New diatom species identified

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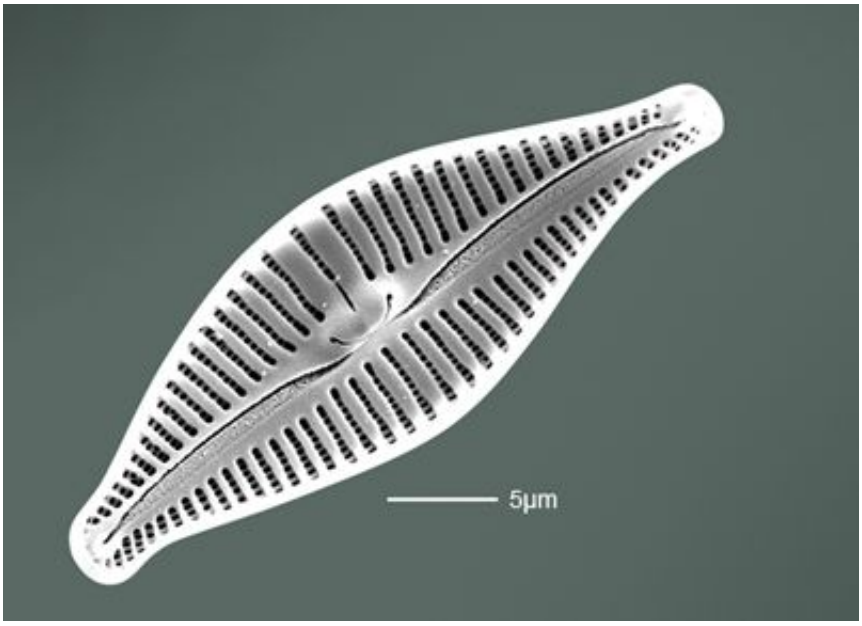

A newly discovered species of diatom, a microscopic creature that is key to the health of the planet, is named after a Lancaster professor.

Professor Philip Barker has dedicated much of his working life to the study of diatoms, exploring what these microscopic phytoplankton can tell us about climate change and water quality.

Now his efforts have have been rewarded, with a recently identified diatom species being called Afrocymbella barkeri in his honour.

Afrocymbella barkeri was identified by Belgian taxonomists Christine Cocquyt and Els Ryken in Lake Challa, a 92-metre deep crater lake at the foot of Mount Kilimanjaro on the border of Kenya and Tanzania. Phil has spent many years there doing research into long term climate change.

The paper identifying the diatom states that: "The name barkeri is in honour of Prof. Philip A. Barker (Lancaster Environment Centre, Lancaster University, United Kingdom), a diatomist with a long-term research interest in the palaeolimnology of East Africa's lakes, including Lake Challa."

Phil may have published more than 100 peer reviewed papers and chapters, and had many accolades for his research, but having a diatom named after him is something special. "!f something is named after you, then it is there for ever," he said.

The importance of diatoms

"Diatoms are incredibly important organisms that live in oceans and fresh water," said Phil. "They contribute the same in terms of photosynthesising carbon as rainforests.

"I started using them when I did my PhD as a tool to understand past climates. They are highly diagnostic of salinity and nutrient levels but what has sustained my interest is that they are terribly beautiful."

Diatoms are a diverse group of single celled organisms, with a silica shell forming the cell wall. It was the chemistry of the shell that captured Phil's interest.

"When the diatoms die their shells get preserved in the sediment at the bottom of lakes and oceans, providing an indicator of the conditions in

the water at the time when they lived."

Phil developed a series of new geochemical methods that scientists can use to analyse these preserved shells.

Drilling 250,000 years back in time

Lake Challa, where Afrocymbella barkeri was discovered, is very deep, so the sediments are not disturbed by mixing and are very well preserved.

"We have already got a record for the past 25,000 years. In November, we are hoping to drill 150 metres into the sediment and get a record of diatoms, and climate, going back 250,000 years. It will potentially give us a really good record of long term climate changes, in particular the evolution of monsoons in that part of Africa."

"This research provides a context for contemporary climate change, giving us an understanding of natural variability in climate before we start ascribing any human causes to current climate change."

It will also enable Phil to test a hypothesis about the interaction between climate and human evolution.

"Between 130,000 and 190,000 years ago, around the times Homo sapiens were evolving, there were a series of thousand-year long mega droughts in Africa. Humans will have had to change their behaviour to adapt and so maybe some of the traits we have today are a result of these droughts."

More information: Christine Cocquyt et al. sp. nov. (Bacillariophyta), a common phytoplankton component of Lake Challa, a deep crater lake in East Africa, *European Journal of Phycology* (2016). DOI:

10.1080/09670262.2015.1126766

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