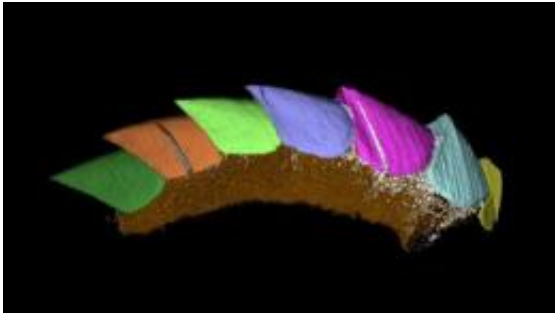


Ancient mollusc missing link revealed in 3-D

October 3 2012



Scientists have discovered a rare fossil called *Kulindroplax*, the missing link between two mollusc groups, which is revealed in a 3D computer model, in research published today in the journal *Nature*. Credit: Imperial College London

Scientists have discovered a rare fossil called *Kulindroplax*, the missing link between two mollusc groups, which is revealed in a 3D computer model, in research published today in the journal *Nature*.

The researchers have unearthed the worm-like partly shelled *Kulindroplax*, which they have modelled in a 3D computer animation. *Kulindroplax* lived in the sea during the Silurian Period, approximately 425 million years ago, when most life lived in the oceans and the first plants were beginning to grow on land. The team found the *Kulindroplax* fossil, the only one of its kind in the world, in the Welsh borderland, and it is providing the evolutionary missing link between two groups of molluscs and shedding more light on their early origins.

The study was led by Dr Mark Sutton, from the Department of Earth Science and Engineering at Imperial College London, in conjunction with researchers from the Universities of Oxford, Leicester, Yale and Queen's University Belfast.

Dr Sutton says: "Most people don't realise that molluscs, which have been around for hundreds of millions of years, are an extremely rich and diverse branch of [life on Earth](#). Just as tracing a long lost uncle is important for developing a more complete family tree, unearthing this extremely rare and ancient *Kulindroplax* fossil is helping us to understand the relationship between two mollusc groups, which is also helping us to understand how molluscs have evolved on Earth."

For over 20 years, scientists have debated the [evolutionary relationship](#) between two groups of molluscs called the aplacophorans, which are carnivorous, worm-like, sea-living creatures, and the chitons, which are molluscs that have shell plates for armour and live in the sea or on the [seashore](#) – both still live in Earth's oceans today.

The researchers in today's study analysed the 3D model of *Kulindroplax* and discovered that it had the worm-like body of the aplacophorans, but was partly shelled like the chitons. The combination of features in *Kulindroplax* confirmed to the team that that aplacophorans and chitons are closely related. Furthermore, the researchers believe that their 3D fossil is the missing link that shows how the worm-like aplacophorans evolved from chiton-like ancestors by losing their shells, providing fresh insight into the mollusc evolutionary tree.

The researchers discovered the *Kulindroplax* fossil, which is the size of a small caterpillar, in a deposit called the Herefordshire Lagerstätte. This deposit was formed when a cloud of volcanic ash settled through the Silurian seas and entombed a range of species, including *Kulindroplax*, as almost perfectly preserved fossils.

In order to develop their 3D animation, the team cut the *Kulindroplax fossil* into 1300 slices, taking digital images of each one, which were fed into a computer. The [researchers](#) in the study say this method provides unprecedented detail from the fossils, enabling them to analyse features that have been previously unseen.

More information: "A Silurian armoured aplacophoran and implications for molluscan phylogeny" *Nature*, 2012. [DOI: 10.1038/nature11328](#)

Provided by Imperial College London

Citation: Ancient mollusc missing link revealed in 3-D (2012, October 3) retrieved 18 April 2024 from <https://phys.org/news/2012-10-ancient-mollusc-link-revealed-d.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--