



Black John - the Bogus Pirate

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By John Joyce

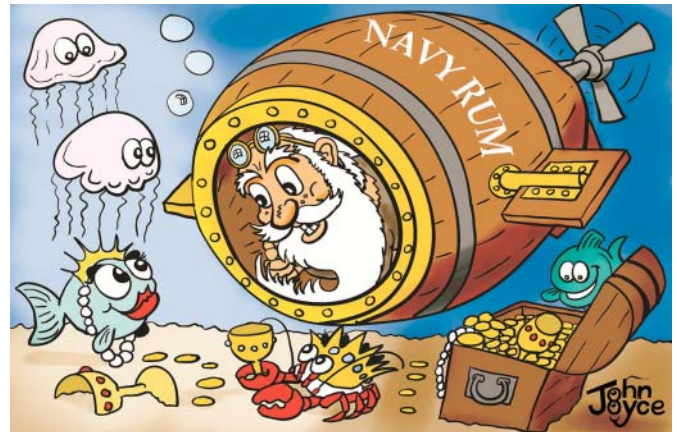
The Ocean is Largely Unexplored

The Sixth Principle of Ocean Literacy tells us that the Ocean is largely unexplored. This is because the deep sea is one of the most hostile environments for humans on our planet due to the enormous pressure of the surrounding water at depth, the lack of breathable oxygen and the effects of storms, currents and waves. Here's Smithy - our resident shipwright and inventor - to tell you all about it ...

New technologies, such as Remotely Operated Vehicles (ROVs), underwater mapping systems using sound waves, and advances in satellite imaging systems have now replaced the old 'lead line' method of charting the depths.

In the past, this problem was overcome by pumping high pressure air down to the diver with a hand pump. But in 1942 the French naval officer Jacques-Yves Cousteau adapted a special valve invented by Emile Gagnan of the Air Liquide company to create the 'Aqualung' – a device capable of changing the pressure of compressed air from a metal tank worn by a diver to that of the surrounding water. This 'Self-Contained Underwater Breathing Apparatus' or SCUBA, allows divers to free themselves of any connection with the surface and to freely explore the underwater world.

In 1999, the Irish National Seabed Survey set out to map Ireland's 220 million acres (880,000 square kilometres) of underwater territory using sound waves. This project, which later evolved into the INFOMAR project, was a joint venture between Ireland's Marine Institute and the Geological Survey of Ireland. Under the United Nations Convention of the Law of the Sea (UNCLOS), Ireland has sovereign rights to explore and develop the natural resources in this vast area, which is nine times the size of the land mass of Ireland itself.



In the year 322 BC Alexander the Great is said to have employed divers to destroy underwater defences around the city of Tyre and even to have been lowered into the depths himself in a glass diving bell. Since then underwater vehicles called 'submarines' have been developed, both as instruments for peaceful exploration and salvage, as well as weapons of war.



But if we want to leave the confines of a submarine and swim freely under the sea, we must find a way of taking an air supply with us, since we do not possess gills and cannot take oxygen directly from the water as fish and other marine animals do.

In shallow water, this can be done with a simple snorkel to suck air down from the surface. But, as we go deeper, the weight of the water above us creates pressure all over our bodies. This squeezes our lungs so hard as to make it impossible to suck in air from the surface.

One danger of breathing normal air at high pressure however, is that the nitrogen it contains starts to have a similar effect to alcohol, creating a drunken condition known as 'rapture of the deep'. To overcome this, divers going beyond 30 metres depth for long periods breathe a mixture of oxygen and the inert gas helium. This protects them from 'rapture of the deep' but gives their speech a high pitched 'Donald Duck' effect.

Useful Links:

Alexander the Great - <http://www.mlahanas.de/Greeks/UnderWater.htm>
Pressure - <http://pmel.noaa.gov/eoi/nemo1998/education/pressure.html>
Irish National Seabed Survey - <http://www.marine.ie/Home/site-area/irelands-marine-resource/real-map-ireland>

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