

SUBMARINE

From accompanying fishes in the deep sea to releasing a torpedo to defeat enemies when necessary, she is a mystery of all time. She is none other than the submarine.

More than twenty centuries ago, the King of Macedonia of ancient Greece – Alexander the Great, had instructed the construction of a cylindrical-shaped fine barrel made entirely of white glass so that he could enter the glass case and lowered to see the underwater world. This could be the earliest concept ever recorded about underwater vehicles.

Later, others have tried to modify normal boats by installing a completely enclosed water-proof compartment in the center of the boats. To submerge a boat, rocks or lead pieces which increased the boat's load were used. To make the boat resurface from underwater, the loads were discarded from the boat. Nonetheless, the boat could not move forward or backward in the water due to the lack of mechanical power. Thus, the theory of relative diving and surfacing is proven to be an important basis for all future research on submarines.

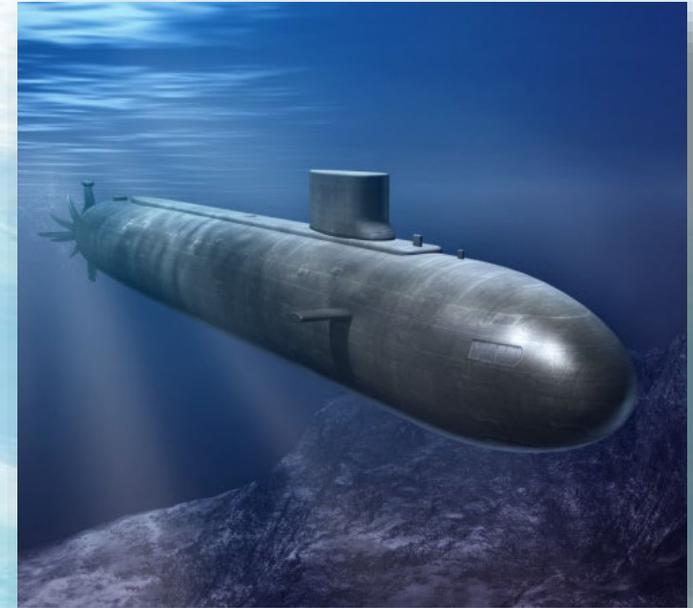


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In 1620, a Dutch physicist named Cornelis Drebbel devised the world's first navigable submersible, which could contain 12 sailors working together to row the craft. The steerable submersible was manufactured with a leather-covered wooden frame, while the inner craft contained a water tanker built with sheepskin. The water level of the tanker was increased or decreased in order to adjust the buoyancy of the craft. This submersible was perceived as the world's most primitive submarine model.

At the end of the 18th century, an Irish American named Robert Fulton built a submarine called 'Nautilus'. The body of the submarine was built using copper sheets over iron ribs. Other than a ballast tank that controlled the buoyancy of the submarine and a hand-shaken propeller which was able to work underwater, it had a foldable mast attached with a sail to enable the submarine to move by wind when it was on the surface of the water. As the submarine came with a torpedo device, the 'nautilus' was often considered to be the world's first military submarine. Compared to earlier submersibles, the 'nautilus' was much more advanced in terms of facilities and weapons.



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As the American Civil War broke out in 1861 – 1865, the Confederate States Navy built the submersible 'David' which used anthracite coal as its mechanical power. The submersible's success in attacking its enemy vessels was a prelude to the history of submarines being used in wars. In the 21st century, submarines are not merely used for scientific investigation and research, but also in military affairs.

Food for Thought:

- Curiosity about every matter in life is an important trait of an inventor and innovator.
- Other than curiosity, inventors and innovators must be able to convert ideas into practical research.
- Bold vision, brave innovation and pursuit of excellence promotes continuous improvements in human inventions.

