Into the Abyss . . .

The deepest point in the ocean is Challenger Deep in the Mariana Trench in the Pacific, it is 11,000m deep. On January 23rd 1960 scientists Jacques Piccard and Donald Walsh made the deepest ever dive there to 10,911m in the US Navy submersible, the bathyscape *Trieste*.

But most of the action in the ocean takes place in the shallow seas around the coast where sunlight can penetrate and give life. Darkness in the oceans usually starts at around 200 metres and no normal photosynthetic plants grow beyond this depth.

50 metres is the limit for sports diving with normal aqualungs, although the world record for free-diving without air tanks stands at 160 metres.

Submarines generally operate at around 250 metres deep, although special scientific vessels with thick pressure hulls can reach almost anywhere in the ocean.

Captain Cockle's Log

Welcome aboard shipmates! Together, we'll be taking a look at the world's greatest natural resource – the sea!

Words & pictures by John Joyce John Joyce 2004

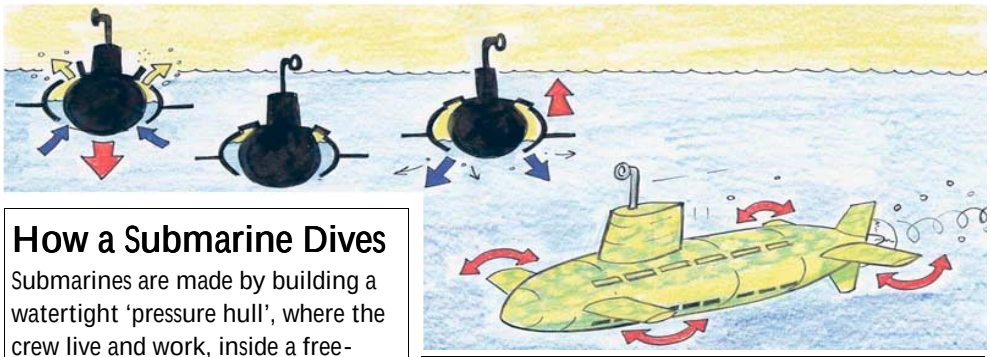
For more adventures from Captain Cockle, visit his website at

www.captaincockle.com

The Man from Clare...

The father of the modern submarine is generally recognised as an Irishman from Clare, John Phillip Holland (1841-1914). He emigrated to the USA in 1873 and, after working as a schoolteacher in Paterson, New Jersey, began designing submarines.

After a number of failures, he succeeded with the Holland I, a tiny two-ton, petrol driven sub in 1877. From there he moved to bigger and better boats that formed the first fleets of the US, British, Japanese and Dutch navies. He died only a few months before the first ever sinking of a warship by a submarine with a torpedo at the opening of the first World War.



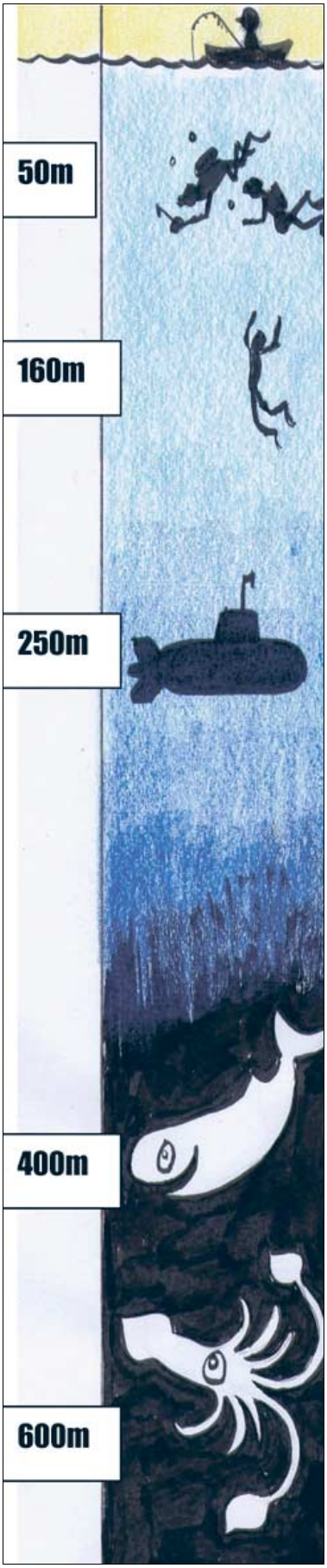
How a Submarine Dives

Submarines are made by building a watertight 'pressure hull', where the crew live and work, inside a free-flooding 'outer casing' with holes, or 'vents', at the top and bottom.

To dive – the crew open the upper vents allowing water to flow into the outer casing and the sub sinks. To surface - the crew closes the upper vents and blows the water out of the bootom vents with compressed air.

Submarines work best at 'neutral buoyancy' – when they neither rise or sink in the water. At this point they can be 'flown' underwater with 'diving planes' which work just like the flaps on the wings of an aircraft.

In fact, the controls of a modern atomic submarine look very similar to those of a plane, with a big 'joystick' to 'fly' the sub through the ocean depths.



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