

CRETACEOUS CASTAWAYS

The discovery of duckbilled dinosaurs in Cretaceous rock in Morocco has somewhat mystified evolutionists. This group (hadrosaurs) are supposed to have evolved in Eurasia before crossing the Bering Strait land bridge to North America. So how did they get to Africa? In long-age thinking, tens of millions of years before these duckbills evolved, the single landmass *Pangaea* broke up. By the time the Cretaceous commenced, there were already hundreds of kilometres of open ocean between Africa and Europe.

Floating, swimming, or rafting are proffered, with the suggestion that "tiny hatchlings could have ridden on floating vegetation". When creationists suggested that animals could make such ocean crossings by e.g. rafting (creation.com/log-mats), they were ridiculed. However, evolutionists have been faced with many conundrums of animal distribution within their long-age interpretations of the fossil record. So, they have increasingly adopted the same sorts of suggestions in response.



Longrich, N., Duckbill dinosaur discovery in Morocco-expert unpacks the mystery of how they got there, theconversation.com, 22 Mar 2024.

MUTANT BLUE FROG DISCOVERY

The Magnificent (or Splendid) Tree Frog (*Ranoidea splendida*), first described in 1977, inhabits Australia's tropical northwest. At over 10 cm (4 in) long, it's relatively large for a tree frog. Like most other tree frogs, its upper surface is olive to bright green.

Recently, scientists were surprised to discover, for the first time, a *blue* one of this species. Field ecologist Jake Barker explained it was from a rare type of mutation (genetic accident) in frogs called *axanthism*. He said, "Frogs have blue and yellow pigments in their skin. That usually combines to form green, so most frogs are green." But with this mutation, "the yellow pigments are inhibited and it just leaves the blue."



In other words, anyone looking for it to support neo-Darwinism would be disappointed. As with virtually all mutations, what looks new was caused by something being suppressed or switched off. This isn't surprising; it's vastly more likely that an accident will break, rather than make, something.

Nield, E. and Shaw, S., Scientists make chance discovery of rare blue skin mutation in Kimberley magnificent tree frog, abc.net.au, 12 Jul 2024.

CATERPILLARS DETECT ELECTRIC FIELD OF THEIR PREDATOR

The well-being of caterpillars may not strike you as an electrifying topic.

Still, God has endowed many of His creatures with various defence mechanisms against predators. One surprisingly sophisticated mechanism has only recently been discovered in at least three species of caterpillar.

It appears that the hairs on the caterpillar help warn it of the approach of their nemesis—wasps. As the wasp moves through the air it builds up an electrostatic charge. Just as your hair responds to an electrostatically charged balloon, so the wasp's charge can affect the hairs of the caterpillar.

The researchers showed that the varying charge caused by the beating wings of a nearby flying predator would repel and attract the caterpillar's hairs sequentially, known as 'electromechanical resonance'.

When they simulated this varying charge, the caterpillars would react defensively, including rolling up into a protective ball. This was dramatically so when the frequency matched that of a wasp's wingbeats.

It is thought to be the first known instance of electroreception for predator detection in land animals. One biomechanical scientist was quoted as saying, "I thought caterpillars were simpler creatures than this, but I was wrong."

Cummings, S., These caterpillars may anticipate wasp attacks using electric fields, science.org, 20 May 2024.

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BATS MODERATE THEIR TONE IN COMPANY

Have you ever wondered how a bat's echolocation works when surrounded by the confusing sounds of thousands of other bats, doing the same thing?

In 2017, it was demonstrated that individual bats reduce their own call rate in bigger crowds. This suppression is just one jamming avoidance response (JAR) strategy to reduce interference.

But given the huge swarms some bats hunt in, it was still a puzzle as to how they could pick out their own echoes. It's now been discovered that bats can modulate their call to distinguish it from their neighbour's soundwaves (another JAR strategy).

The researchers trained a hawk to fly with recording devices through a swarm of bats. Sifting through large amounts of data, they learned that a small change in the outgoing call made a big difference on the incoming echo. This shift is enough for a bat to cull other sounds and focus on its own information.

This is an astonishing level of further sophistication in an already amazing design. Under current evolutionary dogma, the whole system is the result of selection acting on genetic accidents—no intelligence or purpose involved. Really?



Society for Integrative & Comparative Biology, Bats avoid collisions by calling less in a crowd, phys.org, 4 Jan 2017.

Berkowitz, R., How bats pick out their own calls when flying in enormous swarms, newscientist.com, 5 Jun 2024.

DATING PROBLEMS IN TIBET

In 2021, Zhang *et al.* reported foot and hand impressions (outlines roughly as shown) from a fossil hot spring on the Tibetan Plateau. They interpreted these as a deliberate artistic act by the track-makers, likely children. Using uranium series (U-Th) 'dating', they said that the travertine (limestone deposited in a cave or hot spring) with the imprints was 169 to 226 thousand years old (ka).

Thus, it was claimed that the site is the earliest known example of cave art in the world. Also, that the site provides evidence for the earliest known presence of 'hominins' above 4,000 m (13,000 ft) on the High Tibetan Plateau.

However, the story seems to have unravelled after further analysis by Tang *et al.*, published in 2024. They say the U-Th dates (\sim 169–226 ka) at this site are inconsistent with thermoluminescence (TL) dates of \sim 20 ka for foot and hand prints at a second site nearby. But even that date is way too old because the second site contains finger-drawn *Tibetan letters*. Tibetan script was only introduced in the 7th century AD.

Tang et al. say that the prints and the Tibetan inscriptions at the second site were made "at the same time ... because both were made in the still-soft precipitate." Which, they point out, was "no earlier than 1,300 years ago." Hence, they ask whether the similar prints at the first site could possibly be "in the order of 200 times older?" They conclude: "Their excellent state of preservation contradicts that sensational proposition emphatically."

That makes the TL and U-Th dates some 20 and 200 times older, respectively, than the *actual* date. Tang *et al.* write that the reliability of ²³⁰Th/²³⁴U dates for such specimens has for over a decade been questioned by "many dozens of authors".



Zhang, D.D. et al., Earliest parietal art: hominin hand and foot traces from the middle Pleistocene of Tibet, Science Bulletin 66:2506-2515, 2021.

Tang. H. et al., The hand and footprints at Qiusang in Tibet: Recommendations for dating rock art by U-Th, J. Archaeol. Sci. 161:105899, 2024.

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I'VE GOT MY EYE ON YOU

What is your biggest fear when swimming at the beach? For many people, it is definitely sharks! Shark attacks are very rare, but victims often lose limbs or even lose their life. So what can be done to reduce the chances of being bitten? How about stickers? An Australian company (sharkeyesglobal.com) has come up with a bio-inspired idea to reduce shark attacks on divers and surfers, by putting stickers with two large eyes on the bottom of surfboards and the backs of dive masks (pictured)—herewith it looks like the divers face front on. The concept was inspired by many creatures in nature (e.g. fish, moths, birds) which have large spots on the back of them which look like eyes. A predator will often decide not to attack something if it thinks it is being watched. This is one example of seeking to learn from God's clever designs in nature (creation.com/design-expert).



PYTHON TEETH INSPIRE ROTATOR CUFF REPAIR

Pythons are constrictor snakes that kill their prey by squeezing. Death comes *not* by suffocation but much faster: by stopping blood circulation.

First they grab with their teeth, which are curved backwards, not to cut but to prevent the prey from escaping. Medical researchers know their teeth are ideal for grasping soft tissue without tearing. Columbia University professor Stavros Thomopoulos and his team used this design to improve certain surgical outcomes.

Every year, millions of people, many over 65, tear their *rotator cuff*, pulling tendons in the shoulder joint away from the humerus (upper arm bone). Often, surgery is needed to reattach the tendon—600,000 per year in the USA alone, costing \$3 billion. However, this surgery fails for about 20% of younger patients and up to 94% of the elderly. A major problem is that the sutures tear through the tendon.

Dr Thomopoulos's team developed a plate with 3-mm-long 'teeth', inspired by the python's. Optimized by simulations and tests, the plate is made from resin compatible with human



tissue. When combined with the traditional suture technique, the plate nearly doubled the repair strength.

Columbia University School of Engineering and Applied Science, New device inspired by python teeth doubles strength of rotator cuff repairs, eurekalert.org, 28 Jun 2024.

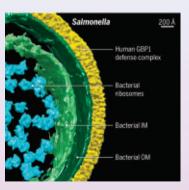
Kurtaliaj, I. et al., Python tooth-inspired fixation device for enhanced rotator cuff repair, Science Advances 10(26), 2024.

NANOMACHINE IN OUR CELLS FIGHTS INVADERS

Thinking of your body's immunity likely brings to mind the army of cells and antibodies that help fight infection (creation. com/immune-system). Yale University medical scientists recently discovered something new. It's the amazing way in which harmful bacteria and viruses (pathogens) invading your cells are walled off and immobilized. It turns out that thousands of Guanylate Binding Proteins (GBPs) club together to neutralize such foreign invaders. They form what Professor John MacMicking described as one of "the most impressive examples of a biological machine in action that I've ever seen."

He and his colleagues showed how 30,000 GBPs quickly form a protective capsule around a pathogenic bacterial cell. Acting like a huge nanomachine, it only takes minutes for this *GBP1 defense complex* to immobilize the threat. But it remains stable for hours, until the invader is destroyed by other agents of the immune system.

Humans manufacture many machines, devices, and instruments to make our lives easier. These are intelligently designed and competently assembled to fulfil their intended purpose. The same sort of purposeful design is evident in all the exquisite nanomachines inside cells.



Atherton, J., Discovery of 'molecular machine' brings new immune therapies a step closer, news.yale.edu, 1 Mar 2024.

Zhu, Shiwei *et al.*, Native architecture of a human GBP1 defense complex for cell-autonomous immunity to infection, *Science* **383**(6686), 2024.

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FOCUS

ANCIENT DNA AGAIN—FROM MANY SPECIES

DNA is an extremely fragile molecule that is known to 'fall apart' rather rapidly. That's why it was thought it would never crop up in locations believed to be millions of years old—it should have degraded long ago, even in cold climates.

Yet reports have kept trickling in of DNA 'millions of years old', with enough surviving to even identify a species. So, such finds are increasingly non-controversial.

Nonetheless, adequate explanations as to how this could be possible are lacking. Similar to the frequent finds of still-soft tissue in dinosaurs, the reasoning is that since we 'know' the finds are millions of years old, there must be *some* way to explain it.

A 2022 report in *Nature* detailed the finding of 'environmental' DNA from an entire ecosystem in Greenland, allegedly two million years old. The species identified, most with no associated fossils, included "poplar, birch, and thuja trees, as well as a variety of Arctic and boreal shrubs and herbs". Also, mastodons, reindeer, rodents, geese, and marine species including horseshoe crabs and green algae.

This is strong *prima facie* evidence of a much younger age for the DNA recovered. Not surprisingly, the authors speculate that the DNA "probably" survived by binding to "mineral surfaces".

Interestingly, the mix of species has no modern analogue, and suggests a warmer Greenland climate than today. This matches well with the predictions of the biblical Ice Age model (see p. 24–27).

Kjaer, K. et al., A 2-million-year-old ecosystem in Greenland uncovered by environmental DNA, Nature 612:283-291, 2022.



ARE OCTOPUSES OUR 'ALIEN' COUSINS?

Have you ever become stuck in a maze? Maybe you should bring an octopus with you next time!

Popular science YouTuber Mark Rober constructed a watery maze to show the remarkable intelligence of the octopus. Amazingly, the octopus tunnelled under sand, passed through doors, and even released a pin mechanism to reach some tasty shrimp at the finish line.

Rober explains how the octopus is an anomaly on the evolutionary tree of life. Evolutionists believe that you must go all the way back to the flatworm to link common ancestry to other creatures with similar levels of intelligence. Even then, the structure of the octopus brain is vastly different from those of other intelligent creatures. More than half of octopus brain cells are in their tentacles instead of in their central brain (creation.com/the-octopus)! These stark differences lead evolutionists like Rober to conclude that octopuses are, "truly the closest thing we have to intelligent alien life on this planet".

The reason octopus intelligence is so 'alien' in the eyes of evolutionists is because octopuses, unlike chimps, e.g., are supposedly very far from humans on the evolutionary tree, and have a very different brain structure.

The unique octopus brain structure is not surprising from a biblical perspective. The Creator God often used similar design elements and principles in many different kinds of creatures, called *homology*. E.g., the pattern of forelimb bones in vertebrates (see also creation.com/homology). But not always. Sometimes the structures are *analogous* or *homoplastic*—different design principles for the same end. E.g. the streamlined shape of shark, dolphin, and ichthyosaur. The octopus brain structure is a very sophisticated example of analogy.



THE JAMES WEBB SPACE TELESCOPE DISCOVERS FURTHEST GALAXY

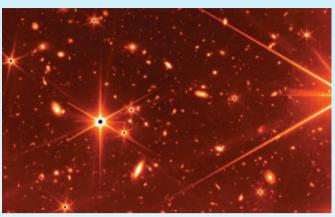
JWST discovered a fully formed galaxy labelled JADES-GS-z14-0 in the direction of the southern hemisphere constellation Fornax. (JADES = JWST Advanced Deep Extragalactic Survey.)

The light from all distant galaxies is shifted towards the 'red' end of the spectrum, i.e., to lower energy and frequency, and longer wavelength. JADES-GS-z14-0 has an enormous redshift, with the parameter z = 14, which means the galaxy is receding at 600 km/s (1.3 million mph). Under big bang theory, the recession speed is proportional to distance (Hubble's law), indicating the galaxy is supposedly 13.5 billion light-years away. Thus, it must have formed only 300 million years after the supposed big bang (allegedly 13.8 billion years ago).

But this poses big problems for evolution. First, how could the galaxy be fully formed in that 'short' time?

Second, the galaxy is very bright, including from glowing hydrogen and oxygen. But oxygen shouldn't form that early; theory says it is formed only in star cores.

Further, the galaxy is 1,600 light-years wide, with a mass of several hundred million suns. How could the big bang make such a large structure so early? Incredulous, study leader



Stefano Carniani of the Scuola Normale Superiore said, "It is stunning that the universe can make such a galaxy in only 300 million years."

Lea, R., James Webb Space Telescope spots the most distant galaxy ever seen, space.com, 31 May 2024.

Carniani, S. *et al.*, A shining cosmic dawn: spectroscopic confirmation of two luminous galaxies at z~14, arXiv:2405.18485v1, 28 May 2024.

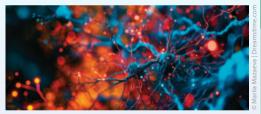
AMAZING HUMAN BRAIN STUDY

Scientists at Harvard University, working with Google AI/machine learning experts, have published an amazing study of a one cubic millimetre piece of human brain. (The piece was excised during a medical procedure).

The sliver of tissue, ~3 mm long, was sliced into over 5,000 thin sections and each one scanned with an electron microscope. The images were then analyzed with Google's machine learning programs (AI) to piece together a detailed 3-dimensional picture of the cells and their connections.

The tiny fragment contained 57,000 cells and 230 mm (9 in) of fine blood vessels. It had thousands of neurons and nearly 150 million synapses (the major connections between neurons).

The electron microscope images alone occupied 1,400 terabytes of computer memory. To put this in perspective, a typical large external hard drive today stores 20 terabytes. It would take 70 of these hard drives to store the data. But the whole brain is one million times this volume. Scaling up, we would need 70 million hard drives. At just \$US300 each, this would cost 21 billion dollars, quite aside from the power to run them. And that's just for one copy.



The researchers found things that have not been seen before. As one of the co-authors who helped lead the research, Jeff Lichtman, remarked to the *Guardian*,

We found many things in this dataset that are not in the textbooks. We don't understand those things, but I can tell you they suggest there's a chasm between what we already know and what we need to know.

We have a long way to go before we understand how the brain works. Indeed, we are "fearfully and wonderfully made" (Psalm 139:14).

Sample, I., Scientists find 57,000 cells and 150m neural connections in tiny sample of human brain, theguardian.com, 10 May 2024.

Shapson-Coe, A. *et al.*, A petavoxel fragment of human cerebral cortex reconstructed at nanoscale resolution, *Science* **384**(6696):2024.

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