Ode to Happiness for Sunday May 16 2021

Windblown NGC 3199

Image Credit & Copyright: Mike Selby and Roberto Colombari

3199 lies about 12,000 light-years away, a glowing cosmic cloud in the nautical southern constellation of Carina. The nebula is about 75 light-years across in this narrowband, false-color view.

Though the deep image reveals a more or less complete bubble shape, it does look very lopsided with a much brighter edge along the top. Near the center is a Wolf-Rayet star, a massive, hot, short-lived star that generates an intense stellar wind. In fact, Wolf-Rayet stars are known to create nebulae with interesting shapes as their powerful winds sweep up surrounding interstellar material.

In this case, the bright edge was thought to indicate a bow shock produced as the star plowed through a uniform medium, like a boat through water. But measurements have shown the star is not really moving directly toward the bright edge. So a more likely explanation is that the material surrounding the star is not uniform, but clumped and denser near the bright edge of windblown NGC 3199.

==========

Contrary to Previous Belief, Strike-Slip Faults Can Generate Large Tsunamis

The aftermath of the tsunami that struck Palu in 2018.
Credit: Courtesy of Costas Synolakis

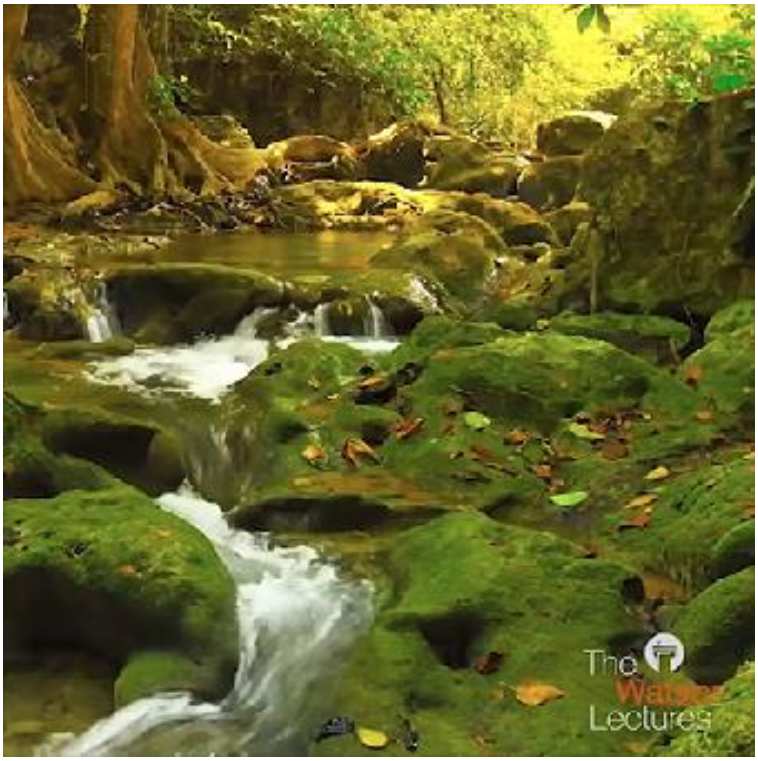
https://www.caltech.edu/about/news/contrary-to-previous-belief-strike-slip-faults-can-generate-large-tsunamis

On September 28, 2018, an inexplicably large tsunami devastated the Indonesian coastal city of Palu and several others nearby. Between the tsunami and the magnitude 7.5 earthquake that caused it, some 4,340 people were killed, making it the deadliest earthquake that year.

Here are details of the event and subsequent analysis that paint a vivid portrait of what took place.

==========

Sunlight to Everything: Catalyzing a Sustainable Future



Jonas Peters; Bren Professor of Chemistry and Director of the Resnick Sustainability Institute at Caltech.

https://youtu.be/lvfo-lcVGwg

Caltech's Resnick Sustainability Institute (RSI), led by Bren Professor of Chemistry Jonas Peters, has defined Sunlight to Everything as one of its four central research initiatives.

Using sunlight, RSI researchers are imagining how to generate and manage electricity more efficiently; convert it to chemical fuels, materials, and fertilizers; and use it to power water purification. The discovery of new catalysts that can convert sunlight into desired chemical feedstocks is one of the key hurdles they face. The hunt is on, and in this lecture Peters will explain how and where he and his colleagues are looking.

==========

Maybe this Explains their Popularity


Barbershop singers bring joy to school for deaf

==========

Evian Babies Reprise 1--Rap

https://www.youtube.com/watch?v=WAxeuuph5uc

==========

Evian Babies Reprise 2—Louis Armstrong

https://www.youtube.com/watch?v=tlgWw2w4IEo

==========

Why Do Nuts and Grains Go Bad?

By Donavyn Coffey - Live Science Contributor

You might want to toss those weird-tasting walnuts.

A variety of raw grains, seeds, legumes and more, including sesame, mung bean, walnuts, tapioca, wheat, buckwheat, oatmeal, coconut and rice.
(Image credit: Natasha Breen via Getty Images)

Even when stored as directed — in cool, dry places — your canister of macadamia nuts or container of rice can go bad. While not as obvious or off-putting as a moldy tomato or a blueish cut of meat left too long in a refrigerator, grains and nuts do expire. But why does this happen?

Just like other foods, these groups are made of fat, carbohydrate and protein molecules. Over time, these macronutrients mix with each other and their surroundings, changing their taste, texture and your appetite for them.

It's important to note that "going bad" can mean a lot of things. Obviously, nuts and grains can spoil. If not properly stored, these foods can be contaminated by mold or yeast, according to Julien Delarue, a sensory and consumer scientist at the University of California, Davis. But grains and nuts can also expire — meaning they lose their desirable sensory properties over time, Delarue said.

For nuts and nut-like foods, it's the fat content that leads them down the road to expiration. Nuts have a high polyunsaturated fatty acid, or PUFA, content. That's one reason you might include them in a healthy diet because PUFA are important for brain function and heart health, according to the Centers for Disease Control and Prevention (CDC). But PUFAs are especially sensitive to a process called oxidation, in which oxygen effectively breaks double bonds in the molecule. As oxidation changes the structure of the fats, it also alters the smell and taste. And once the oxidation process has started, it can spread through a bag or jar pretty rapidly, according to Delarue. Walnuts have the highest content of PUFAs, so your best bet is to store them in the refrigerator — or the freezer if you plan to have them for more than a month — to keep oxidation at bay, according to a blog post from the University of Florida's Institute of Food and Agricultural Sciences.

You'll be able to recognize the nuts that have gone bad by their smell, Delarue told Live Science. Everyone has different sensitivities to sensory properties, though. "Unfortunately I am part of the sensitive group" that picks up on even subtle whiffs of

rancid, oxidized nuts, Delarue said. If you aren't quite as sensitive to the smell and don't want to risk a tiny taste, the expiration label is there to help, Delarue said.

Eating oxidized foods is never recommended, because oxidation is related to many diseases, such as cancer and heart disease. But if expired nuts are stored properly, meaning there's nothing hazardous, such as mold growing on them, then occasionally eating them shouldn't be harmful to your health, as it's a relatively small exposure, Delarue said. It just might be unpleasant.

Grains, such as quinoa and oats, can last much longer than nuts, Delarue said. But they will still change over time thanks to what's known as staling. "Stale is a generic word meaning there's an effect on the texture," Delarue said.

In the case of grains, staling is caused by molecular reorganization in the starch and proteins, namely gluten, that make up grains. The starch and gluten molecules "rearrange slightly and bind to each other, and make the texture more coarse or harder," he said. This added rigidity means that the grains hydrate or gelatinize — the process that makes them soft, delicious and digestible — less efficiently.

This is why in much of Asia, consumers are mindful of the harvest year when they purchase rice, Delarue said. Fresher rice is preferred because it cooks most efficiently. And if these consumers do have older rice, they adjust the cooking methods to account for the fact that the rice is not as fresh.

However, there's really no harm in grains that have gone a little stale. "Grains can be stored for years as long as they are stored in proper dry conditions and cool temperatures. So, don't waste your food," Delarue said.

Originally published on Live Science.

==========

GM Defense: New President, New Factory, New Electric Truck

The fledgling defense wing of the giant civilian automaker rolled out an all-electric version of its Infantry Squad Vehicle, eying an Army competition for a stealthy electric scout.

By Sydney J. Freedberg Jr.

Three of the first four production-model Infantry Squad Vehicles on display. One of the bid vehicles has since been converted to all-electric drive.

WASHINGTON: Tuesday was a big day for GM Defense, the tiny defense subsidiary of auto giant General Motors. The company:

- announced a new president, former Army helicopter test pilot Steve DuMont, who spent 13 years at high-tech powerhouse Raytheon;
- officially opened its new factory in Concord, N.C., where it'll build hundreds of air-droppable Infantry Squad Vehicles for the US Army;
- and unveiled an electric variant of the ISV, using the battery from the Chevy Bolt – leveraging its parent company's $27 billion, five-year investment plan in electric vehicles.

"That vehicle is out driving around right now," DuMont told me in an interview. "[We built it] in a pretty short period of time, on our own investment…We'll bring it to Fort Benning next week and let some of the warfighters evaluate it."

The electrified ISV is a company-funded concept car, not a formal prototype, but it's tangible proof of GM Defense's capability to build the Army's proposed Electric Light Reconnaissance Vehicle. The Army has been leery of the logistical complications of adding all-electric vehicles to its current diesel fleet; after all, there are no charging stations on the battlefield. But electric drive's ability to move near-silently while powering extensive electronics is particularly attractive for scout units. And since the Electric Light Reconnaissance Vehicle would serve in light infantry brigades alongside Infantry Squad Vehicles, an ISV-derived ELRV would simplify logistics and training, putting GM Defense in a strong position.

That's an impressive feat for a tiny operation. The new Concord factory, for instance, will have just 20 employees when fully staffed, building 14 vehicles a month – a minuscule sliver of GM's global operation. But they'll be drawing on mama GM's deep bench of engineering talent and its massive supply base. The ISV itself is derived from the civilian Chevy Colorado ZR2 and is built from 90 percent commercial parts.

GM Defense also aims to leverage GM's investment in self-driving, network-connected vehicles. That's technology which blurs the line between one of the military's most old-school industrial-age components, trucks, and its cutting-edge information technology, AI and robotics.

"It's more than trucks," DuMont told me. "The real value, and frankly why I'm here, and why I left a very high-tech job for this job…. there is tremendous focus and investment within GM on technology that is very relevant to some of the warfighter's biggest challenges."

For DoD multi- and hybrid-cloud environments, the ability to execute continuous Authority to Operate control is important in order to ensure that both cloud infrastructure and cloud-native applications are secure.

DuMont knows high-tech. He flew Apache gunships for the Army, including in the Balkans as part of the ill-fated Task Force Hawk. He served as an instructor pilot and a test pilot before joining the defense industry in 2001, just in time for an epic military

build-up. At Raytheon, he worked on air and missile defense, space and intelligence systems.

Now he's building ground vehicles – but expect to see some sophisticated ones, he hinted. While he couldn't discuss details, DuMont did tell me this: "If you look across GM's vehicles, you can see almost every vehicle now comes at least with an option to have autonomous drive features, and so one of the things I'm really excited about is the advanced sensors and the capabilities that… we could then translate into enabling autonomous drive for military vehicles as well."

==========

==========

Over Closed Wings

Mockingbird on high wire
Opera star at dusk
Repertoire unleashed
Into the gloaming
As though the buttering light
Itself enfolds the entire world
For the flaming moment
Swaying to earth
On mockingbird's calls floating
Like scheduled waves over
Closed wings
Katherine Holden

==========

Notice of Rule Changes to Golfers

Quick way to get a high golf handicap

The recently appointed a Golf Czar announce major rule changes that will become effective September 1, 2021. This is only a preview as the complete rule book (expect 2000 pages) is being rewritten as we speak. Here are a few of the changes:

Golfers with handicaps:

- below 10 will have their green fees increased by 35%.
- between 11 and 18 will see no increase in green fees.
- above 18 will get a $20 check each time they play

The term "gimmie" will be changed to "entitlement" and will be used as follows:

- handicaps below 10, no entitlements.
- handicaps from 11 to 17, entitlements for putter length putts ..
- handicaps above 18, if your ball is on green, no need to putt, just pick it up

These entitlements are intended to bring about fairness and, most importantly, equality in scoring.

In addition, a Player will be limited to a maximum of one birdie or six pars in any given 18-hole round. Any excess must be given to those fellow players who have not yet scored a birdie or par. Only after all players have received a birdie or par from the player actually making the birdie or par, can that player begin to count his pars and birdies again.

The current USGA handicap system will be used for the above purposes, but the term "net score" will be available only for scoring those players with handicaps of 18 and above. This is intended to "re-distribute" the success of winning by making sure that in every competition, the above 18 handicap players will post only "net score" against every other player's "gross score".

Golf must be about Fairness. It should have nothing to do with ability, hard work, practice, and responsibility. This is "The Right Thing to do."

The new rules eliminate the discriminatory word handicap and replace it with CTMPD (circumstances that make progress difficult).

==========

Give This Guy a Medal……

cartoonstock

Tax return submitted by a New Jersey person:

The IRS returned a tax return to a man in New Jersey after he apparently answered one of the questions incorrectly. In response to question 23: "Do you have anyone dependent on you?", the man wrote:

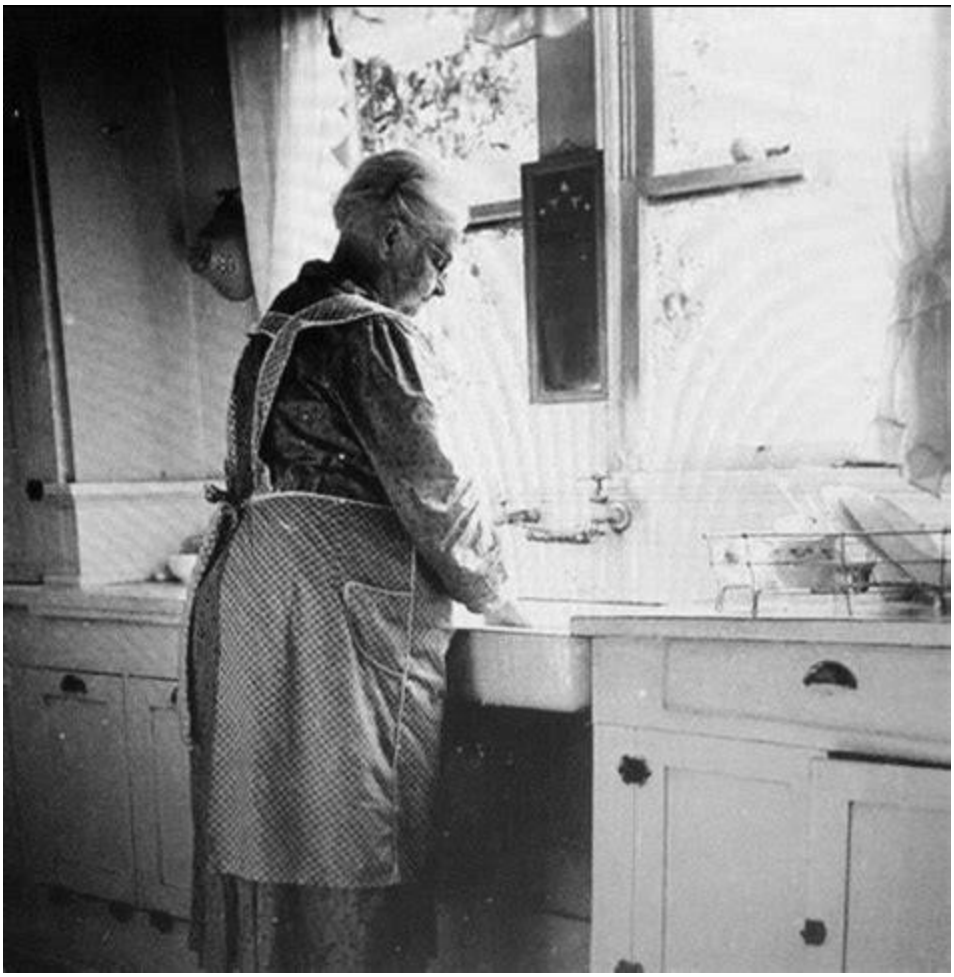
"2.1 million illegal immigrants, 1.1 million crack-heads, 4.4 million unemployable scroungers, 80,000 criminals in over 85 prisons, plus 650 idiots in Washington, and the entire group that call themselves politicians".

On the returned form, someone at the IRS had attached a Post-it Note beside the question with an arrow and the words: "Your response to question 23 is unacceptable."

The man sent it back to the IRS with his response on the bottom of the Post It Note: "Who did I leave out?"

==========

The History of Aprons



The principal use of Grandma's apron was to protect the dress underneath because she only had a few. It was also because it was easier to wash aprons than dresses and aprons used less material. But along with that, it served as a potholder for moving hot pans from the oven.

It was wonderful for drying children's tears, and on occasion was even used for cleaning out dirty ears.

From the chicken coop, the apron was used for carrying eggs, fussy chicks, and sometimes half-hatched eggs to be finished in the warming oven.

When company came, those aprons were ideal hiding places for shy kids.

And when the weather was cold, grandma wrapped it around her arms.

Those big old aprons wiped many a perspiring brow, bent over the hot wood stove.

Chips and kindling wood were brought into the kitchen in that apron.

From the garden, it carried all sorts of vegetables.

After the peas had been shelled, it carried out the hulls.

In the fall, the apron was used to bring in apples that had fallen from the trees.

When an unexpected company drove up the road, it was surprising how much furniture that old apron could dust in a matter of seconds.

When dinner was ready, Grandma walked out onto the porch, waved her apron, and the men folks knew it was time to come in from the fields to dinner.

It will be a long time before someone invents something that will replace that 'old-time apron' that served so many purposes.

Send this to those who would know (and love) the story about Grandma's aprons.

Remember:

Grandma used to set her hot baked apple pies on the windowsill to cool. Her granddaughters set theirs on the windowsill to thaw.

They would go crazy now trying to figure out how many germs were on that apron.

I don't think I ever caught anything from an apron - but love.

==========

When it’s Cherry Blossem Time in Osaka

==========

This 350-Megawatt Solar Panel Farm will be Able to Power Nearly 90,000 Homes.

By Fabienne Lang

A Massive Solar Power Farm Will Be Built in California Desert

The 350-megawatt solar panel farm will be able to power nearly 90,000 homes.

By Fabienne Lang

The U.S. Department of the Interior announced on May 3, that the Bureau of Land Management (BLM) had signed off on a new major solar energy project called the Crimson Solar Project.

Once completed, the $550 million project will have the capacity to power some 87,500 homes in the area. It'll be built across 2,000 acres of BLM-administered lands as a 350-megawatt (MW) facility capable of storing that same amount of energy to generate and deliver power via the Southern California Edison Colorado River Substation.

The Crimson Solar Project will be owned by Sonoran West Solar Holdings, LLC, a wholly-owned subsidiary of Recurrent Energy.

"The time for a clean energy future is now. We must make bold investments that will tackle climate change and create good-paying American jobs," said Interior Secretary Deb Haaland.

Indeed, the project will employ 650 people for its construction, keeping 10 permanent, and 40 temporary positions once it's built for the duration of its 30-year lifetime.

"Projects like this can help to make America a global leader in the clean energy economy through the acceleration of responsible renewable energy development on public lands," Haaland continued.

Major solar farms around the world

The Crimson Solar Project will join the likes of some of the world's largest solar energy farms in the country, as well as around the world.

For instance, the Solar Star solar farm, also located in California, is currently the biggest of its kind in the US with some 1.7 million solar panels spread across two sites that generate 314MW and 265MW, respectively. All in all, it's able to power some 250,000 homes.

Ivanpah Solar
pinetrest

The U.S. also boasts the Topaz Solar Farm in California that can generate 580MW of power, and the Ivanpah Solar also in California that generates 392MW, as well as the Agua Caliente solar farm in Arizona that generates 290MW, among others.

In other parts of the world, some of the largest solar farms can be found in Australia with the Australia-ASEAN Power Link project that should be able to power 20 percent of Singapore's needs. China is another big contender for solar farms with its solar farm in Qinghai province, and one in the Tengger desert. India, and the United Arab Emirates, among other nations, host major solar power farms, too.

A number of companies and countries are also expanding our current knowledge of solar power, with some moving projects away from sunny places like deserts, rather choosing to base them on water, and even in Space.

==========

POPEYE the Sailor Man Really Existed.....

I'm Popeye the Sailor Man,
I live in a garbage can.
I'm strong to the finish
Cause I eats me spinach.
I'm Popeye the Sailor Man.

His real name was Frank "Rocky" Fiegel. He was born in 1868 in Poland, immigrating to the United States with his parents, who settled down in a small town in Illinois. As a young man, Rocky went to sea. After a 20 year career as a sailor in the Merchant Marines, Fiegel retired. He was later hired by Wiebusch's Tavern in the city of Chester, Illinois as a 'Bouncer' to maintain order in the rowdy bar.

Rocky quickly developed a reputation for always being involved in fighting (and usually winning). As a result, he had a deformed eye ("Pop-eye"). He also 'always' smoked his pipe, so he always spoke out of one side of his mouth. In his spare time as a Bouncer, Rocky would entertain the customers by regaling them with exciting stories of adventures he claimed to have had over his career as a sailor crossing the 'Seven Seas.'

The creator of Popeye, Elzie Crisler Segar, grew up in Chester and, as a young man, met Rocky at the tavern and would sit for hours listening to the old sailor's amazing 'sea' stories.' Years later, Segar became a cartoonist and developed a comic strip called 'Thimble Theater.' He honored Fiegel by asking if he could model his new comic strip character, 'Popeye the Sailor Man,' after him. Naturally Fiegel was flattered and agreed.

Segar claimed that 'Olive Oyl,' along with other characters, was also loosely based on an actual person. She was Dora Paskel, owner of a small grocery store in Chester. She apparently actually looked much like the Olive Oyl character in his comics. He claimed she even dressed much the same way.

Through the years, Segar kept in touch with Rocky and always helped him with money; giving him a small percentage of what he earned from his 'Popeye' illustrations.

Who didn't love the cartoons? We watched them religiously... so funny, so moral... each story had a good ending…

I wonder if kids these days even know who Popeye is and that he was a real person? In fact how many adults know the real story of Popeye The Sailor Man…

==========

Sunday Night 60 Years Ago

https://www.youtube.com/watch?v=DPn75PEv0xY

Can you believe this guy attracted an audience of millions

==========

==========

New Evidence Suggests Sharks Use Earth's Magnetic Field to Navigate

Bonnethead sharks swam in the direction of their home waters when placed in a tank charged with an electromagnetic field

Great white sharks travel hundreds of miles to specific locations in the world's oceans.
(Reinhard Dirscherl / ullstein bild via Getty Images)

By Alex Fox, smithsonianmag.com

Every December, great white sharks swimming off the coast of California make a beeline for a mysterious spot in the middle of the Pacific roughly halfway to the Hawaiian islands. The sharks travel roughly 1,000 miles to the so-called white shark cafe. Tracking data has revealed that their routes are remarkably direct considering their paths traverse apparently featureless open ocean. Tiger sharks, salmon sharks and multiple species of hammerheads also make lengthy journeys to and from precise locations year after year.

Pete Klimley, a retired shark researcher who worked at the University of California, Davis calls the ability of some animals to find their way to pinpoint locations across the globe "one of the great mysteries of the animal kingdom."

Now, new research published today in the journal Current Biology provides new support for a longstanding hypothesis that sharks use the Earth's magnetic field to navigate during their long-distance migrations. Scientists caught bonnethead sharks off the coast of Florida and put them in a tank surrounded by copper wires that simulated the magnetic fields sharks would experience in locations hundreds of miles from their home waters. In one key test, the bonnetheads were tricked into thinking they were south of their usual haunts and in response the sharks swam north.

Iron and other metals in Earth's molten core produce electrical currents, which create a magnetic field that encircles the planet. The north and south poles have opposing magnetic signatures and invisible lines of magnetism arc between them. The idea that sharks can navigate by sensing these fields rests on the fact that Earth's geomagnetism isn't evenly distributed. For example, the planet's magnetism is strongest near the poles. If sharks can somehow detect the subtle perturbations of Earth's magnetic field, then they might be able to figure out which way they're heading and even their position.

Sharks are known to have special receptors—tiny jelly-filled pits called ampullae of Lorenzini that are clustered around their noses—which can sense changes in voltage in the surrounding environment. In theory, these electroreceptors, which are usually used to detect the electrical nerve impulses of prey, could pick up Earth's magnetic field. Prior experiments have shown that, one way or another, sharks can indeed perceive and react to magnetic fields, but figuring out whether sharks can use them to navigate long distances or as a kind of map is another matter.

To test whether sharks can use the Earth's magnetic field to orient themselves, researchers caught 20 roughly two-foot-long bonnethead sharks off Florida's Gulf Coast at a spot called Turkey Point Shoal. Bonnetheads are a small species of hammerhead known to travel hundreds of miles and then return to the same estuaries they were born in to breed every year.

Picking a small species was crucial, says Bryan Keller, a marine biologist at Florida State University and the study's lead author, because he and his co-authors needed to put the sharks in a tank and then build a structure that could produce electromagnetic fields that they could manipulate horizontally as well as vertically around the sharks.

Using two-by-four lumber and many feet of copper wire rigged up to a pair of adjustable electric power supplies, the team made a roughly ten-foot-wide cube that could create magnetic fields with variable poles and intensity. This allowed the team to mimic the geomagnetic conditions of three different locations on Earth to see how each impacted the sharks' behavior.

The three magnetic locations the sharks were exposed to consisted of the place they were caught (the control treatment), a location about 370 miles north of where they were caught (the northern scenario) and a location 370 miles south (the southern scenario) of where they were caught.

As the researchers expected, when the bonnetheads were placed amongst magnetic fields of a similar intensity and arrangement to their home range they didn't exhibit any apparent preference for swimming in one direction over another inside their tank.

Next, the northern scenario simulated something that no shark would ever experience in the wild: the magnetic conditions of Tennessee. This test was aimed at figuring out if the sharks could orient themselves toward home in a totally unnatural geomagnetic context that they would have had no occasion to ever experience. Alas, the movements of the sharks in the northern treatment showed no statistically significant heading. Keller says this non-result wasn't terribly surprising, since the bonnetheads would never need to find their way home from Tennessee in nature.

But in the southern scenario, in which the magnetic fields were tweaked to approximate a location about 100 miles west of Key West, the sharks tended to orient themselves northward—towards home.

"To orient towards home, these sharks must have some kind of a magnetic map sense," says Keller. "If I put you in the middle of nowhere you couldn't point toward your house unless you knew where you were in relation to it, and that's a map sense."

Klimley, who was not involved in the paper and is one of the progenitors of the notion that sharks use geomagnetism to navigate, says the experiments "show that if you give sharks a magnetic environment that's different from what the sharks have in their home range, they will head for home."

But other researchers aren't convinced that the word "map" is appropriate to describe the sharks' apparent ability to orient themselves by detecting magnetic fields.

"This is a good study but what I don't buy into is that it demonstrates the use of a magnetic map," says James Anderson, a researcher studying sharks' sensory systems at California State University, Long Beach who was not involved in the paper. Anderson says Keller's study shows that bonnetheads could orient themselves toward home, but adds, "a magnetic map implies the animal knows not just where it is and where it's going but also its end destination—for example, 'I need to go north for 500 miles to get to seamount X.' And I'm not sure they've shown that here."

The paper also drew support for its findings regarding sharks' magnetically-guided navigation from the genetic makeup of various subpopulations of bonnetheads scattered along the perimeter of the Gulf of Mexico and Florida's Atlantic Coast. Keller and his co-authors calculated the genetic distance between more than ten populations of bonnetheads using samples of their DNA.

When populations are separated by some barrier like physical distance or an obstacle that prevents them from mixing and breeding with each other, genetic differences tend to accumulate over time and ultimately lead to increasingly divergent DNA.

When Keller and his co-authors looked at the bonnetheads' mitochondrial DNA, which is inherited only from the individual's mother, the team found that physical distance and differences in temperature didn't provide the best statistical explanation for the genetic distances they saw between populations. Instead, the populations with the greatest genetic distances between them tended to have home areas that also had very different magnetic signatures.

Because female bonnetheads return to the same estuary they were born in to give birth, and because mitochondrial DNA is only inherited from momma sharks, these results support the idea that these females' sense of what feels like home may be partly defined by local magnetic fields.

"This highlights the possibility that females might choose pupping grounds partly based on magnetic signatures," says Keller.

Great white shark researcher Salvador Jorgensen of the Monterey Bay Aquarium says he thinks the finding that sharks use Earth's magnetic fields to orient and navigate is likely to apply to a majority of shark species, including the big, toothy ones he studies. "I'm intrigued by this study because we recognize the same individuals returning to the same seal rookeries on the Central California coast for 15 to 20 years with pinpoint accuracy," says Jorgenson, who was not involved in the paper. "And that's after travelling thousands of miles to and from the white shark cafe or Hawaii."

Scientists' expanding sense of how sharks perceive their environment may even one day help researchers understand if humans are blocking or confusing the animals' navigation as offshore infrastructure continues to grow in scope and complexity.

"One of the things that makes this work important is that they're putting in wave farms and offshore wind farms and all of these projects have big high-voltage cables leading to shore," says Klimley. "Those cables put off their own electric fields and if that's how sharks navigate, we need to find out how that undersea infrastructure might impact migratory sharks."

==========

Poems for Today: Smithys Unite

The Village Blacksmith

By Henry Wadsworth Longfellow

Under a spreading chestnut tree
The village smithy stands;
The smith, a mighty man is he,
With large and sinewy hands;
And the muscles of his brawny arms
Are strong as iron bands.

His hair is crisp, and black, and long,
His face is like the tan:
His brow is wet with honest sweat,
He earns whate'er he can,
And looks the whole world in the face,
For he owes not any man.

Week in, week out, from morn till night,
You can hear his bellows blow;
You can hear him swing his heavy sledge,
With measured beat and slow,
Like a sexton ringing the village bell,
When the evening sun is low.

And children coming home from school
Look in at the open door;
They love to see the flaming forge,
And hear the bellows roar,
And catch the burning sparks that fly
Like chaff from a threshing floor.

He goes on Sunday to the church,
And sits among his boys;
He hear the parson pray and preach,
He hears his daughter's voice,
Singing in the village choir,
And it makes his heart rejoice.

It sounds to him like her mother's voice,
Singing in Paradise!
He needs must think of her once more,
How in the grave she lies;
And with his hard, rough hand he wipes
A tear out of his eyes.

Toiling,--rejoicing,--sorrowing,
Onwards through life he goes;
Each morning sees some task begin,
Each evening sees it close;
Something attempted, something done,
Has earned a night's repose.

Thanks, thanks to thee, my worthy friend,
For the lesson thou hast taught!
Thus at the flaming forge of life
Our fortunes must be wrought;
Thus on its sounding anvil shaped
Each burning deed and thought!

Blacksmith Blues

By Ella Mae Morse

Down in old Kentucky where horseshoes are lucky
There's a village smithy standin' under the chestnut tree
Hear the hammer knockin', see the anvil rockin'
He sings the boogie blues while he's hammerin' on the shoes
See the hot sparks a-flyin' like fourth of July-in'
He's even got the horses cloppin' pop, down the avenue

Folks love the rhythm, the clang bangin' rhythm
You'll get a lot of kicks out of the blacksmith blues

Here as sung by Bing Crosby
https://www.youtube.com/watch?v=vhnCuX0jISM

==========

Arnold Bax (1883-1963)

Bax was born to a prosperous family. He was encouraged by his parents to pursue a career in music, and his private income enabled him to follow his own path as a composer without regard for fashion or orthodoxy.

Consequently, he came to be regarded in musical circles as an important but isolated figure. While still a student at the Royal Academy of Music, Bax became fascinated with Ireland and Celtic culture, which became a strong influence on his early development.

His prolific output includes songs, choral music, chamber pieces, and solo piano works, but he is best known for his orchestral music. In addition to a series of symphonic poems he wrote seven symphonies and was for a time widely regarded as the leading British symphonist.

The Tale the Pine-Trees Knew, symphonic poem (1931)
https://www.youtube.com/watch?v=__LXq_uCB08

"Spring Fire" Symphony
https://www.youtube.com/watch?v=UViIGvRTg4k

==========

Surfers and Sharks Share the Shallows

sputniknews

https://www.youtube.com/watch?v=wFhqmLCqEu8

==========

Why Time Is Roblox's Secret Weapon

For much of the world, "Roblox" probably sounds like an off-brand Lego company or a board game about a smoked salmon heist. (It's not.)

Source: Roblox Press Kit

Roblox is a ~$35B juggernaut game-creation platform that just yesterday filed its first quarterly earnings report.

And if one thing's for sure, it's that time is on Roblox's side.

By 'time,' we literally mean time since birth

Roblox-ers are young: 67% of Roblox's daily users are under 17. Roblox knows this. "Safety" comes up 88 times in the company's IPO filing. (In Facebook's it came up 11.)

During the 9 months that ended September 2020, users spent 22.2B hours on the platform. That's 2.6 hours per user, per day.

Earnings showed monetizing the youth is working

Revenue in Q1 was up 140% YoY to $387m, and Bookings -- deferred revenue Roblox gets from sales of its virtual currency -- increased 161% to $652.3m.

Roblox knows its users are human, and therefore age. So 2 of its stated growth strategies are built to retain its younger population in the coming years:

- Demographic expansion: Appeal to older folks (think: 20-year-olds) through new platform expansion (e.g., social, edtech, VR) and higher fidelity content
- Monetization: Expand subscription offerings and brand partnerships as users get jobs

For now, with ⅔ of all US kids 9-12 on Roblox, don't expect the company to fall into "fad" territory anytime soon.

==========

John Denver & Cass Elliot; Leaving On A Jet Plane

John Denver, was an American singer-songwriter, record producer, actor, activist, and humanitarian, whose greatest commercial success was as a solo singer. After traveling and living in numerous locations while growing up in his military family, Denver began his music career with folk music groups during the late 1960s.[4] Starting in the 1970s, he was one of the most popular acoustic artists of the decade and one of its best-selling artist

https://www.youtube.com/watch?v=NKdknYaSHgE

He left on a plane, but not a jet. Rather a LongEZ while performing touch-and-go landings at Monterey, CA Airport.

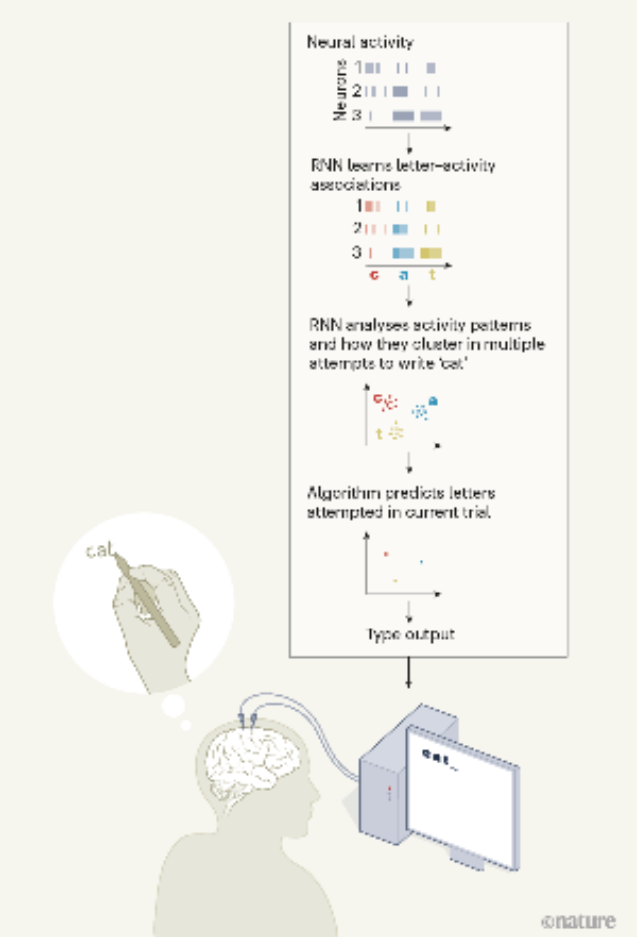
==========

Game Changers

Neural Interface Translates Thoughts into Type

A neural interface has been developed that could enable people with paralysis to type faster than they could using other technologies, by directly translating attempts at handwriting into text.

Pavithra Rajeswaran & Amy L. Orsborn



A brain–computer interface (BCI) for typing. Willett et al.1 have developed a BCI that enables a person with paralysis to type, by translating the neural activity produced from imagined attempts at handwriting into text on the computer screen. As a simplified description, electrodes implanted into the brain measure the activity of many neurons as the user imagines writing each letter (lines indicate time points at which each neuron fires). A deep-learning model called a recurrent neural network (RNN) learns the neural activity patterns produced from each character, and analyses how these activity patterns relate across multiple trials, generating cluster plots. This information is used to by an algorithm to predict the letters being imagined by the participant in the current trial, and the prediction is translated into a typographic output.

We can think much faster than we can communicate — a fact that many of us feel aware of as we struggle with our smartphone keyboards. For people with severe paralysis, this information bottleneck is much more extreme. Willett et al.1 report in a paper in Nature the development of a brain–computer interface (BCI) for typing that could eventually let people with paralysis communicate at the speed of their thoughts. (https://www.nature.com/articles/s41586-021-03506-2)

Commercially available assistive typing devices predominantly rely on the person using the device being able to make eye movements or deliver voice commands. Eye-tracking keyboards can let people with paralysis type at around 47.5 characters per minute2, slower than the 115-per-minute speeds achieved by people without a comparable

injury. However, these technologies do not work for people whose paralysis impairs eye movements or vocalization. And the technology has limitations. For instance, it is hard to reread an e-mail, so that you can compose your reply, while you are typing with your eyes.

By contrast, BCIs restore function by deciphering patterns of brain activity. Such interfaces have successfully restored simple movements — such as reaching for and manipulating large objects — to people with paralysis3–7. By directly tapping into neural processing, BCIs hold the tantalizing promise of seamlessly restoring function to a wide range of people.

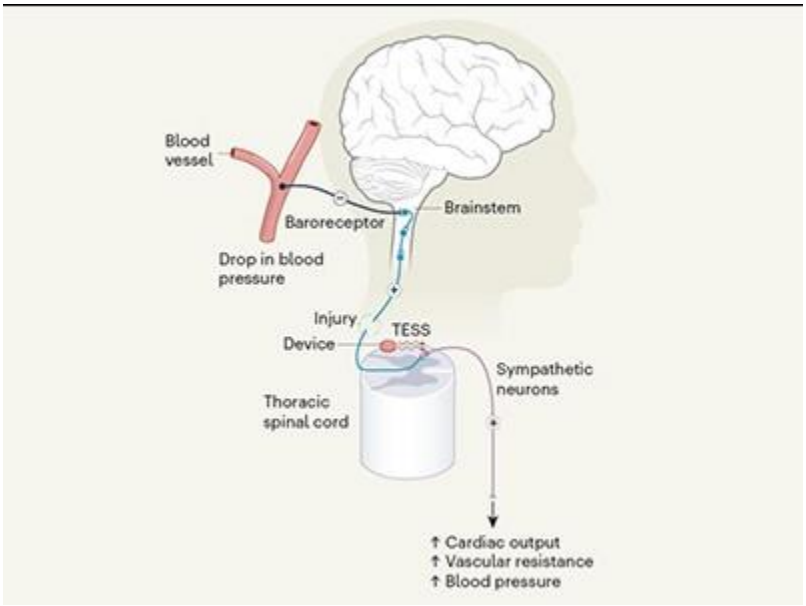
But, so far, BCIs for typing have been unable to compete with simpler assistive technologies such as eye-trackers. One reason is that typing is a complex task. In English, we select from 26 letters of the Latin alphabet. Building a classification algorithm to predict which letter a user wants to choose, on the basis of their neural activity, is challenging, so BCIs have solved typing tasks indirectly. For instance, non-invasive BCI spellers present several sequential visual cues to the user and analyse the neural responses to all cues to determine the desired letter8. The most successful invasive BCI (iBCI; one that involves implanting an electrode into the brain) for typing allowed users to control a cursor to select keys, and achieved speeds of 40 characters per minute6. But these iBCIs, like non-invasive eye-trackers, occupy the user's visual attention and do not provide notably faster typing speeds.

Willett and colleagues developed a different approach, which directly solves the typing task in an iBCI and thereby leapfrogs far beyond past devices, in terms of both performance and functionality. The approach involves decoding letters as users imagine writing at their own pace (Fig. 1).

Such an approach required a classification algorithm that predicts which of 26 letters or 5 punctuation marks a user with paralysis is trying to write — a challenging feat when the attempts cannot be observed and occur whenever the user chooses. To overcome this challenge, Willett et al. first repurposed another type of algorithm — a machine-learning algorithm originally developed for speech recognition. This allowed them to estimate, on the basis of neural activity alone, when a user started attempting to write a character. The pattern of neural activity generated each time their study participant imagined a given character was remarkably consistent. From this information, the group produced a labelled data set that contained the neural-activity patterns corresponding to each character. They used this data set to train the classification algorithm.

To achieve accurate classification in such a high-dimensional space, Willett and colleagues' classification algorithm used current machine-learning methods, along with a type of artificial neural network called a recurrent neural network (RNN), which is especially good at predicting sequential data. Harnessing the power of RNNs requires ample training data, but such data are limited in neural interfaces, because few users want to imagine writing for hours on end. The authors solved this problem using an approach known as data augmentation, in which neural activity patterns previously generated by the participant are used to produce artificial sentences on which to train

the RNN. They also expanded their training data by introducing artificial variability into the patterns of neural activity, to mimic changes that occur naturally in the human brain. Such variability can make RNN BCIs more robust9.

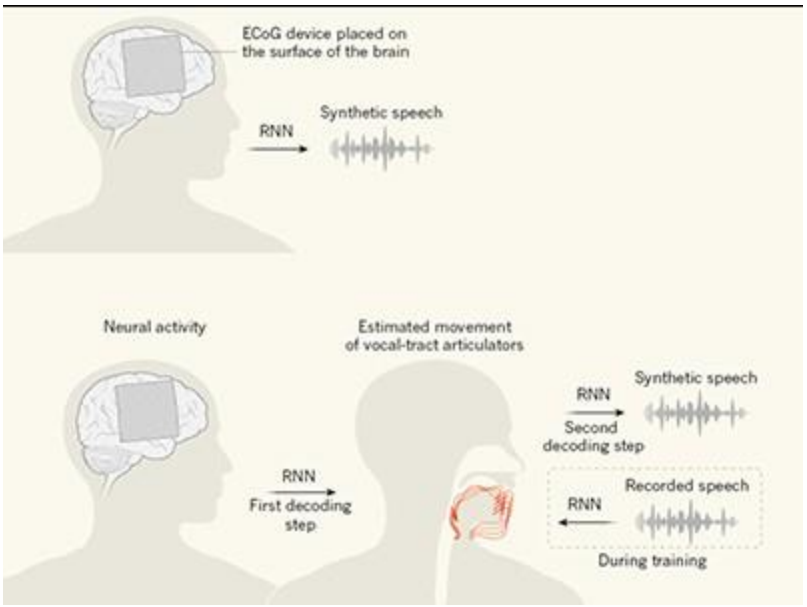


Neuroprosthetic device maintains blood pressure after spinal-cord injury

Thanks to these methods, Willett and colleagues' algorithm provided impressively accurate classification, picking the correct character 94.1% of the time. By including predictive-language models (similar to those that drive auto-correct functions on a smartphone), they further improved accuracy to 99.1%. The participant was able to type accurately at a speed of 90 characters per minute — a twofold improvement on his performance with past iBCIs.

This study's achievements, however, stem from more than machine learning. A decoder's performance is ultimately only as good as the data that are fed into it. The researchers found that neural data associated with attempted handwriting are particularly well-suited for typing tasks and classification. In fact, handwriting could be classified quite well even with simpler, linear algorithms, suggesting that the neural data themselves played a large part in the success of the authors' approach.

By simulating how the classification algorithm performed when tested with different types of neural activity, Willett et al. made a key insight — neural activity during handwriting has more temporal variability between characters than does neural activity when users attempt to draw straight lines, and this variablility actually makes classification easier. This knowledge should inform future BCIs. Perhaps counter-intuitively, it might be advantageous to decode complex behaviours rather than simple ones, particularly for classification tasks.



Brain implants that let you speak your mind

Willett and co-workers' study begins to deliver on the promise of BCI technologies. iBCIs will need to provide tremendous performance and usability benefits to justify the expense and risks associated with implanting electrodes into the brain. Importantly, typing speed is not the only factor that will determine whether the technology is adopted — the longevity and robustness of the approach also require analysis. The authors present promising evidence that their algorithms will perform well with limited training data, but further research will probably be required to enable the device to maintain performance over its lifetime as neural activity patterns change. It will also be crucial to conduct studies to test whether the approach can be generalized for other users, and for settings outside the laboratory.

Another question is how the approach will scale and translate to other languages. Willett and colleagues' simulations highlight that several characters of the Latin alphabet are written similarly (r, v and u, for instance), and so are harder to classify than are others. One of us (P.R.) speaks Tamil, which has 247, often very closely related, characters, and so might be much harder to classify. And the question of translation is particularly pertinent for languages that are not yet well represented in machine-learning predictive-language models.

Although much work remains to be done, Willett and co-workers' study is a milestone that broadens the horizon of iBCI applications. Because it uses machine-learning methods that are rapidly improving, plugging in the latest models offers a promising path for future improvements. The team is also making its data set publicly available, which will accelerate advances. The authors' approach has brought neural interfaces that allow rapid communication much closer to a practical reality.

==========