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## Submarine

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# Submarine

In 1870, Jules Verne wrote about his Nautilus submarine in Twenty Thousand *Leagues Under the Sea*. He gave us a great *yarn*; but submarines go back long before Jules Verne. Quite a lot of subs had been built by 1870. One had even sunk an enemy ship.

The dream of travelling the ocean deeps is as old as it is powerful. That fascination hangs over the story of Jonah. It *fuels* the legend of Atlantis. It drives our literature in every age. Greeks and Romans wrote about diving bells, and so did *medieval* writers. An English inventor described a workable submarine in 1578.

A Dutch inventor finally built several oar-driven subs in the early 1600s. And by the early 1700s, England had *issued* at least 14 patents for submarines. During the American Revolution, Bushnell built his Turtle submarine and tried to sink a British warship. By then he was using an *established* technology. The Turtle was hand-powered, and so too was Fulton's submarine a few years later.

When the German builder Wilhelm Bauer made two large submarines in the 1850s, they were still man-powered. Bauer sold his subs to the Russians, and he did so with a fine sense of theatre. In 1856 he put one under Kronstadt Harbour with a small orchestra in it. Men in the ships at anchor that day heard the Russian National *Anthem* *welling* up from the ocean floor.

For a while submarine builders tried to use steam engines, but their fires drank air at a terrible rate. You had to either pull air through a breathing pipe or build a head of steam in the boiler and then run on it with the fire put out. Although that never worked for more than a few minutes, the Confederate military did build a series of fifty-foot-long cigar-shaped steam-driven submarines. However, it was their human-powered Hunley that actually sank the Union *sloop* Housatonic in 1864.

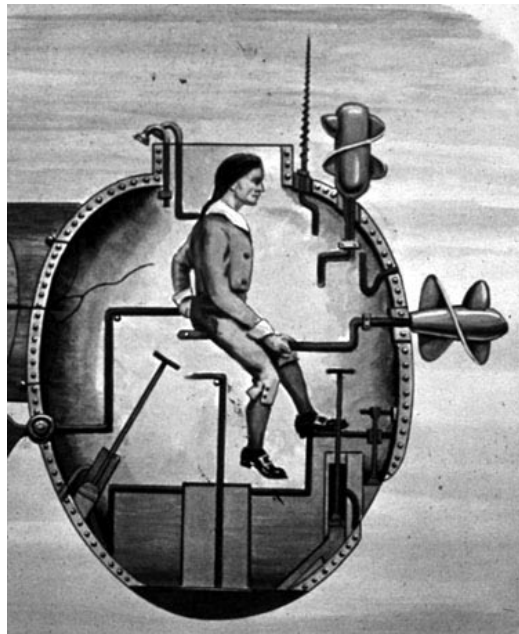
Practical submarines had to wait for the invention of compact batteries and electric motors. After the French started that technology in the 1880s, it didn't take long for Jules Verne's dream to become a nightmare. In a few years the slaughter of commercial shipping was a routine part of war.

Yet the dream *revives* when submarines turn the sunken Titanic from a memory into reality - when you and I can ride sight-seeing submarines through landscapes that

might have been imagined by a madman. Most of the earth's surface and most of its living beings make up that fantastic world. We'd be *impoverished* indeed if that great unknown didn't drive us to risk, and to invention. ■

Prof. Dr. John Lienhard, University of Houston

**Jules Vernes Nautilus ist wohl der Urtypus des U-Boots schlechthin. Tatsächlich waren U-Boote zur Zeit, als Verne seine 20.000 Meilen unter dem Meer schrieb, schon ein alter Hut.**



|                       |                          |
|-----------------------|--------------------------|
| <i>anthem</i>         | Hymne                    |
| <i>establish, to</i>  | etablieren, einführen    |
| <i>fuel, to</i>       | antreiben, schüren       |
| <i>impoverish, to</i> | verarmen                 |
| <i>issue, to</i>      | ausstellen, erteilen     |
| <i>league</i>         | Meile                    |
| <i>medieval</i>       | mittelalterlich          |
| <i>oar</i>            | Ruder, Riemen            |
| <i>revive, to</i>     | wieder aufleben, beleben |
| <i>sloop</i>          | Schaluppe                |
| <i>well, to</i>       | quellen                  |
| <i>yarn</i>           | (Seemanns-) Garn         |

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