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## NEWSLETTER

*Captain's Log* 4th December 2009

*Whilst we probably regard our models only as a means of pleasurable relaxation, models have long played an important role in the history of technology as a means of testing the validity of a new design without great expenditure or risk to human life. They have also been used to explain the workings of a complex concept, explore unknown boundaries, test a scientific hypothesis or simply sell an idea to a financier. A study of the role of the model in the development of the modern world would make interesting reading.*

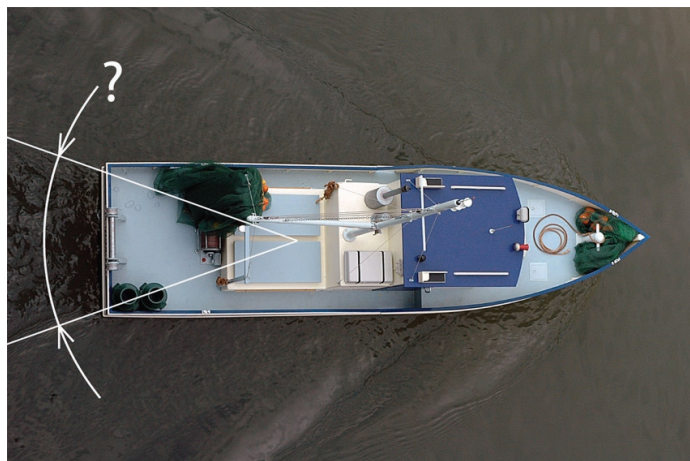
### Make magazine

This new magazine will be of interest to those who like to build their own technology projects. See: [www.makezine.com](http://www.makezine.com)

### Techno quiz no.1

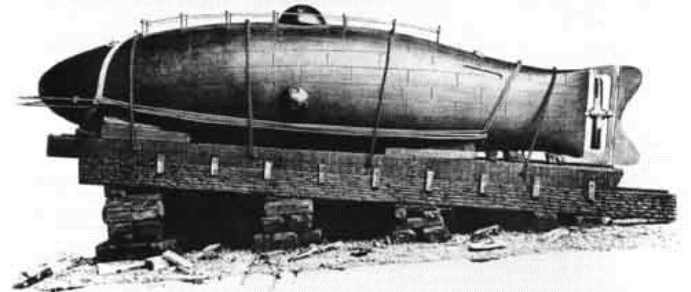
A model fishing vessel is proceeding on a heading of 90 degrees true (due easterly) in deep water. The model displaces 3.2kg and is travelling at a steady speed of 1.2 metres per second. What is the included angle of the stern wake? Refer photo below. Answer in the next issue.

*(Alan's Glenalbyn pictured)*

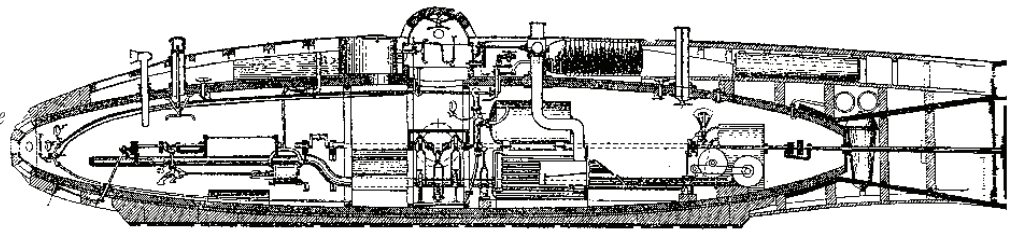


### Monturiol's coral fishing submarine

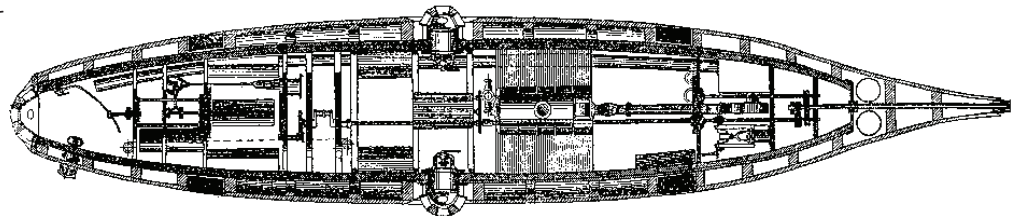
The next time you browse a book covering the history of submarines, check to see what information it has on the fish-shaped submersible you see in these illustrations. The chances are there won't be any. Yet this 1860s design, the Ictineo, could be described as the first practical submarine. The general exclusion of its Spanish inventor Narcis Monturiol from the annals of technological history is a travesty that needs to be addressed.



Monturiol devised his submarine not as a weapon of war but as a means of making the lives of coral fishermen less hazardous. A political activist rather than an engineer, he nevertheless adopted a scientific approach to the many problems of underwater navigation and in the process greatly furthered the state of the art.



*Illustrations are from the public domain.*



He realised, for example, that a submarine needed a strong pressure hull to be able to dive to 30m, but the best shape for this was not the best shape for least drag. He therefore gave us the first double-hull submarine. A strong circular-section inner hull was shrouded in a thin streamlined outer hull which he logically styled after a fish, all constructed in wood.

Monturiol's investigations extended into the devising of apparatus to replenish the oxygen content of the air in the submarine and remove the carbon dioxide, whilst experience taught him the need for low-flatulence diets for the crew!

The Ictineo made many successful demonstration dives lasting up to eight hours in Barcelona Harbour, from which it always safely returned. Like others, Monturiol was frustrated by the lack of a suitable air-independent engine, human power having proved inadequate against strong currents. He had an answer for this too, but political unrest and lack of money prevented him from bringing it to fruition.