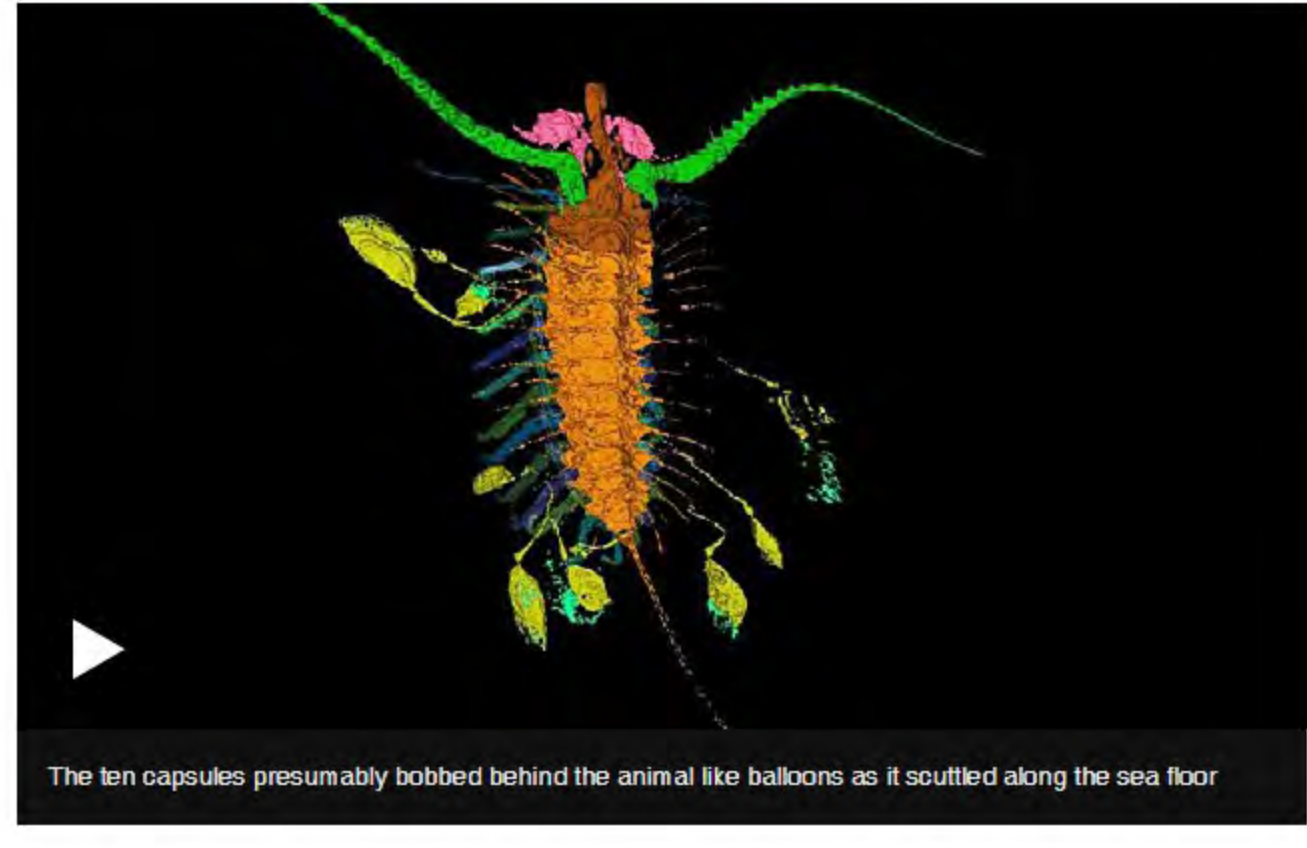


Science & Environment

Bizarre fossil hauled its offspring around 'like kites'

By Jonathan Webb
Science reporter, BBC News

4 April 2016 | Science & Environment



The ten capsules presumably bobbed behind the animal like balloons as it scuttled along the sea floor

A 430 million-year-old sea creature apparently dragged its offspring around on strings like kites - a baffling habit not seen anywhere else in the animal kingdom.

Scientists who discovered the fossil have dubbed it the "kite runner".

Ten capsules tethered to its back appear to contain juvenile progeny, all at different stages of development.

Reported in the journal **PNAS**, the many-legged, eyeless, 1cm animal is not directly related to any living species.

"There isn't an animal today that it's essentially related to," David Legg, a palaeontologist from the Oxford University Museum of Natural History, told BBC News.

"It's what we refer to as being on a stem lineage. So it belongs to a group that would have evolved and diversified before the modern groups did."

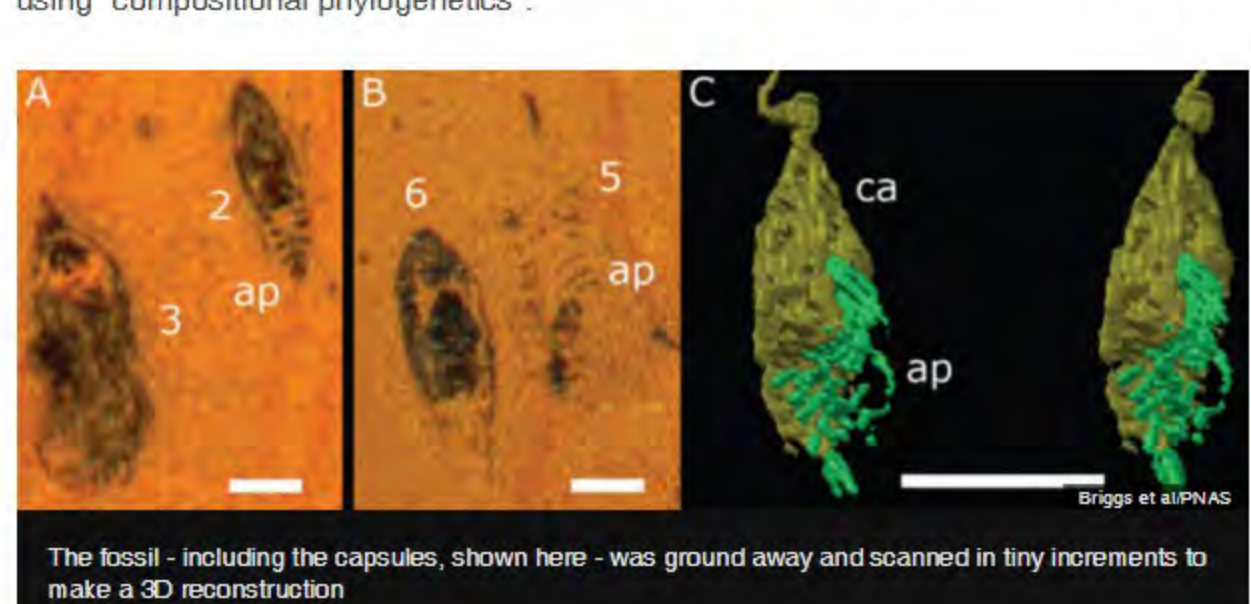
In fact, Dr Legg added, although it clearly had the segmented body and exoskeleton of an arthropod, it was quite a job to figure out precisely where to position the little beast on the evolutionary tree.

"Often you can look at a particular animal and say, that belongs to this group or that group. This one - we had no clue."

Poor parenting?

The fossil was dug up from a site in Herefordshire before being taken to Oxford and computerised. This process involved grinding away the specimen, slice by slice, and photographing each of those sections to assemble a 3D reconstruction.

Then, with this outlandish animal on their screens wagging its legs, long antennae and tethered capsules at them, Dr Legg and his colleagues set about categorising it using "compositional phylogenetics".



The fossil - including the capsules, shown here - was ground away and scanned in tiny increments to make a 3D reconstruction

"You take its anatomy, code it into a data set and then run probabilistic methods on it, which will tell you how likely it is that something evolved in a particular way," he explained.

This process suggested that *Aquilonifer spinosus* ("aquilo" means north wind or kite and the "-fer" suffix means carry) was a mandibulate: it belongs to the same broad group as modern insects, crustaceans and centipedes - but is not a direct ancestor.

"Nothing is known today that attaches the young by threads to its upper surface," said co-author Derek Briggs, from Yale University in the US.

"Modern crustaceans employ a variety of strategies to protect their eggs and embryos from predators - attaching them to the limbs, holding them under the carapace, or enclosing them within a special pouch until they are old enough to be released - but this example is unique.

"It shows that arthropods evolved a variety of brooding strategies beyond those around today - perhaps this strategy was less successful and became extinct."



The eyeless, 1cm animal is not directly related to any living species

Before settling on the unlikely conclusion that they were tiny, floating, prehistoric prams, the team did consider other explanations for the attached pods; they might have been smaller, parasitic creatures of a different species, for example.

But being tied on to *Aquilonifer*'s tough and rather inedible shell would be a peculiar strategy for a hungry parasite.

It was the variety of shapes seen among the 10 tethered babies that Dr Legg found most convincing.

"We see them develop and begin to resemble the adult form more and more, as they get bigger," he said.

"I'm definitely convinced that that's what they were."

Follow Jonathan **on Twitter**

Related Topics

Animals

Share this story

About sharing



More on this story

Ancient fossil was 'nearly a spider'

30 March 2016

Fishy origin of bizarre fossil 'monster'

16 March 2016

Fossil reptile discovery 'something extraordinary'

11 March 2016

Fossil of oldest pine tree discovered

10 March 2016

'Cute ancient furball' fossil unearthed

15 October 2015

'Giant lobster' ate like a whale

12 March 2015

Related Internet links

Research paper in PNAS

David Legg - OUMNH Research

Derek Briggs - Yale Geology & Geophysics

The BBC is not responsible for the content of external Internet sites

Science & Environment



Dung clue to Hannibal's Alpine crossing

5 April 2016

Science & Environment



Vitamin D 'heals damaged hearts'

4 April 2016

Health



Species rule change considered

5 April 2016

Science & Environment

More Videos from the BBC

Recommended by Outbrain



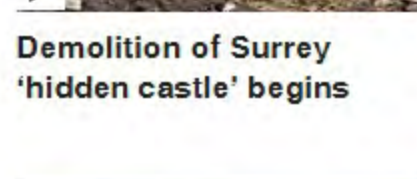
Demolition of Surrey 'hidden castle' begins



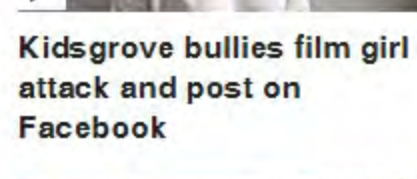
Kids grove bullies film girl attack and post on Facebook



Man shot in Belgium anti-terror raid



1970s killer whale Dopey Dick spotted off Scotland



Bus queues in Coventry after trains cancelled



World On The Move: The Air Hostess

Elsewhere on BBC

Recommended by Outbrain



BBC News

Argentina cocaine death Briton 'frightened' before death



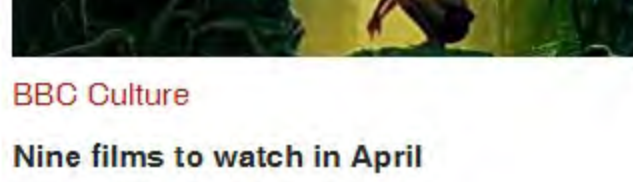
BBC Culture

Nine films to watch in April



BBC News

Man shot by Arizona police 'begged for life'



BBC Future

Can quicksand really suck you to your death?



BBC News

Quiz of the week's news



BBC Autos

Step away from the car, feeble human

BBC News Services

On your mobile

On your connected tv

Get news alerts

Contact BBC News

Explore the BBC

News	Sport	Weather	Shop	Earth	Travel
Capital	Culture	Autos	Future	TV	Radio
CBBC	CBeebies	Food	iWonder	Bitesize	Music
Arts	Make It Digital	Taster	Nature	Local	

Terms of Use | About the BBC | Privacy Policy | Cookies | Accessibility Help | Parental Guidance | Contact the BBC | Advertise with us | Ad choices

Copyright © 2016 BBC. The BBC is not responsible for the content of external sites. Read about our approach to external linking.

Top Stories

Icelandic PM quits over offshore firm

The prime minister of Iceland resigns after coming under increasing pressure over his use of an offshore company featured in the massive Panama Papers leaks.

11 minutes ago

Trump would 'cut off cash to Mexico'

7 minutes ago

ICC throws out case against Kenya's Ruto

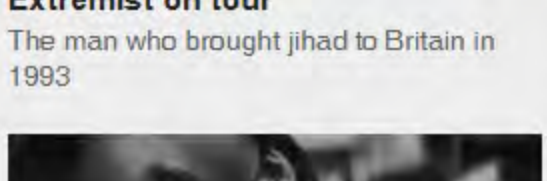
31 minutes ago

Features & Analysis



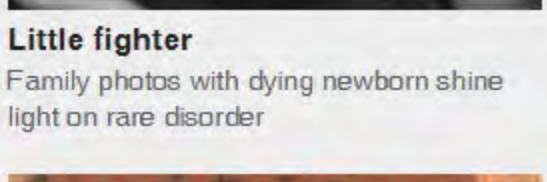
Extremist on tour

The man who brought jihad to Britain in 1993



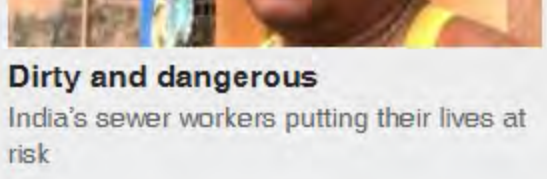
Little fighter

Family photos with dying newborn shine light on rare disorder



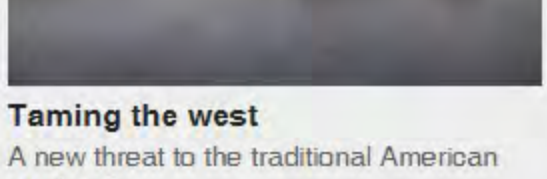
Dirty and dangerous

India's sewer workers putting their lives at risk



Taming the west

A new threat to the traditional American cowboy?



Slaughter island

Meet the man who shoots 30,000 wallabies a year



A good idea going bad?

Grassroots democracy meets party power in Venezuela



Delhi discussions

Crowd-sourced story ideas from India

Most Popular

Read | Watched

Icelandic PM quits over offshore firm **1**

Trump would 'cut off cash to Mexico' **2**

Vitamin D 'heals damaged hearts' **3**

Panama papers reaction **4**

ICC throws out case against Kenya's Ruto **5**

Swiss school row over Muslim handshake **6**

French firm owner denies Panama link **7**

The man who brought jihad to Britain **8**

Australia's Eurovision lyrics cleared **9**

Q&A: Panama Papers **10**

From Around the Web

Promoted content by Outbrain



The most addictive game of the year! Build your city!

Forge Of Empires



See the Best Luxury Real Estate in the World

Mansion Global by Do...



Where the World's Billionaires Live

Mansion Global by Do...



100 days since the Paris Climate Agreement

Global Carbon Captur...



World carbon dioxide emissions are still increasing

Global Carbon Captur...



Konica Minolta eyes packaging market with share

Nikkei Asian Review

Ads by Google

Landscape Gardens

Garden Tips, Shop Retailers & More! Download GardeningEnthusiast - Free www.gardeningenthusiast.com

Free Business Courses

Management & Leadership Training Sign Up Now All Lessons Are Free www.managementskillscourses.com/

Fish

Marine Aquarium Wallpapers for Your PC or Laptop. Customize Now - Free www.marineaquariumfree.com