

# Ming the mollusc holds secret to long life

■ Steve Farrar

A CLAM dredged alive from the bottom of the north Atlantic has been identified by scientists as the longest-lived animal ever known. When the mollusc was growing from a larva 405 years ago, Queen Elizabeth I was on the throne and William Shakespeare was writing *The Merry Wives of Windsor*.

Unfortunately, by the time its true age had been established the 3.4in clam was already dead, but the British scientists who discovered it believe it could yield valuable information to help research into ageing.

Last week, the charity Help the Aged awarded the team a £40,000 grant for a preliminary study into the mollusc's ability to shrug off the centuries in the seabed off the coast of Iceland.

The record-breaking clam, from a species named the ocean quahog, was caught last year when scientists from the Bangor University School of Ocean Sciences were dredging the seabed north of Iceland.

"We had no idea it would be that old," said Alan Wanamaker, one of the researchers in the team who are using the growth



patterns in the molluscs' shells to study climate variations.

The clam, which was already 200 years old when Napoleon was confirmed as first consul of France in 1802, was among a haul of 3,000 empty shells and 34 live molluscs taken to the lab.

It was only when it was examined earlier this month that its great age became apparent. By that time, however, it was too late for the clam — its flesh had been thrown away and only its shell remained.

The age of the mollusc — nick-

named Ming, after the Chinese dynasty on the throne when it began its life — can be calculated precisely by counting the layers in its shell under a microscope.

The shell only grows in summer when the water is warmer and the plankton it eats is plenti-

ful. Each year a layer as thin as 0.1mm is laid down.

When Wanamaker cut the clam's shell in half, he counted 405 lines. This made it 31 years older than the previous oldest animal, another ocean quahog now in a German museum.

The clam far outlives other venerable animal species such as the Galapagos tortoise (the oldest known specimen of which lived for 176 years) and the bowhead whale (130 years).

Its age makes the ocean quahog a remarkable environmental

sentinel, because the exact thickness of each layer in its shell is determined by the state of its environment at the time it grew.

Chris Richardson, a professor in marine biology at Bangor who led the team, described the layers of the clam as the "tree rings" of the sea. "We knew the ocean quahog was very long-lived, routinely living 200 years and that it incorporated a climate record in its shell," he said. The scientists are using those data to construct a detailed picture of the changing climate in the north Atlantic.

But it is the question of how the clam managed to survive for so long that has prompted the most interest, as little is known about the mollusc's biology. Richard Faragher, a gerontologist at Brighton University working with the Bangor team, said: "Most of what we know about the ocean quahog is what it tastes like. We need to find out how it retains muscle strength,

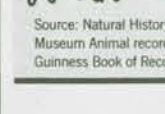
remains cancer-free and keeps its nervous system intact over such a long period of time."

It must have come as an unpleasant shock to the Iceland clam to be scraped up after more than four centuries of doing virtually nothing — the quiet, safe life of a clam, according to Faragher, could explain its longevity. "It has the most boring life," he said. "It even has a low rate of reproduction."

Perhaps not surprisingly, the sexual capacity of the 405-year-old clam is described by the scientists as "spent". "It may be that reproduction has given up by that age," said Richardson.

Mike Foster, a spokesman for the research arm of Help the Aged, said: "This discovery is not just a curiosity — it is a chance to discover how it remains fit and healthy for hundreds of years."

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The oldest ever...		Age in years
	Tree, bristlecone pine, USA	4,844
	English oak, Bowthorpe	1,000+
	Fish, lake sturgeon	154
	Mammal, bowhead whale	130
	Human, Jeanne Calment	122
	Elephant	78
	Horse	62
	Japanese salamander	55
	Herring gull	49
	Bat	32
	Dog	24
	Rabbit	18

Source: Natural History Museum Animal records, Guinness Book of Records