

John Coates obituary

Naval architect best known for his work on the reconstruction of an ancient Greek trireme

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John Coates with a model of the trireme.

John Coates, who has died of cancer aged 88, stood astride the centuries as a designer of state-of-the-art warships. When he retired in 1979 as chief naval architect to the Ministry of Defence, where one of his achievements was the County class guided missile destroyers, he turned his attention to the trireme, the Hellenic navy's state-of-the-art guided missile of 450BC. Coates and the archaeologist John Morrison set up the Trireme Trust and built the *Olympias*, a working replica of the ships that enabled Athens to dominate the Mediterranean 2,500 years ago.

Coates grew up by the sea in Swansea, south Wales, and was educated at Clifton college, Bristol, and Queen's College, Oxford, graduating in engineering science in 1943. After studying naval architecture at Devonport and Greenwich Naval College, he served in Russian convoys and torpedo boats off Norway. At the Admiralty in Bath, he developed new inflatable life rafts and life jackets, working with the US and Canadian navies, for which he was appointed OBE in 1955.

Design of the County class began in 1957. Coates supervised construction on many visits to the shipyards with the simple expedient of carbon paper; one handwritten copy of the agreed actions to the yard on the spot and one for his records. There followed posts heading up fleet maintenance and forward design, and then as superintendent of the Naval Construction Research Establishment and deputy director of ship design and chief naval architect.

Coates had enjoyed a lifelong interest in historic and wooden vessels, which went back to his schooldays in Bristol with Eric McKee, who later wrote the classic *Working Boats of Britain*. In 1982 Morrison, a professor at Wolfson College, Cambridge, asked him to help solve a long-standing controversy in classical scholarship. Morrison's hypothesis was that the trireme (or *trieres* in Greek), rowed by 170 oarsmen arranged on three levels, was the fastest and most important warship of the ancient world.

Frank Welsh, a banker and writer, set up the Trireme Trust with Morrison and Coates and charged them with designing a ship in accord with the evidence and the laws of physics and building a full-scale reconstruction to show the practicability of the oar-system.

"It's an extreme design, like a fighter aircraft," Coates said at the time. "The requirement was for something which could escort merchant ships and clobber any pirate which came along. I would think as soon as a pirate saw one of these, they would back off. There was a kind of spider in the convoy that could get any fly that came along."

Build it they did. Morrison dug out archaeological evidence from pots, accounts of voyages, and a surviving ship shed in Piraeus, while Coates filled his huge study in Bath with models and plans. A 12-oar section was tried out at Henley regatta in 1985, and this led to the ministry of culture in [Greece](#) and the Hellenic navy funding and constructing the Olympias. It is 120ft long with a bronze-sheathed ram weighing half a tonne and a wetted area of hull per oarsman nearly half that of a modern racing eight. The Olympias had its first sea trials off the island of Poros in the searing summer heat of 1987, where a largely British volunteer crew took Coates and Morrison across the bay twice a day as they learned how to row, sail and manoeuvre the ship.

Rowers flocked to the Hellenic navy's midshipmen school from every Athens ferry, while scholars, film crew, media types and the plain curious poured into the small Hotel Latsi on the island. Debate and argument of ancient Greece and ancient ships lasted late into the night and spread to the Olympias when the Greek skipper and the trireme trustees did not see eye to eye as to how the ship should be sailed. The captain, Lieutenant Dimitri Papadas, was nicknamed "Pugwash" by his volunteer crew after he steered into a buoy on the first outing. My role in peacemaking, as reporter for the Guardian, was to conduct a lengthy interview with Pugwash on deck while Tim Shaw, the steersman, took the Olympias through manoeuvres laid down by Coates.

A further four sea trials took place over seven years, and increasingly experienced international crews, many of them American fixed-seat rowers, not only proved that the three-level system worked, but eventually took the Olympias to speeds near to those claimed by the ancients. Coates amended his design, so that the full-size segment now on display at the River & Rowing Museum in Henley is the prototype for a new Olympias, should one ever be built.

The Olympias visited London to celebrate 2,500 years of Greek democracy in 1993, and put in an appearance at the Athens Olympics six years ago. It now resides in the Hellenic navy's maritime museum. Coates and Morrison published the rationale for their design in the book *The Athenian Trireme* in 1987.

After the success of the trireme, Coates turned his attention to the North Ferriby ships, large oak-planked vessels dating from the bronze age and found in the Humber in 1937. With the naval architects Ted Wright and Edwin Gifford, he constructed a half-scale replica of the oldest seagoing ship known in north-west [Europe](#), revealing that shipbuilders in 2030-1680BC had used stitched plank jointing and were able to bend wood.

Coates, who rowed at school and in the navy, was a patient craftsman, a master of engineering and design, a painstaking interpreter of things ancient and modern, a passionate gardener, and secretary of the Bath Royal Literary and Scientific Institution between 1998 and 2002. And great company. He received an honorary DSc from the University of Bath in 1989 for his work in nautical research and, with Morrison, the Caird medal of the National Maritime Museum in 1991.

He married Jane Waymouth, a New Zealander, in 1954; she predeceased him in 2008. His sons, Henry and Julian, and five granddaughters survive him.

• John Francis Coates, naval architect, born 30 March 1922; died 10 July 2010

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