Antarctica Was Once Covered in Forests — And We Have the Fossils to Prove It — https://curiosity.im/2QD05LU

(300 words)

Most people agree when it comes to vacations, timing is everything. The right weather can make or break a vacation. So, if you're looking for a warm, tropical paradise, the right time to have visited Antarctica would have been a few million years ago.

Scientists are uncovering fossil evidence that shows Antarctica wasn't always covered by thick ice. It was once home to steamy forests.

Antarctica was originally part of the supercontinent Gondwana. Over hundreds of millions of years, Gondwana had broken away from the single supercontinent, Pangaea, until it sat near where Antarctica is today.

While the higher temperatures of Gondwana could sustain life, it's location on the South Pole meant vegetation had to withstand four to five months of darkness followed by four to five months where the sun never set. That meant plants had to transition in as little as a month to survive the rapid change in light and temperature.

The kings of the Gondwanan forest during the Permian Period were towering trees that grew from 65 to 131 feet (20 to 30 meters) tall and had huge, flat leaves longer than your forearm. But around 251 million years ago, disaster struck, and the Permian-Triassic mass extinction killed off as much as 95 percent of Earth's species. The cause is still unknown, but many scientists think that that greenhouse gas emissions from volcanoes raised the planet's temperatures to hazardous levels and caused the oceans to acidify.

In reaction, the forests of Gondwana quickly fossilized. According to researchers the fungi in the wood itself were probably mineralized and turned into stone within a matter of weeks.

Today we have the resultant fossilized wood fragments and even tree trucks. These fossils are like precious souvenirs reminding us that our now coldest continent was once an exotic holiday destination.

You Don't Need to Warm Up Your Car, Regardless of the Weather — https://curiosity.im/2pW1emV

(300 words)

True or false, you should idle your car for at least five minutes before driving when the temperature is below freezing? If you said false, you're right. The last time it was necessary to run your engine without going anywhere, to warm it up and prevent it from stalling, was back in the 1980s and early 1990s, when cars relied on carburetors. Yet, a study of costly myths, discovered that Americans still thought it was necessary as late as 2009!

Carburetors mix the right amount of gasoline and air for the engine to run properly and needs to warm up to do that properly. But carburetors became obsolete once electronic fuel injection systems were introduced. These modern systems rely on sensors, which adjust to the current temperature conditions in order to get the right air and fuel mix to the engine.

So, basically, if you drive a modern car, idling offers you zero benefits.

Plus, every minute you idle your car, you're wasting fuel and contributing to greenhouse gas emissions. In an experiment performed by Natural Resources Canada, researchers found that total fuel consumption increased by 7 to 14 percent with a 5-minute warm-up and by 12 to 19 percent with a 10-minute warm-up.

Not only is idling an environmental no-no, but it turns out that, depending on where you live, it might also be illegal. In Ohio, for example, idling your car at any time is strictly forbidden. The engine anti-idling law in Washington, D.C. states that: "Motor vehicles powered by gasoline or diesel are not allowed to idle for more than three minutes while the vehicle is parked, stopped or standing, or up to five in freezing temperatures.

So no more idling unless you absolutely have to and then check out the rules on the EPA's anti-idling regulations.

Recalling a Word on the Tip of Your Tongue Helps Ensure You'll Forget It Next Time — https://curiosity.im/2sotZtp

(300 words)

Have you ever noticed that there are some words you forget again and again? Like, that word that means "improve" but starts with an A? It sounds like a girl's name. What is that word? We're going to stop right there because research shows that actually recalling a word on the tip of your tongue helps ensure you'll forget it next time.

A study found that it's not the word, but the struggle to remember it that's to blame. Students were given definitions of words and asked to say whether they knew the word, didn't know the word, or if it was on the tip of their tongue (what psychologists call a TOT, or tip-of-the-tongue state). If they were in a TOT, researchers randomly assigned them to spend either 10 or 30 seconds trying to remember the word before finally seeing what it was.

Two days later, the students were tested on the same words again. While you'd think they'd have an easier time recalling the words they got to see which was on the tips of their tongues, this wasn't the case. The word remained on the tips of the students' tongues. This was *twice as likely* when a student spent more time trying to recall the word.

It turns out that trying to remember a word blazes a metaphorical trail in your brain, one that you're more likely to run down when the same word comes up again.

The science suggests that next time you have a word on the tip of your tongue, you should immediately look it up or ask someone. If you do get the word, say it to yourself. By laying down another procedural memory, you can help ameliorate the effects of the error. Ameliorate! It was right on the tip of our tongue.

Flapping Spacecraft Is Being Designed to Explore Venus — https://curiosity.im/35zy24i

(361 words)

There's a saying that when the going gets tough, the tough get going. Well that's especially true for some scientific explorers planning to discover more about Venus. Confronted by hellish landscape, extremely thick atmosphere and clouds of sulfuric rain which make Venus virtually impossible to explore, scientists have come up with a morphing spacecraft inspired by a stingray.

BREEZE short for Bio-inspired Ray for Extreme Environments and Zonal Explorations was designed by the University of Buffalo's Crashworthiness for Aerospace Structures and Hybrids (CRASH) Laboratory. It's one of 12 revolutionary concepts selected by NASA as part of its Innovative Advanced Concepts (NIAC) program — which funds innovative projects that are in early-phase development.

The key is the unique design of BREEZE's morphing wings, which will use an internal tensioning system to generate thrust, ensure control and stability, and provide additional lift and mechanical compression. All of this allows for buoyancy control, allowing the BREEZE to navigate through Venus' atmosphere the same way a stingray navigates through water.

This is especially important since it is only above Venus' dense clouds, about 50 kilometers (30 miles) above the surface, that temperatures and air pressure are stable enough for an exploration craft to survive. In fact, some scientists have even speculated that it is at these altitudes that life could be found, most likely in the form of extremophile organisms that are capable of living in a hot and acidic environment (thermoacidophilic).

The craft would circumnavigate the planet every four to six days, gathering atmospheric samples, track weather patterns, monitor volcanic activity, and gather other data on Venus' environment. It would rely on solar panels to recharge its instruments.

This technology could also enable missions to underwater environments here on Earth and other bodies in the solar system with dense atmospheres.

It is one of many inspired ideas that have been proposed in recent years for exploring Venus' atmosphere. The next two decades will be an exciting time for space exploration. Whether it's stingray-inspired gliders in the atmosphere of Venus, dragonfly-inspired drones in the skies of Titan, or snake-inspired robots beneath the surface of Mars, there are several proposed missions to explore exotic and mysterious environments.

'Mast Years' Are When Trees Sync Their Seed Production — https://curiosity.im/2QXZzIO

(369 words)

If you have oak trees in your neighborhood, perhaps you've noticed that some years the ground is carpeted with their acorns, while other years there are hardly any. Biologists call this pattern, "masting" and many other types of trees show similar synchronization in seed production. The question is why and how do trees do it? Is it cued by the weather or are the trees talking to each other? Whatever the answer, we can't but be amazed at the ingenious strategies devised by nature.

Let's first consider why. If trees coordinate their seed production, seed-eating animals and insects are likely to get full before they eat all the seeds produced in a mast year, leaving the rest to sprout. Also, squirrels will bury more of the seeds instead of eating them immediately, thereby spreading oaks across the landscape.

But how do trees synchronize their seed production to get these benefits?

First, producing a big crop of seeds takes a lot of energy. So, trees may need to skip years in order to focus on growing or replenishing stored starches.

Weather conditions are obviously also important, especially spring weather. A cold snap that freezes the flowers of the tree means the tree can't produce many seeds the following fall. A drought during the summer could also kill developing seeds. Trees will often shut the pores in their leaves to save water, which reduces their ability to take in carbon dioxide for photosynthesis. Because all the trees within a local area are experiencing essentially the same weather, these environmental cues can help coordinate their seed production, acting like a reset button they've all pushed at the same time.

A third intriguing possibility that researchers are still investigating is that trees are "talking" to each other via chemical signals. Scientists know that when a plant is damaged by insects, it often releases chemicals into the air that signal to its other branches and to neighboring plants that they should turn on their defenses. Similar signals could potentially help trees coordinate seed production.

So, the next time you take an autumn walk, take a moment to pause under your local oak tree — you might just see (or hear) evidence of this amazing process.

Most People Pick Gifts to Wow Rather Than to Satisfy, According to a Study
https://curiosity.com/topics/most-people-pick-gifts-to-wow-rather-than-to-satisfy-according-to-a-study-curiosity

(297 words)

If you're an adult, although your Christmas wish list is probably fairly humdrum, it's likely to be things you really need – socks maybe. So why do most of us search for something different and exciting to give our friends and family which, let's be honest, will probably result in a few seconds of excitement and then be put away with all the other flashy gifts we don't really need?

According to a study published in Psychological Science, it's because we get more pleasure out of the surprise and delight we see on their faces than we do from the satisfaction our gifts give them in the long run.

The online study asked 357 participants to imagine themselves either as giving a gift to a couple or being part of the couple receiving a gift. The gift options were two pairs of mugs, similarly priced, but one set was personalized with the couple's names and wedding date and the other pair was ergonomically designed to make them pleasant to hold.

Both givers and receivers thought the personalized mugs would elicit stronger reactions and while *receivers* showed no preference, *givers* chose the personalized ones.

But when the givers learned that they wouldn't be able to see the recipient's reaction? Their preference for gifts with a "wow" factor disappeared.

Researchers say our giving preferences are quite stubborn. Even if we try to imagine ourselves as receivers of gifts, we still choose flashy, unhelpful things.

So this Christmas, even if you can't bring yourself to buy the book over the adorable elf slippers, remember how important your emotional reactions are to those who give gifts to you. So get ready to shout with joy over *every* gift you get — whether it's a flashy new toy or a sensible pair of socks.