Egg mythbuster—why some eggs are pear shaped

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Guillemot eggs are widely considered as one of the most beautiful and extraordinary eggs in the bird world and now scientists have debunked a centuries-old myth about why they have such a peculiar shape.

For the last few hundred years, egg collectors known as climmers scaled Britain's sea cliffs, including those on Yorkshire's east coast at Bempton, to collect the most unusually coloured guillemot eggs.

These eggs were sold to museums and wealthy businessmen from around the UK for their private collections.

Egg collecting is now banned in the UK but a myth spread by collectors still stands today.

Collectors believed that guillemot eggs evolved to be pear shaped to prevent them from rolling off the ledges on which guillemots typically breed.

There were two ideas. The first was that the eggs were pointy so that it allowed them to rotate or spin like a top on their side if they were knocked or blown in the wind.

The second was that the shape allowed the egg to roll in an arc - a curved line - to avoid falling off the cliff edge.

Now, Professor Tim Birkhead from the University of Sheffield's

Department of Animal and Plant Sciences, has discovered the real reason why guillemot eggs are such a peculiar shape.

Working together with his students and colleagues at Sheffield, their studies have shown that neither the spinning-like-a-top nor rolling-in-an-arc ideas are tenable. Instead the pointed shape may be a particularly strong design that protects the egg from damage in the event that its mother or father, while incubating, is hit by a passing bird on the busy cliff ledge.

Professor Birkhead said: "The myth about guillemot eggs being pointy to allow them to spin like a top in the wind was debunked by scientists about 150 years ago but that idea and the idea about them rolling in an arc to prevent them falling off the cliff edge are still widely believed today.

"However our team has found that neither of those ideas are true and in fact there are a variety of other reasons why guillemot eggs have this peculiar shape. One is related to the strength of the egg.

"Guillemot colonies are very vigorous places and guillemots aren't very good flyers. This means that on a windy day a guillemot's neighbour can crash land on top of it in the nest. The egg needs to be particularly strong so when that neighbour does land on top of it, the egg doesn't get crushed underneath them."

Professor Birkhead added: "One of the things I like about the story of the climmers at Bempton is that they were some of Britain's first citizen scientists. They knew more about guillemot biology than any biologist at the time.

"They knew that a guillemot would lay the same colour egg at the same site year after year. In fact, some of the eggs they collected were taken

from the same spot for more than 20 years. This meant that there were some female guillemots that never reared a chick at Bempton Cliffs because of the collecting that went on there.

"It was another 20 or 30 years after the climmers were most active when real biologists started to study guillemots and they found that everything the climmers said about the birds at the time was true."

Aside from the guillemot population of Bempton Cliffs, Professor Birkhead has spent more than 40 years studying guillemots on Skomer Island off the coast of Wales.

From recently discovering that the Battle of the Atlantic had a catastrophic effect on sea bird populations to revealing how extreme weather off the coast of Britain in 2014 has killed tens of thousands of birds, Professor Birkhead has uncovered crucial insights to advance our understanding of the biology of seabirds.

Provided by University of Sheffield

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