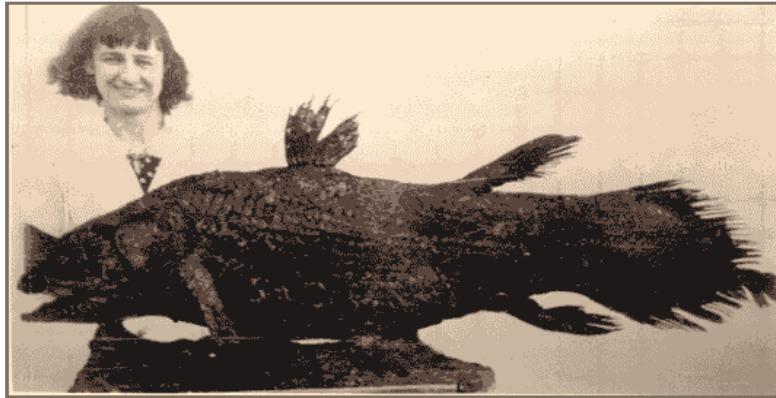


A Strange Fish Indeed: The “Discovery” of a Living Fossil

by

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Part I—From the diary* of Marjorie Courtenay-Latimer while serving as curator at the East London Museum, Cape Town, South Africa.

December 23, 1938

This morning started out like so many others here in my isolated but peaceful corner of the world. The summer sun rose over the Indian Ocean and began its daily work of baking the ground outside and transforming the air inside our little museum into a palpable and oppressive stew of heat. A pile of recently unearthed reptile bones lay in a heap atop my desk, ready for reassembly and mounting. My day’s work, and just the sort of puzzle that I love to solve.

Around lunchtime, Nigel rang to tell me that the Nerine had just pulled into port. My friend, Capt. Hendrick Goosen, had just returned from a trawling trip around the mouth of the nearby Chalumna River. Hendrick often calls on me when his catch is substantial so that I can look and see if there may be anything of scientific interest for the museum. More often than not, I find nothing but a pile of malodorous fish. For this reason, and because the proposition of venturing out into the midday heat and dust seemed torturous, I hesitated. Upon consideration, however, I figured that it might be the last opportunity I would have to visit with the Captain and to wish him and his crew a Merry Christmas before the 25th.

I chatted idly with the amicable Captain while we circled the huge heap of fish lying on the deck of the trawler, scanning the pile for anything unusual. I was just about to leave when a strange bluish fin poking

*The diary entries are largely fictitious and represent the imaginative work of the author of the case, except for certain selected passages from Marjorie Courtenay-Latimer’s own writings which have been interspersed.

through the pile caught my eye. It was like no fish fin I had ever seen in all my years at the museum. The Captain and I shoved the other fish off the top of the pile to uncover the owner of the odd fin. There it lay before me, the most beautiful fish I had ever seen, five feet long, and a pale mauve blue with iridescent silver markings. I am no fish expert, but I had the strange feeling that somehow this fish was special. I decided to take the fish with me, and after a heated discussion with the taxi driver, we stuffed the huge fish into the backseat of the cab and headed off for the museum...

Questions

1. Look at the picture of a coelacanth in **Handout I**. What do you see that might have led Ms. Courtenay-Latimer to believe that such a fish might be special?
2. What should Ms. Courtenay-Latimer do next? (Remember, she is not a fish expert.)

Image Credit: Photo of Marjorie Courtenay-Latimer and her coelacanth provided courtesy of the East London Museum/ISC and the International Society of Cryptozoology.

Handout I



East London Museum



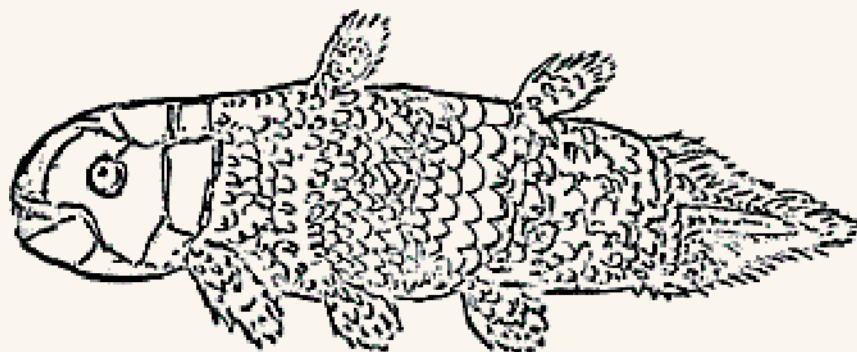
Part II—From the diary of Marjorie Courtenay-Latimer...

December 24, 1938

Could not believe that the director of this museum would not even *consider* the bizarre appearance of this fish as unique. To think, he said it was just another rock cod! I feel that it definitely resembles some of the pictures I found in *Fossil Fishes of the World*. This is the first time I've wished my expertise lie in fish instead of birds. I must contact J.L.B. Smith in Grahamstown...

January 2, 1939

Have been waiting anxiously for a reply from Dr. Smith. He must still be away from the university on Christmas holidays. I do hope that he received my letter and crude drawing of this most fascinating fish.



I fear that his silence is a result of my untrained hand at trying to recreate the specimen on paper. He can be rather persnickety...

January 3, 1939

Finally received word from Dr. Smith. Very excited at the arrival of his cable, "*MOST IMPORTANT PRESERVE FISH AND GILLS = FISH DESCRIBED.*" Am disappointed that I already had the fish gutted and its internal organs discarded. But after being rebuffed by both the town's mortuary and cold storage, I was most grateful to our local taxidermist who helped me preserve the fish as best we could. It was beginning to rot. We have only mounted the skin...

February 16, 1939

Dr. Smith arrived today and has caused quite a stir. He positively identified the fish as a *coelacanth*, a fish that was thought to have been extinct for about *70 million years!* My hunch was correct! We have found a *living fossil*. Dr. Smith said that this fish and its relatives were swimming in seas and lakes when *T. rex* walked the Earth! Cannot begin to describe my excitement. Must leave off here. The newspaper reporters have come to interview us...

Questions

1. Why was there a gap of 70 million years in the coelacanth's fossil record?
2. Did these scientists capture the last coelacanth?
 - a. What should they do next?
 - b. If there are more, why is it important they find them?
3. Why might a scientist studying evolution be so excited about a coelacanth being found?
(Think again about the structure of the fish.)
4. Look again at the title of this case. Why might the word "discovery" be in quotation marks?

Image Credit: Pencil sketch of coelacanth by Marjorie Courtenay-Latimer, © South African Institute for Aquatic Biodiversity (SAIAB). Used with permission, which must be sought directly from SAIAB.



Part III—Follow-up Facts

- Ms. Courtenay-Latimer, Dr. Smith, and their coelacanth became overnight celebrities. For a one-day-only showing of the coelacanth in East London in 1939, 20,000 visitors reportedly showed up.
- Fossils of the class of fish to which the coelacanth belongs appeared some 400 million years ago, mostly in fresh water environments on all continents except Antarctica.
- The fish specimen was named *Latimeria chalumnae* in honor of Ms. Courtenay-Latimer and the area in which it was caught (Chalumna River mouth).
- At the time of the discovery, it was thought that the coelacanth may have been the fish species that led to the first land amphibian, using its fleshy limbs to walk onto land. (With the use of mitochondrial DNA sequencing technology, it is currently thought that an extinct fish known as *Eusthenopteron* and the few extant species of lungfishes found in Africa and South America are the more likely evolutionary links between fishes and amphibians.)
- Another living coelacanth was not found until *14 years later*. It was caught by a fisherman in the Comoros Islands hundreds of miles north of the Chalumna River. Its internal organs were preserved, leading to many interesting insights into its biology.
- Based on recent and ongoing observations of coelacanths off the Comoros, scientists know that coelacanths live about 180 meters deep in caves, bear live young, and live for about 60 years.
- Comoros fisherman had known about the fish for years, calling it “Gombessa.”
- In 1997, two American scientists visiting Indonesia spotted a coelacanth at a fish market. DNA studies have shown it to be a different species of coelacanth, *Latimeria menadoensis*. Indonesian fisherman had also known about this fish for years, calling it “Raja Laut”—King of the Sea.
- Small populations of coelacanths have been found off the east coast of Africa and one off the coast of Indonesia. Global numbers of both species combined are estimated at about 1,000 individuals. *Latimeria chalumnae* is listed as critically endangered by the International Union for Conservation of Nature and Natural Resources.
- Ms. Marjorie Courtenay-Latimer died on May 17, 2004, aged 97.

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