A TASTE FOR SUCCESS: SNAKES BROADENED PALATE TO THRIVE

A yellow blunt-headed tree snake dines on frogs' eggs.

After the devastating mass extinction that wiped out the dinosaurs, snakes quickly developed a taste for a bountiful array of creatures — helping to give rise to the nearly 4,000 modern snake species.

Sixty-six million years ago, a cataclysm killed off roughly 75% of all Earth's species. But snakes survived, and their diversity soon soared. Scientists credit this success partly to snakes' expanding palates.

To find out more about the reptiles' dietary shifts, Michael Grundler at the University of California, Los Angeles, and Daniel Rabosky at the University of Michigan in Ann Arbor compiled data from dissections of museum specimens' gut contents and field observations of 882 modern snake species. The authors merged those data with information about the evolutionary history of snakes.

Their results suggest that the most recent common ancestor of living snakes dined exclusively on insects and other invertebrates. But shortly after the mass extinction, snakes developed the striking variety of dietary preferences that they have today, although some of these — such as a fondness for earthworms — evolved independently in multiple lineages of snakes.

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PHYSICISTS LISTEN IN AS LIGHT GOES WITH THE FLOW

Physicists have built a new kind of device for coaxing light to act like a superfluid — a fluid at very low temperatures that can flow without any internal friction.

In empty space, photons moving in different directions usually cross each other's path without a hitch. But photons moving in a medium can interact as they cross, so that they exhibit behaviours — such as superfluidity — normally present only in waves of matter.

Hannah Price at the University of Birmingham, UK, and her collaborators connected two loops of optical fibre and made light pulses move back and forth between them. That motion simulated light pulses flowing down a network of intersecting fibres, creating a sort of virtual mesh. In turn, the fibres' properties made the light waves act like a superfluid. The team was able to adjust the mesh's geometry by tweaking the interaction of the two loops. Previous realizations of superfluid light required devices with a fixed geometry, offering less flexibility.

The researchers then created the equivalent of acoustic waves in their virtual fluid, and even measured how fast they were propagating.

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THE TICKING TIME BOMB ANCHORED OFF WAR-TORN YEMEN

A few kilometres off the Yemeni coast lies an abandoned oil tanker that has long aroused fears of a catastrophe: it could crack or explode at any time, releasing more than four times the amount of oil leaked by the *Exxon Valdez* in 1989. Modelling work shows that such a spill would endanger millions of lives.

The rusting ship has had almost no maintenance since 2015, when civil war swept Yemen. Benjamin Huynh at Stanford University School of Medicine in California and his colleagues used historical data to estimate a simulated spill's effects on public health.

In most of the team's simulations, the spilt oil moved towards Yemen's northwest coast. The resulting port closures would choke off food aid (pictured) to up to 8.4 million people and would disrupt the flow of fuel to water-distribution systems, threatening the clean-water supply for nearly 10 million people. The spill would also release harmful chemicals into the atmosphere, which could raise the risk of hospitalization for people with cardiovascular and respiratory conditions by more than 40%.

Urgent action is needed to avert a disaster, which could be prevented by offloading the tanker's oil, the authors say.

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