

Ode to Happiness for Sunday April 4 2021

Magnetic Fields at the Edge of M87's Black Hole



A view of the M87 supermassive black hole in polarized light. This image shows the polarized view of the black hole in M87. The lines mark the orientation of polarization, which is related to the magnetic field around the shadow of the black hole.

Credit: EHT Collaboration The Event Horizon Telescope (EHT) collaboration, which produced the first-ever image of a black hole, revealed a new view of the massive object at the center of the M87 galaxy: a picture of its polarized light.

This is the first time astronomers have been able to measure polarization, a signature of magnetic fields, this close to the edge of a black hole. The observations are key to explaining how the M87 galaxy, located 55 million light-years away, is able to launch energetic jets from its core.

"We are now seeing the next crucial piece of evidence to understand how magnetic fields behave around black holes and how activity in this very compact region of space can drive powerful jets that extend far beyond the galaxy," says Monika Mościbrodzka, assistant professor at Radboud Universiteit in the Netherlands. Mościbrodzka is co-coordinator of the EHT Polarimetry Working Group with Ivan Martí-Vidal of the University of Valencia in Spain.

The results were published on March 24 in two separate papers in the *Astrophysical Journal Letters* by the EHT collaboration. Mościbrodzka discussed the findings at an online event hosted by Caltech on Friday, March 26.

On April 10, 2019, scientists released the first-ever image of a black hole, revealing a bright ring-like structure with a dark central region: the black hole's shadow. Since then, the EHT collaboration has delved deeper into the data on the supermassive object

at the heart of the M87 galaxy and has discovered that a significant fraction of the light around the M87 black hole is polarized.

"We are now able to see a different dimension of the light circling the M87 black hole," says Katherine L. (Katie) Bouman, assistant professor of computing and mathematical sciences, electrical engineering and astronomy, Rosenberg Scholar at Caltech, and co-coordinator of the EHT Imaging Working Group. "The image we reconstructed earlier showed us how bright the light was around the black hole shadow. This image is telling us about the direction of that light."

Bouman is one of several Caltech researchers working with EHT. She helped develop the polarimetric imaging tools used to create the image and then helped use those tools to recover the structure of the polarization of light around the M87 black hole.

"Reconstructing an image of the polarization of light is, in theory, fairly similar to reconstructing the total intensity, which we showed in our April 2019 result," Bouman says. "However, it is more challenging for a couple of reasons. Rather than recovering a single scalar value for each pixel in the image that indicates brightness, we now have to recover a 2D vector at each pixel. That means that we have the same amount of data, but there are more unknowns we are solving for."

In addition, solving for an image of polarization requires the estimation of calibration terms that describe how the telescope's instrumentation slightly distorts the measurements. "Most of the Polarimetry Working Group's time was spent in trying to understand the uncertainties of these calibration terms and seeing their effect on the resulting polarization image. In the end, we are pretty confident that the same basic structure fits the data within the estimated uncertainties," she says.

Postdoctoral associate in physics Junhan Kim developed instrumentation for the original data collection as a PhD student at the University of Arizona before coming to Caltech in 2019. "It was technically challenging to form a polarization-sensitive planet-sized array that can resolve the apparent size of the black hole. We even had to travel to some of the most remote sites in the world to install the instruments. I'm thrilled to see that we could produce interesting scientific results with the EHT array," says Kim. Caltech postdoctoral research associates Aviad Levis and He Sun also contributed to the EHT collaboration's work.

The research involved more than 300 researchers from multiple organizations and universities worldwide. To observe the heart of the M87 galaxy, the collaboration linked eight telescopes around the world to create a virtual Earth-sized telescope, the EHT. The Owens Valley Radio Observatory, which is operated by Caltech, is scheduled to join the EHT collaboration later this year.

"These observations highlight how magnetic fields influence the dynamics of material near the event horizon of the M87 black hole. This is a significant step towards understanding how black holes the size of our solar system launch jets of matter and energy that disrupt the evolution of whole galaxies," says Vikram Ravi, assistant professor of astronomy at Caltech, who recently became involved with EHT.

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'Star Trek' First Contact Day Promises Plenty of Trek News and Nostalgia

By Scott Snowden for Space



*"So, you guys have an eternal soul, right..?" Humans first meet Vulcans...and the rest is history.
(Image credit: Paramount)*

Only 42 more years to go...come one, come on!

A host of celebrations, festivities and special events are in store on Paramount+ on April 5 — a date known to all "Star Trek" fans as as First Contact Day: the day when humans and Vulcans first met in the movie "Star Trek: First Contact."

<https://youtu.be/zREHpYlrz0>

If you recall, "Star Trek: First Contact" sends the USS Enterprise-E and her crew through a temporal vortex in an attempt to stop the Borg from preventing the first warp flight by the human race, which subsequently results in the first contact with an alien race (the Vulcans) on April 5, 2063. It's one of the pivotal moments in human history and after that everything begins to change. Following the invention of warp drive, fleets of starships are built and mankind starts exploring the galaxy. It unites humanity in a way no one ever thought possible when they realize they're not alone in the universe; poverty, disease and war, they're all gone within the next 50 years.

Unless of course you live in the Mirror Universe, where inventor of warp drive Zefram Cochrane (James Cromwell) gives the visiting Vulcans both barrels before everyone plunders the alien survey ship.

According to the official blurb, the event will "honor and commemorate this future date by providing 'Star Trek' fans exclusive programming, including themed panels with the cast and creatives from classic and current 'Star Trek' television series and cast from 'Star Trek: First Contact' exclusive news from the 'Star Trek' Universe on Paramount+, curated episode marathons, the return of the #StarTrekUnitedGives initiative and more."

Fans worldwide will be able to livestream the First Contact Day panels for free at StarTrek.com/FirstContact. The panels will also be available to stream for free in the U.S. on PlutoTV and the Paramount+ Twitch page. After their initial airing, the panels will be available on-demand on the Paramount+ YouTube Channel and on Paramount+.

Oh, but there's more, so much more.

For fans based in the US only, First Contact Day celebrations will kick off with part one of a streaming marathon of episodes featuring iconic first contacts from 10 different "Star Trek" series. The "Best of First Contacts" episodic streaming marathon, presented by Paramount+ begins 9am PT/12noon ET. The marathon will pause for the duration of the First Contact Day panels — available worldwide — (at 12noon PT/3pm ET) and will resume with part two after the panels conclude (at 6pm PT/9pm ET)

The episodes included in the Best of First Contacts streaming marathon are as follows:

- "Star Trek: The Original Series" — "Arena" (S01, E18)
- "Star Trek: Lower Decks" — "Second Contact" (S01, E01)
- "Star Trek: Deep Space Nine" — "Little Green Men" (S04, E07)
- "Star Trek: Short Treks" — "Children of Mars" (S02, E06)
- "Star Trek: Voyager" — "Scorpion, Part 2" (S04, E01)
- "Star Trek: Discovery" — "New Eden" (S02, E02)
- "Star Trek: The Animated Series" — "The Infinite Vulcan" (S01, E07)
- "Star Trek: Enterprise" — "The Andorian Incident" (S01, E06)
- "Star Trek: The Next Generation" — "First Contact" (S04, E15)
- "Star Trek: Picard" — "Broken Pieces" (S01, E08)

(Curiously, the actual movie "Star Trek: First Contact" doesn't seem to be included in the celebration, but thankfully none of the reboot movies are either.)

Crowdfunded by the same team who bought us the incredible "What We Left Behind" DS9 documentary, this is exciting stuff. (Image credit: Paramount)

Finally, the crowdfunded documentary on "Voyager" now has an official name — "To The Journey, Looking Back at Star Trek: Voyager" and logo and has surpassed every expectation, unlocked every goal and raised over a staggering \$1.1million. Hopefully this will get talked about in at least one of the panels, depending on how long ago they were recorded.

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Hello Darkness



The meaning of true friendship and love of another human being!!

For all who remember listening to and enjoying the music from Simon & Garfunkel, read over the following a few times to get a good grasp of the information - then crank up the volume as you click on the attached and reflect back on the story!

Hello Darkness My Old Friend, a Simon and Garfunkel song inspired by a College roommate who went blind, reveals an untold story. Enjoy and then listen to the song itself.

<https://www.youtube.com/watch?v=qYS0EeaAUMw>

One of the best-loved songs of all time. Simon & Garfunkel's hit The Sound of Silence topped the US charts and went platinum in the UK.

It was named among the 20 most performed songs of the 20th century, included in Rolling Stone's 500 Greatest Songs of All Time, and provided the unforgettable soundtrack to 1967 film classic The Graduate. But to one man The Sound of Silence means much more than just a No 1 song on the radio with its poignant opening lines: "Hello Darkness my old friend, I've come to talk with you again."

Sanford "Sandy" Greenberg is Art Garfunkel's best friend, and reveals in a moving new memoir, named after that lyric, that the song was a touching tribute to their undying bond, and the singer's sacrifice that saved Sandy's life when he unexpectedly lost his sight.

"He lifted me out of the grave," says Sandy, aged 79, who recounts his plunge into sudden blindness, and how Art Garfunkel's selfless devotion gave him reason to live again.

Sandy and Arthur, as Art was then known, met during their first week as students at the prestigious Columbia University in New York.

"A young man wearing an Argyle sweater and corduroy pants and blond hair with a crew cut came over and said, 'Hi, I'm Arthur Garfunkel'," Sandy recalls.

They became roommates, bonding over a shared taste in books, poetry and music.

"Every night Arthur and I would sing. He would play his guitar and I would be the DJ. The air was always filled with music."

"Still teenagers, they made a pact to always be there for each other in times of trouble. "If one was in extremis, the other would come to his rescue," says Sandy They had no idea their promise would be tested so soon. Just months later, Sandy recalls: "I was at a baseball game and suddenly my eyes became cloudy and my vision became

unhinged. Shortly after that darkness descended." Doctors diagnosed conjunctivitis, assuring it would pass. But days later Sandy went blind, and doctors realized that glaucoma had destroyed his optic nerves.

Sandy was the son of a rag-and-bone man. His family, Jewish immigrants in Buffalo, New York, had no money to help him, so he dropped out of college, gave up his dream of becoming a lawyer, and plunged into depression. "I wouldn't see anyone, I just refused to talk to anybody," says Sandy. "And then unexpectedly Arthur flew in, saying he had to talk to me. He said, 'You're gonna come back, aren't you?' "I said, 'No, There's no conceivable way.' "He was pretty insistent, and finally said, 'Look, I don't think you get it. I need you back there. That's the pact we made together: we would be there for the other in times of crises. I will help you'."

Together they returned to Columbia University, where Sandy became dependent on Garfunkel's support. Art would walk Sandy to class, bandage his wounds when he fell, and even filled out his graduate school applications.

Garfunkel called himself "Darkness" in a show of empathy. The singer explained: "I was saying, 'I want to be together where you are, in the black'." Sandy recalls: "He would come in and say, 'Darkness is going to read to you now.' "Then he would take me to class and back. He would take me around the city. He altered his entire life so that it would accommodate me."

Garfunkel would talk about Sandy with his high-school friend Paul Simon, from Queens, New York, as the folk-rock duo struggled to launch their musical careers, performing at local parties and clubs. Though Simon wrote the song, the lyrics to *The Sound of Silence* are infused with Garfunkel's compassion as Darkness, Sandy's old friend.

Guiding Sandy through New York one day, as they stood in the vast forecourt of bustling Grand Central Station, Garfunkel said that he had to leave for an assignment, abandoning his blind friend alone in the rush-hour crowd, terrified, stumbling and falling. "I cut my forehead" says Sandy. "I cut my shins. My socks were bloodied. I had my hands out and bumped into a woman's breasts. It was a horrendous feeling of shame and humiliation. "I started running forward, knocking over coffee cups and briefcases, and finally I got to the local train to Columbia University. It was the worst couple of hours in my life."

Back on campus, he bumped into a man, who apologized. "I knew that it was Arthur's voice," says Sandy. "For a moment I was enraged, and then I understood what happened: that his colossally insightful, brilliant yet wildly risky strategy had worked." Garfunkel had not abandoned Sandy at the station, but had followed him the entire way

home, watching over him. "Arthur knew it was only when I could prove to myself I could do it that I would have real independence," says Sandy. "And it worked, because after that I felt that I could do anything.

"That moment was the spark that caused me to live a completely different life, without fear, without doubt. For that I am tremendously grateful to my friend." Sandy not only graduated, but went on to study for a master's degree at Harvard and Oxford.

While in Britain he received a phone call from his friend - and with it the chance to keep his side of their pact. Garfunkel wanted to drop out of architecture school and record his first album with Paul Simon, but explained: "I need \$400 to get started." Sandy, by then married to his high school sweetheart, says: "We had \$404 in our current account. I said, 'Arthur, you will have your cheque.' "It was an instant reaction, because he had helped me restart my life, and his request was the first time that I had been able to live up to my half of our solemn covenant."

The 1964 album, *Wednesday Morning, 3 AM*, was a critical and commercial flop, but one of the tracks was *The Sound Of Silence*, which was released as a single the following year and went to No 1 across the world. "The Sound Of Silence meant a lot, because it started out with the words 'Hello darkness' and this was Darkness singing, the guy who read to me after I returned to Columbia blind," says Sandy.

Simon & Garfunkel went on to have four smash albums, with hits including *Mrs. Robinson*, *The Boxer*, and *Bridge Over Troubled Waters*. Amazingly, Sandy went on to extraordinary success as an inventor, entrepreneur, investor, presidential adviser and philanthropist. The father of three, who launched a \$3million prize to find a cure for blindness, has always refused to use a white cane or guide dog. "I don't want to be 'the blind guy'," he says. "I wanted to be Sandy Greenberg, the human being."

Six decades later the two men remain best friends, and Garfunkel credits Sandy with transforming his life. With Sandy, "my real life emerged," says the singer. "I became a better guy in my own eyes, and began to see who I was - somebody who gives to a friend. "I blush to find myself within his dimension. My friend is the gold standard of decency." Says Sandy: "I am the luckiest man in the world"

The Boxer: <https://www.youtube.com/watch?v=6JUbfj0BIc4>

Mrs. Robinson: <https://www.youtube.com/watch?v=5JVPdb6Urhw>

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A Smooth Move: The Indiana Bell Telephone Building

Kaushik Patowary

The relocation of the headquarters building of Indiana Bell Telephone Company in Indianapolis remains one of the most fascinating moves in the history of structure relocation.

The headquarters of Indiana Bell, a subsidiary of AT&T serving the US state of Indiana, was housed inside an 8-story, 11,000-ton building built in 1907. In 1929, the phone company decided they needed a larger building, but they couldn't just demolish the old building because it was providing an essential service to the city. The building was also inconveniently located on the site where they wanted the larger structure. In the end it was decided that the old building will be moved to the back of the plot to make room for the new building.



The Indiana Bell headquarters in the middle of the move.

Photo credit: William H. Bass Photo Company

The massive undertaking began on October 1930. Over the next four weeks, the massive steel and brick building was shifted inch by inch 16 meters south, rotated 90 degrees, and then shifted again by 30 meters west. The work was done with such precision that the building continued to operate during the entire duration of the move. All utility cables and pipes serving the building, including thousand of telephone cables, electric cables, gas pipes, sewer and water pipes had to be lengthened and made flexible to provide continuous service during the move. A movable wooden sidewalk allowed employees and the public to enter and leave the building at any time while the

move was in progress. The company did not lose a single day of work nor interrupt their service during the entire period.

Incredibly most of the power needed to move the building was provided by hand-operated jacks while a steam engine also some support. Each time the jacks were pumped, the house moved 3/8th of an inch.



November 1 Halfway



November 8 Getting There



November 12 Done

The building stood for 33 years at its new location, until it was demolished in order to make room for the expansion of the new headquarters building.

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Orange-Faced Peacock Spider Looks Like 'Nemo' (and Dances)

By Mindy Weisberger Live Science Senior Writer

A citizen scientist discovered *Maratus nemo* in the wetlands of southern Australia.



*Unlike most of its peacock spider cousins, newfound species *Maratus nemo* inhabits a wetland ecosystem.*

(Image credit: Museums Victoria, photo by Joseph Schubert)

A newfound species of colorful, dancing peacock spider has an endearing orange face striped with white, leading the arachnologist who described the spider to name it "Nemo," after Pixar's famous clownfish.

Unlike the plucky protagonist in the 2003 animated film "Finding Nemo," the wee spider wasn't lost — it was just unknown to science. Australian photographer and spider enthusiast Sheryl Holliday captured images of the spider last year and shared them on Facebook. That brought the orange-faced arachnid to the attention of Joseph Schubert, a spider taxonomist at the Museums Victoria in Melbourne, Australia.

"I thought, 'Oh, wow; that looks like it might be a new species,' so I got in contact with her [Holliday], and she ended up sending me some specimens," Schubert, an undergraduate student in the Invertebrate Diagnostics Lab at Murdoch University, said in a statement. At the time, Schubert had identified 13 other peacock spider species in the *Maratus* genus, and he named seven of those in 2020, according to the statement.

Holliday, an ecological field officer for Nature Glenelg Trust, found the spider in a marshy wetland ecosystem near South Australia's Mount Gambier, and she collected five individuals — four males and one female — in November 2020, which she sent to Schubert. He published a description of the spider, naming it *Maratus nemo*, on March 25 in the journal *Evolutionary Systematics*.

As in other peacock spider species, *M. nemo*'s vivid colors appear only in the males, while the mostly brown females resemble other *Maratus* females. Identification of *M. nemo* females may therefore depend on whether they're found close to an *M. nemo* male, Schubert wrote in the study. Males have dark-brown bodies sprinkled with white, and dabs of orange peek out near their feet and at their leg joints. Their faces are a brilliant orange, with a horizontal white stripe under their eyes and shorter vertical white stripes atop their heads.

Maratus nemo is the 92nd peacock spider species described in Australia. Most of these were identified in the past decade.

Maratus nemo is the 92nd peacock spider species described in Australia. Most of these were identified in the past decade. (Image credit: Museums Victoria, photo by Joseph Schubert)

Each spider is about the size of a grain of rice, with males measuring no more than 0.17 inches (4.25 millimeters) long and females measuring up to 0.2 inches (5 mm) long, according to the study. Peacock spider males are known for their elaborate courtship dances, and *M. nemo* proved to be no exception. Schubert observed a male beginning his dance by lifting a leg and "slowly waving it in a partially flexed position." Then, as a female came closer, the male waved both front legs while enthusiastically bobbing his posterior, creating "audible vibrations" on the leaf where he danced, Schubert reported.

However, this was only a partial display in an artificial environment. "In the wild, males may exhibit a more complete courtship display with multiple modes of courtship," Schubert wrote in the study.

To date, researchers have named 92 species of Australian peacock spider; of those, 76 species were described since 2010, according to the study. Finding and identifying unknown species in Australia, such as *M. nemo*, is more urgent than ever, as much of the continent's wildlife is threatened by habitat loss, wildfires and the widespread use of pesticides, Schubert said in the statement.

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Another way for getting around Mars?

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Ingenuity's 'Wright Stuff': A Piece of the Wright Flyer Will Soar on Mars

The first powered atmospheric flight on another planet will honor its roots with a payload drawn from the dawn of aviation itself

By Leo DeLuca on April 1, 2021



In this illustration, NASA's Mars helicopter Ingenuity stands on the Red Planet's surface as the agency's Perseverance rover (partially visible at left) rolls away.

Credit: NASA and JPL-Caltech

When NASA's latest Mars-roving robot, Perseverance, landed on the Red Planet in February, its cargo included a long virtual list of "firsts." Perseverance was the first ever spacecraft to perform an entirely autonomous ultraprecise landing on another planet. In coming months it will also be the first to attempt to produce pure oxygen from the world's thin carbon-dioxide atmosphere via its experimental MOXIE instrument. And before the conclusion of Perseverance's mission, it will be the first to gather Martian samples for eventual return to Earth, potentially also making it the first mission to uncover signs of life beyond Earth. But the rover's most spectacular first may occur next week, when it is expected to deploy a small, four-pound parcel from its underbelly.

That parcel is a solar-powered helicopter, called Ingenuity, that will attempt to take flight on Mars as early as April 8. If successful, it could serve as a modest airborne scout for Perseverance's ongoing peregrinations and, in the process, become the first powered aircraft to ever operate on another planet and pave the way for future interplanetary missions to fly the not-so-friendly skies of worlds beyond.

Leo DeLuca is an award-winning writer from Dayton, Ohio. A graduate of the Columbia Journalism School, Science Concentration, DeLuca is currently writing a historical book concerning systemic racism and classism. He lives in New York City. Follow him on Twitter: @leodelucaohi

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Iconic Cherry Blossoms Are Blooming Earlier Than Ever in Washington, D.C.

And in Japan, this year's arrival was the earliest in 1,200 years

By Chelsea Harvey, E&E News published in Scientific American



The Washington Monument is seen through blooming Japanese Cherry Blossom trees on the National Mall on March 27, 2021 in Washington, DC.

Credit: Samuel Corum Getty Images

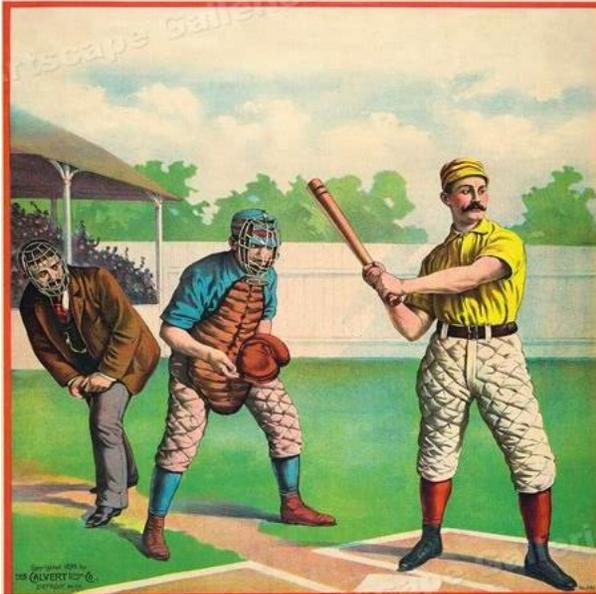
It's officially spring in Washington, as the cherry blossoms are out in full force. But once again, they're out earlier than expected.

The National Park Service announced Sunday that the famous blossoms around the Tidal Basin had hit their peak bloom. Scientifically speaking, that's the point when at least 70% of all the blossoms have opened.

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Baseball's Most Valuable Teams 2021

New York Yankees on Top at \$5.25 Billion



ebay.com

Mike Ozanian for Forbes

The unprecedented amount of red ink spilled by Major League Baseball in 2020 did not prevent team values from increasing to an all-time-high average of \$1.9 billion this year, 3% more than a year ago.

On top are the New York Yankees, worth \$5.25 billion, 5% more than last year. The Yankees are one of three North American teams (along with the Dallas Cowboys, at \$5.7 billion, and the New York Knicks, at \$5 billion) worth at least \$5 billion.

A strong demand for baseball teams—particularly in big markets—pushed up valuations. The New York Mets had an operating loss of \$125 million last season, yet in October, Steve Cohen purchased the team for \$2.42 billion, within 1% of our 2020 valuation and a record amount for a baseball team. The Boston Red Sox posted an operating loss of \$70 million in 2020, but according to MLB executives, the team is being valued at more than \$3.4 billion as part of the pending sale of an 11% stake in its parent, Fenway Sports Group.

MLB National TV Deals

Network	Current	New	% change
ESPN	\$700 million	\$550 million	-21
Fox	\$525 million	\$755 million	43
TBS	\$325 million	\$535 million	65
Total	\$1.55 billion	\$1.84 billion	19

Table: Forbes Get the data Created with Datawrapper

All three networks will see their current eight-year deals expire after the 2021 season and new seven-year deals begin in 2022. The figures below are annual averages.

A surging stock market—the S&P 500 is up 57% over the past year—has also been bullish for team values by creating wealth for potential buyers and increasing the revenue multiples teams are appraised at. The tracking stock for the Atlanta Braves, which also includes a mixed-use real estate project, recently closed at \$27.74, 46% higher than a year ago. The baseball team lost \$67 million in 2020.

An absence of fans at ballparks and an unusually short 60-game schedule in 2020 led to big losses for the sport. All told, MLB's 30 teams lost \$1.8 billion (in the sense of earnings before interest, taxes, depreciation and amortization) versus a profit of \$1.5 billion in 2019. Revenue fell 65%, to \$3.66 billion.

Still, revenue will increase for all 30 teams beginning next season when MLB's new national media deals kick in. Thus far, the league is set for a 19% annual average increase from 2022 through 2028. But Walt Disney's ESPN did not take as many games in the new deal as it did in the current one. Thus, MLB still has considerable inventory to sell, including weekday exclusives, perhaps to Amazon or Google's YouTube.

Here are the team values along with the one-year change in value on a percentage basis:

MLB's Most Valuable Teams

Team	Value (\$ mil)
New York Yankees	5,250
Los Angeles Dodgers	3,570
Boston Red Sox	3,465
Chicago Cubs	3,360
San Francisco Giants	3,175
New York Mets	2,450
St Louis Cardinals	2,245
Philadelphia Phillies	2,050
Los Angeles Angels	2,025
Washington Nationals	1,925
Atlanta Braves	1,875
Houston Astros	1,870
Texas Rangers	1,785
Chicago White Sox	1,685
Toronto Blue Jays	1,675
Seattle Mariners	1,630
San Diego Padres	1,500

Baltimore Orioles	1,430
Minnesota Twins	1,325
Arizona Diamondbacks	1,320
Colorado Rockies	1,300
Pittsburgh Pirates	1,285
Detroit Tigers	1,260
Milwaukee Brewers	1,220
Cleveland Indians	1,160
Oakland Athletics	1,125
Cincinnati Reds	1,085
Kansas City Royals	1,060
Tampa Bay Rays	1,055
Miami Marlins	990

Methodology

Our team values are enterprise values (equity plus net debt) calculated using a multiple of revenue. The multiples are based on historical transactions and the future economics of the sport and team. Revenue and operating income (earnings before interest, taxes, depreciation and amortization) measure cash in versus cash out (not accrual accounting) for the 2020 season. Ownership stakes in regional sports networks, as well as related profits or losses, were excluded from our valuations and operating results. Sources include sports bankers, team executives, public documents like leases and filings related to public bonds, and media rights experts.

[Click here](#) for the full list of MLB valuations and financial information.

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The Entire Louvre Collection is now Available Online for Free.



<https://collections.louvre.fr/en/>

Check it out.

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How Your Brain Blocks Out Unwanted Thoughts and Memories

By Rafi Letzter for Live Science



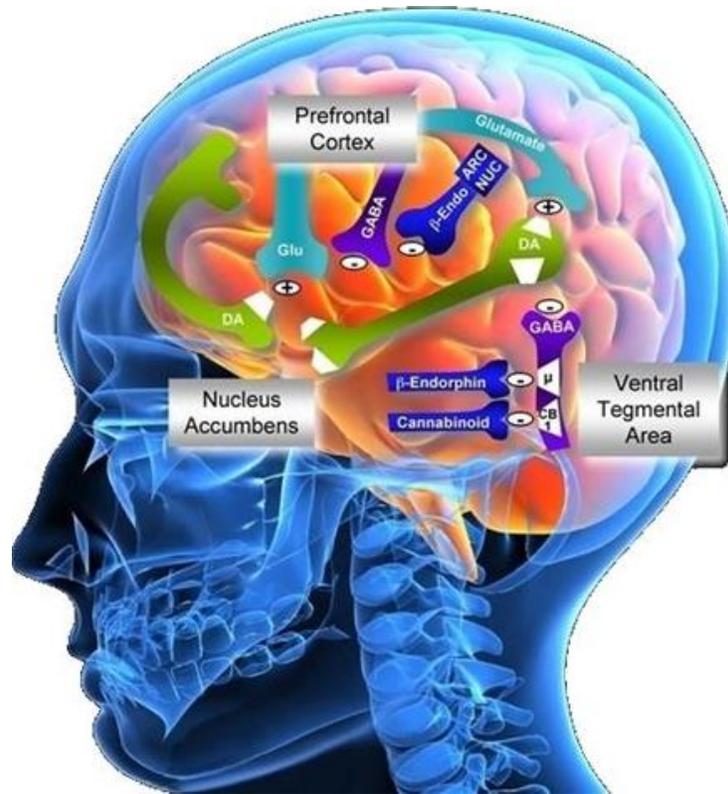
brain, thoughts

(Image credit: Olly/Shutterstock)

If you don't want to think about a fight you had with your sister yesterday, a scary movie you watched recently or the source of that nasty smell on the subway, you're going to need some GABA.

A new, small study suggests that GABA, or gamma-Aminobutyric acid, plays a key role in suppressing unwanted thoughts and memories in a region of the brain called the hippocampus. GABA is a neurotransmitter, or chemical messenger, that's found throughout mammals' central nervous systems.

The new finding offers insight into how humans pull off the daily mental task of squashing down thoughts they don't want to think about, according to the study, which was published Nov. 3 in the journal *Nature Communications*. The study also provides clues as to what goes wrong in the brains of people with illnesses such as schizophrenia, in which people have trouble suppressing intrusive thoughts, the researchers said. [10 Things You Didn't Know About the Brain]



Gaba in the Hippocampus
 smoke-indica.com

In the study, the researchers looked at the brains of 24 young, healthy subjects as they tried to suppress or recall memories. They found that the study participants with more GABA in their hippocampi were better at controlling which thoughts and memories popped into their minds compared with the people who had less GABA. And the less GABA that people had in their hippocampus, the less control they wielded over the wild, ceaseless churning of their minds.

But measuring the amount of GABA in a person's brain isn't exactly simple to do.

To do so, the researchers had to get clever: They employed an expensive, somewhat rare technique known as magnetic resonance spectroscopy, or MRS. Though costly and difficult to use, MRS has a key advantage over more typical brain scans: It lets researchers look at not just the general shape and density of subjects' brains but also their specific chemical content. So, with the aid of MRS, the researchers were able to sort their subjects into high-GABA and low-GABA groups.

With the technique to measure GABA levels in place, the scientists then focused on studying the subjects' abilities to suppress thoughts and memories.

Here, the researchers used a simple game. The participants were given a controller with two buttons. They were told to press the left button when certain colors showed up on the screen and the right button when other colors appeared. The participants played this game over and over until they were pressing the correct buttons without thinking about it.

But then the researchers introduced a new rule: Don't press the button if a tone sounds. This made the game much harder; the players had to control their habit of immediately pressing a button, and stop their fingers from flicking forward when the tone played just after a color appeared.

Neuroscientists use this kind of test to measure a person's control over their thoughts and memories. The players who did a better job of avoiding button pressing were assumed to have better control over their remembered impulses.

The study found that the people in the high-GABA group were significantly better at the game than the people in the low-GABA group.

So what does this mean? First, it directly links GABA in the hippocampus to the ability to suppress memories, expanding neuroscientists' understanding of how memory recall works in the brain.

The findings also suggest that mental illnesses such as schizophrenia, which are associated with low levels of GABA, might involve a lack of the basic memory-suppressing chemical tools, the researchers said in a statement.

In people with such mental health conditions, a lack of GABA may be involved in allowing unwanted thoughts and memories to overwhelm the mind, the researchers said. The new study included a small number of young, healthy people, and more research is needed to see if the findings hold up in different groups of people, as well as to better understand how GABA plays a role in memory.

Originally published on Live Science.

[Nature gave me a more proven ability: My system blocks all thoughts, saving me from random errors resulting from GABA mistakes.

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Simon Beck, Snow Artist



<https://www.youtube.com/watch?v=pVWoOBtE2M>

<https://www.youtube.com/watch?v=dDMuN6YOWFs>

You may remember we showed his sand art last fall.

As Peter Brock, no mean artist himself says, "Sometimes the most amazing art is temporary. Simon Beck is a British snow artist and a former cartographer. He has walked more than 50 miles in circles wearing snowshoes to create vast snow drawings in Colorado.

"It's hard to imagine how he manages to "see" what he's done from where he works, at snow-level."

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Drone Flight Over Iceland Volcano



nbcnews

<https://youtu.be/wQOblgAvrHw>

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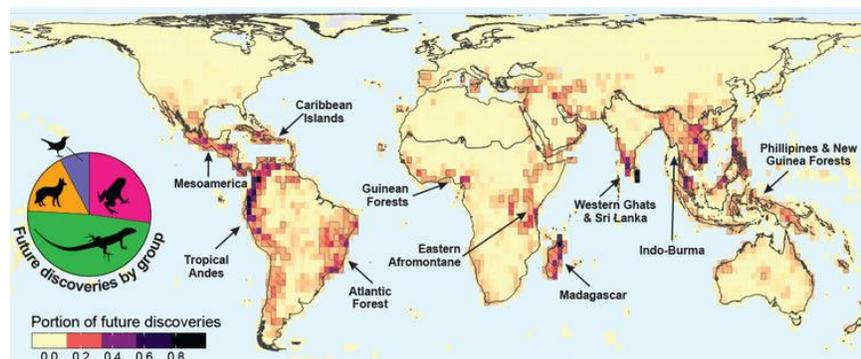
Yale Researchers Create Map of Undiscovered Life

By Bill Hathaway

Less than a decade after unveiling the “Map of Life,” a global database that marks the distribution of known species across the planet, Yale researchers have launched an even more ambitious and perhaps important project — creating a map of where life has yet to be discovered.

For Walter Jetz, a professor of ecology and evolutionary biology at Yale who spearheaded the Map of Life project, the new effort is a moral imperative that can help support biodiversity discovery and preservation around the world.

“At the current pace of global environmental change, there is no doubt that many species will go extinct before we have ever learned about their existence and had the chance to consider their fate,” Jetz said. “I feel such ignorance is inexcusable, and we owe it to future generations to rapidly close these knowledge gaps.”



The new map of undiscovered species was published March 22 in the journal *Nature Ecology & Evolution*. A browsable version is available at mol.org/patterns/discovery.

Lead author Mario Moura, a former Yale postdoctoral associate in Jetz’s lab and now professor at Federal University of Paraiba, said the new study shifts the focus from questions like “How many undiscovered species exist?” to more applied ones such as “Where and what?”

“Known species are the ‘working units’ in many conservation approaches, thus unknown species are usually left out of conservation planning, management, and decision-making,” Moura said. “Finding the missing pieces of the Earth’s biodiversity puzzle is therefore crucial to improve biodiversity conservation worldwide.”

According to conservative scientific estimates, only some 10 to 20 percent of species on earth have been formally described. In an effort to help find some of these missing species, Moura and Jetz compiled exhaustive data that included the location, geographical range, historical discovery dates, and other environmental and biological characteristics of about 32,000 known terrestrial vertebrates. Their analysis allowed them to extrapolate where and what kinds of unknown species of the four main vertebrate groups are most likely to yet be identified.

They looked at 11 key factors which allowed the team to better predict locations where undiscovered species might be located. For instance, large animals with wide geographical ranges in populated areas are more likely to have already been discovered. New discoveries of such species are likely to be rare in the future. However,

smaller animals with limited ranges who live in more inaccessible regions are more likely to have avoided detection so far.

“The chances of being discovered and described early are not equal among species,” Moura said. For instance, the emu, a large bird in Australia, was discovered in 1790 soon after taxonomic descriptions of species began. However, the small, elusive frog species *Brachycephalus guarani* wasn’t discovered in Brazil until 2012, suggesting more such amphibians remain to be found.

Moura and Jetz show that the chances of new species discovery varies widely across the globe. Their analysis suggests Brazil, Indonesia, Madagascar, and Colombia hold the greatest opportunities for identifying new species overall, with a quarter of all potential discoveries. Unidentified species of amphibians and reptiles are most likely to turn up in neotropical regions and Indo-Malayan forests.

Moura and Jetz also focused on another key variable in uncovering missing species — the number of taxonomists who are looking for them.

“We tend to discover the ‘obvious’ first and the ‘obscure’ later,” Moura said. “We need more funding for taxonomists to find the remaining undiscovered species.”

But the global distribution of taxonomists is greatly uneven and a map of undiscovered life can help focus new efforts, Jetz noted. That work will become increasingly important as nations worldwide gather to negotiate a new Global Biodiversity Framework under the Convention of Biological Diversity later this year and make commitments to halting biodiversity loss.

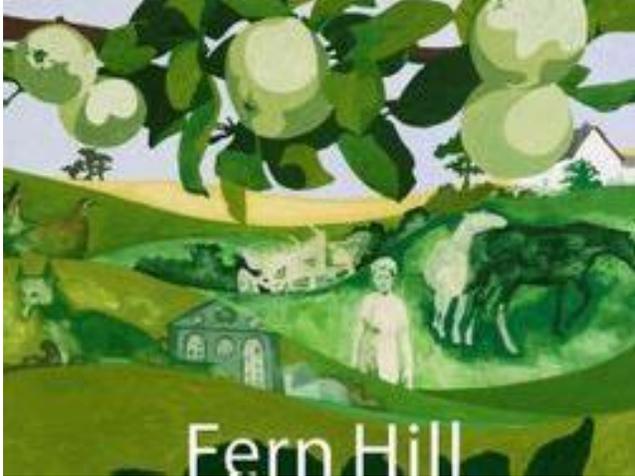
“A more even distribution of taxonomic resources can accelerate species discoveries and limit the number of ‘forever unknown’ extinctions,” Jetz said.

With partners worldwide, Jetz and colleagues plan to expand their map of undiscovered life to plant, marine, and invertebrate species in the coming years. Such information will help governments and science institutions grapple with where to concentrate efforts on documenting and preserving biodiversity, Jetz said.

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Poetry for Today

Fern Hill



By Dylan Thomas

Now as I was young and easy under the apple boughs
About the lilting house and happy as the grass was green,
The night above the dingle starry,
Time let me hail and climb
Golden in the heydays of his eyes,
And honoured among wagons I was prince of the apple towns
And once below a time I lordly had the trees and leaves
Trail with daisies and barley
Down the rivers of the windfall light.

And as I was green and carefree, famous among the barns
About the happy yard and singing as the farm was home,
In the sun that is young once only,
Time let me play and be
Golden in the mercy of his means,
And green and golden I was huntsman and herdsman, the calves
Sang to my horn, the foxes on the hills barked clear and cold,
And the sabbath rang slowly
In the pebbles of the holy streams.

All the sun long it was running, it was lovely, the hay
Fields high as the house, the tunes from the chimneys, it was air
And playing, lovely and watery
And fire green as grass.
And nightly under the simple stars
As I rode to sleep the owls were bearing the farm away,
All the moon long I heard, blessed among stables, the nightjars
Flying with the ricks, and the horses
Flashing into the dark.

And then to awake, and the farm, like a wanderer white
With the dew, come back, the cock on his shoulder: it was all
Shining, it was Adam and maiden,
The sky gathered again
And the sun grew round that very day.
So it must have been after the birth of the simple light
In the first, spinning place, the spellbound horses walking warm
Out of the whinnying green stable
On to the fields of praise.

And honoured among foxes and pheasants by the gay house
Under the new made clouds and happy as the heart was long,
In the sun born over and over,
I ran my heedless ways,
My wishes raced through the house high hay
And nothing I cared, at my sky blue trades, that time allows
In all his tuneful turning so few and such morning songs
Before the children green and golden
Follow him out of grace.

Nothing I cared, in the lamb white days, that time would take me
Up to the swallow thronged loft by the shadow of my hand,
In the moon that is always rising,
Nor that riding to sleep
I should hear him fly with the high fields
And wake to the farm forever fled from the childless land.
Oh as I was young and easy in the mercy of his means,
Time held me green and dying
Though I sang in my chains like the sea.

Anthony Hopkins: <https://www.youtube.com/watch?v=8YgydnKprE>

Ricahrd Burton: <https://www.youtube.com/watch?v=2Z-ZuguSrQQ>

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Polke from the Fingers of the Carlo Aonzo Trio



<https://www.youtube.com/watch?v=HiNEyI1PF6w>

Carlo Aonzo Trio's arrangements create new atmospheres, enhancing the expressivity of the Italian instrument par excellence with original harmonies balancing between past and present.

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Meet a Russian Red Fox



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Spring Pancake Night in the Cafeteria.



<https://www.youtube.com/watch?v=RSgRApOXd9Q>

UNASP-EC University Cafeteria, Brazil; The Belmont Flashmobbers, made up of students from many different majors at Belmont University, performed a Disney medley.

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Watch as a Woman Complains About Pizza



<https://www.youtube.com/watch?v=hifr3uZwBg0>

It's another one of those epiphanies.

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Car Chase Advancements



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

Remember Bullit? Here's a primer on street madness.

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Game Changers

Sabine Schmitz's Nurburgring Van Challenge



https://youtu.be/5KiC03_wVjc

Sabine Schmitz (14 May 1969 – 16 March 2021) was a German professional motor racing driver for BMW and Porsche. She was also known for driving the BMW "ring taxi" around the Nürburgring race track as well as being a television personality.

According to her own estimates, Schmitz went around the track more than 20,000 times, increasing by approximately 1,200 per year. Her familiarity with the circuit earned her the nicknames "Queen of the Nürburgring" and "the fastest taxi driver in the world".

In December 2004, Schmitz gained further recognition in the United Kingdom after appearing in the BBC television show Top Gear with presenter Jeremy Clarkson. After Clarkson (under her tutelage) set a lap time of 9 minutes 59 seconds around the Nürburgring in a Jaguar S-Type diesel, she castigated his best lap with the comment "I tell you something, I do that lap time in a van". She did a lap in the Jaguar S-Type, and set a time of 9 minutes 12 seconds, beating him by 47 seconds. When trying to film Schmitz as she drove the S-Type, the film crew were unable to keep up, and had to get Jaguar test driver Wolfgang Schubauer to drive the Jaguar S-Type R chase car.

Schmitz also drove a Ford Transit diesel van in an attempt to beat Clarkson's time set in the Jaguar S-Type diesel, missing his time by just 9 seconds. Sadly for the world in general and the motorsports world in particular, she was unable to outrun a cancer that had challenged her for more than five years.

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