

530 million year old fossils have eyes like bees, dragonflies today

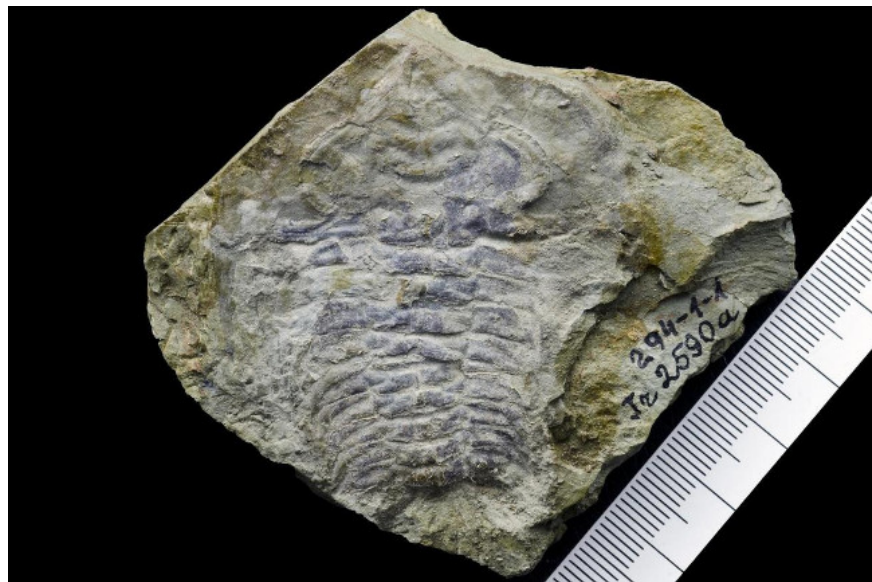
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Scientists discovered it while examining fossils and identified it as a hard animal - called trilobite that may be related to the ancestors of spiders and crabs living in coastal waters during the Great Palaeozoic, 541-251 million years ago.

They discovered that the ancient organism had the form of primitive compound eyes - an optical organ that contained small pieces of image cells, called ommatidia, similar to today's bee eyes, dragonflies.

The research team, including a researcher from the University of Edinburgh, said their findings suggest that the eye is at least 500 million years old.



The right eye of fossils - excavated in Estonia has been partially worn, helping researchers have a clear view inside the agency. This reveals details about the structure and function of the eye, and how this eye test differs from modern animals.

Researchers say this species has poor visibility in comparison to many animals today, but it can identify predators and evade obstacles on its path.

"The eye is composed of about 100 ommatidia, which are quite far apart from the eyes of modern insects. Unlike modern insect eyes, the fossil's eyes do not have lenses. This can happen because primitive species - called *Schmidtellus reetae* - lack the necessary shell parts for lens formation".

The team also pointed out that only a few million years later, the species' eyes may have improved with higher resolution developed in today's other trilobite fish from the Baltic region.

The study is published in the journal Proceedings of the National Academy of Sciences.

Professor Euan Clarkson, of the University of Edinburgh School of Geosciences, said: *"This particular fossil tells us more about animals hundreds of millions of years ago. Notably, it also shows structure and function. The power of the eyes changes almost in half a billion years"*.

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