass over the giant planet in its looping 2-month orbit. But it is surely not these clouds themselves that draws your attention to the displayed image, but rather their arrangement. The face that stands out, nicknamed Jovey McJupiterFace, lasted perhaps a few weeks before the neighboring storm clouds rotated away.

Juno has now completed 33 orbits around Jupiter and just yesterday made a close pass near Ganymede, our Solar System's largest moon.

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Poetry from Somewhere

Not Kipling, but Perhaps a Parody of it?

The March of Mankind

As I pass through my incarnations in every age and race,
I make my proper prostrations to the Gods of the Market-Place.
Peering through reverent fingers I watch them flourish and fall,
And the Gods of the Copybook Headings, I notice, outlast them all.

We were living in trees when they met us. They showed us each in turn
That Water would certainly wet us, as Fire would certainly burn:
But we found them lacking in Uplift, Vision and Breadth of Mind,
So we left them to teach the Gorillas while we followed the March of Mankind.

We moved as the Spirit listed. They never altered their pace,
Being neither cloud nor wind-borne like the Gods of the Market Place,
But they always caught up with our progress, and presently word would come
That a tribe had been wiped off its icefield, or the lights had gone out in Rome.

With the Hopes that our World is built on they were utterly out of touch.
They denied that the Moon was Stilton; they denied she was even Dutch.
They denied that Wishes were Horses; they denied that a Pig had Wings.
So we worshipped the Gods of the Market Who promised these beautiful things.

When the Cambrian measures were forming, They promised perpetual peace.
They swore, if we gave them our weapons, that the wars of the tribes would cease.

But when we disarmed They sold us and delivered us bound to our foe,
And the Gods of the Copybook Headings said: "Stick to the Devil you know."

On the first Feminian Sandstones we were promised the Fuller Life
(Which started by loving our neighbour and ended by loving his wife)
Till our women had no more children and the men lost reason and faith,
And the Gods of the Copybook Headings said: "The Wages of Sin is Death."

In the Carboniferous Epoch we were promised abundance for all,
By robbing selected Peter to pay for collective Paul;
But, though we had plenty of money, there was nothing our money could buy,
And the Gods of the Copybook Headings said: "If you don't work you die."

Then the Gods of the Market tumbled, and their smooth-tongued wizards withdrew,
And the hearts of the meanest were humbled and began to believe it was true
That All is not Gold that Glitters, and Two and Two make Four—
And the Gods of the Copybook Headings limped up to explain it once more.

As it will be in the future, it was at the birth of Man—
There are only four things certain since Social Progress began:—
That the Dog returns to his Vomit and the Sow returns to her Mire,
And the burnt Fool's bandaged finger goes wabbling back to the Fire;

And that after this is accomplished, and the brave new world begins
When all men are paid for existing and no man must pay for his sins,
As surely as Water will wet us, as surely as Fire will burn,
The Gods of the Copybook Headings with terror and slaughter return!

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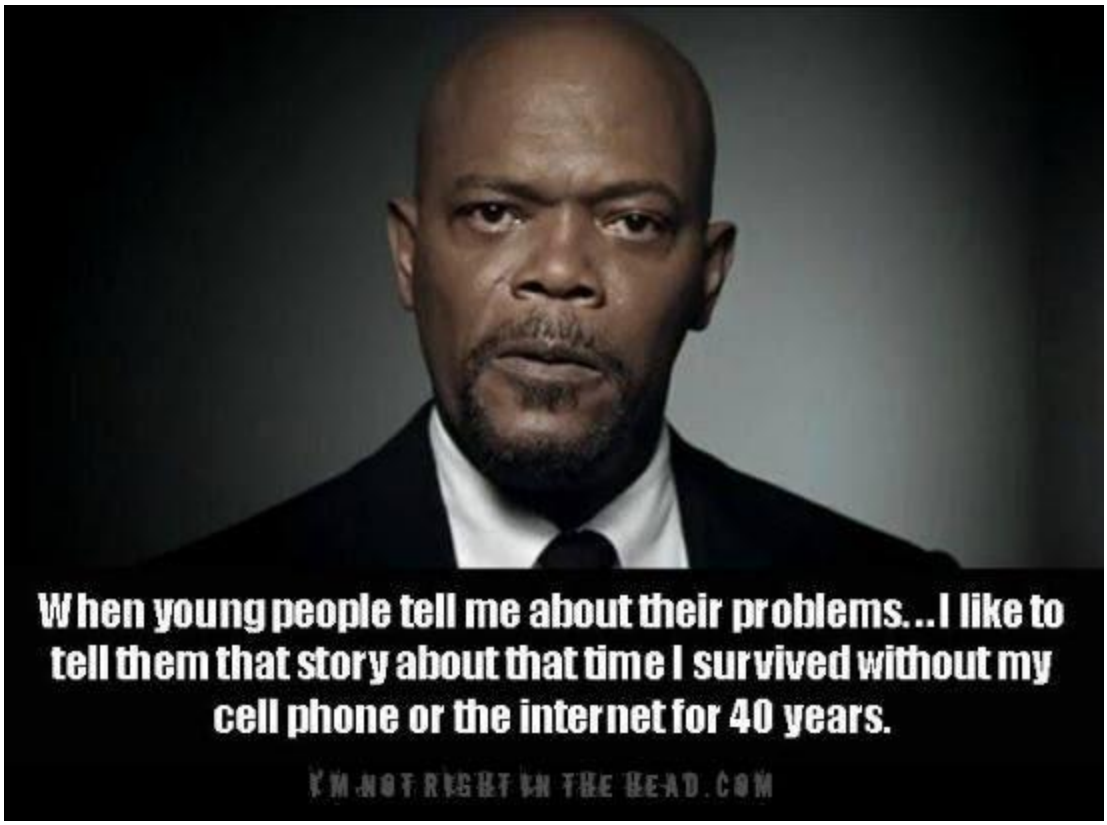
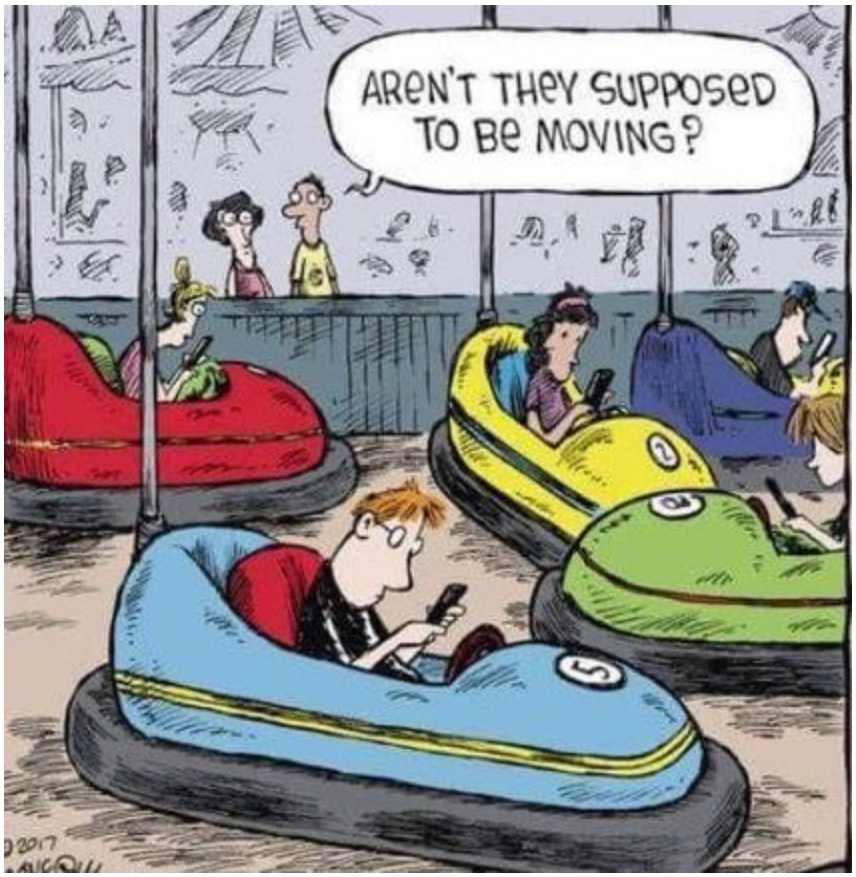
Is This the Ultimate Game Changer?

Welcome to the Brave New World


When young people tell me about their problems...I like to tell them that story about that time I survived without my cell phone or the internet for 40 years.
I'M NOT RIGHT IN THE HEAD.COM


I STILL HAVE A LANDLINE.
OR AS I LIKE TO CALL IT,
"A CELL PHONE FINDER."


AREN'T THEY SUPPOSED TO BE MOVING?


I read that the government wants to install cameras everywhere to record our every move.
Scary.
Facebook.com/BizarroComic

How do you milk sheep?

Bring out a new iPhone and charge $1000 for it.

"Nuff Said?

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