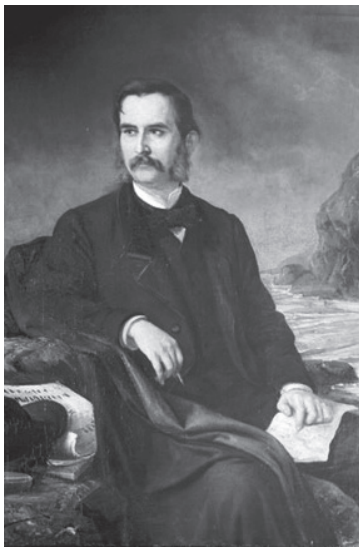


THE BIRTH OF MODERN SUBMARINE TECHNOLOGY

Although the idea of submarine navigation dates from the times of classical Greece (the first evidence of the use of submarine devices comes from the battle of Tiro and the Punic Wars of the 4th and 3rd century before Christ), the birth of modern submarine technology is very much linked to the life of the Catalan politician and inventor Narcís Monturiol.



The Catalan politician and inventor Narcís Monturiol

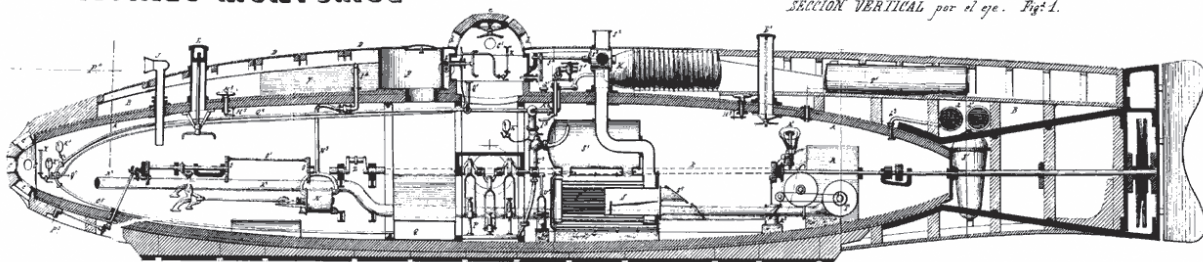
This year sees the 150th anniversary of the first immersion of his *Ictineo*, or *fish-ship* as it was named at the time, which took place in Barcelona's harbour in 1859. The rudimentary artefact was made of wood and was manually propelled. The first test was an experiment in order to prove that submarine navigation was possible without any external assistance, as Monturiol had theorised in a publication the previous year.

It is worth noting that in its original conception, the *Ictineo* was conceived by Monturiol as a peaceful use of technology, specifically for the exploitation of coral, at that time still very abundant on the Mediterranean coast. Due to the exorbitant costs of the project's development and the difficulties he encountered in obtaining sufficient private funding, Monturiol turned to the government of the Spanish Queen Isabel II for the necessary funds.

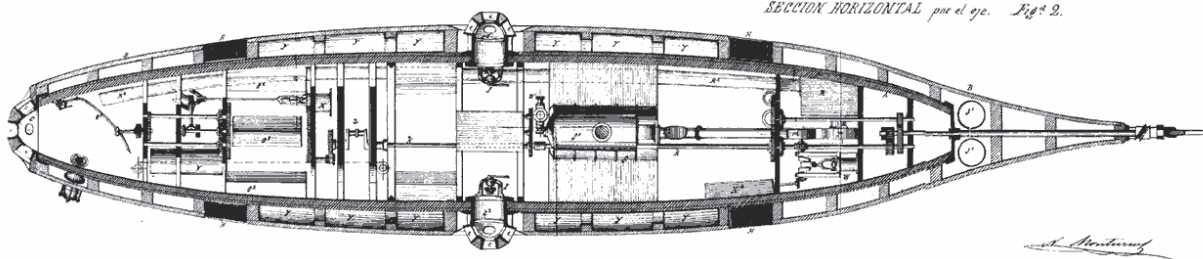
Nevertheless, Monturiol's political activities were always considered too radical by the Queen's ministers. A known republican and follower of the Cabet Utopian school, in the late 1840's and early 1850's he was the editor of several magazines, (including *The Fraternity*), which were closed down by the government, forcing Monturiol into exile in France in 1848-1849, and his disappearance from public life from 1855-1857. The inventor's political background and the closed-minded attitude that was endemic among the Spanish political and military

ICTINEO-MONTURIOL

SECCION VERTICAL por el eje. Fig^a 1.



SECCION HORIZONTAL por el eje. Fig^a 2.



elite of the 19th century left Monturiol without the support the government had initially promised. A promise which was more thanks to public enthusiasm resulting from the 1859 tests and the support of key intellectual figures of the time, than the government's own belief in the invention.

However, Monturiol managed to develop a much-improved version of the submarine, the *Ictineo II*, which was successfully launched in 1864, again in Barcelona's harbour. This was the first mechanically propelled submarine in history to successfully travel underwater. It also counted on an artificial atmosphere which was regenerated indefinitely

and counted on another of Monturiol's revolutionary inventions, a double hull. Once more, the bureaucratic machinery of the state and a lack of private capital reduced the enormous potential of this new invention, which was finally sold and broken up for scrap in 1868, the same year that the so-called 'Glorious Revolution' was to send Queen Isabel II into exile.

For a time a controversy existed between Monturiol and Isaac Peral regarding the paternity of the new submarine technology, but finally in 1889 the latter explicitly recognised Monturiol's leading role in a letter he wrote to him.

Original blueprints
signed by the
inventor

'This section is coordinated by Manuel Manonelles i Tarragó