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The Origin of Hovercraft and How It's Glided Over the Years

As Sir Christopher Cockerell put it, a hovercraft is no more than "a very expensive motorcar tire with a permanent puncture." The creation of the hovercraft was dependent on the development of past discoveries that deserve mentioning. Although the term “hovercraft” has a very futuristic connotation, the idea of it originated in ancient greece and the invention of the hovercraft came to be in 1950’s thanks to Sir Christopher Cockerell. The typical design of a hovercraft is actually very simple despite the misconceptions. The first model Cockerell created was mostly made out of everyday items laying around the house: a cat food can, a coffee can, a set of kitchen scales, and an industrial air blower. Cockerell’s later improved invention was patented and considered “hovercraft” as a commercial name until he later relinquished the term to the public.

The vital combination of electricity and magnetism required for hovercraft can be attributed to Danish scientist Hans Christian Ørsted. On April 21, 1820, Ørsted made a startling discovery.While connecting a wire to a battery, he noticed a quiver in the compass, which was lying near the wire. This was the first time that an undisputable and direct connection was documented between electricity and magnetism, which up until that very day, were thought of as completely separate.Thanks to Ørsted’s discovery, we have the luxury of using motors, transformers, electromagnets and many more inventions, all of which rely on this vital link. Ørsted had little knowledge of how important his discovery would be to the future of Freshman Engineer Day at NC State.

The importance of strong motors, however, is just the tip of the iceberg when it comes to the hovercraft design. The pressurized air cushion is the vital component which classifies it as a hovercraft. It originally started as a large amount of air bubbles, built by Sir John I. Thornycroft in 1877, which were captured in the hull of a ship. Though this produced great results, it could not be implemented into a working craft. In 1882, Gustav de Laval proposed the idea of using air lubrication. Though the idea seemed favorable, the mixture did not reduce drag, and instead, created unstable air bubbles. The lack of a steady air cushion wasn't solved until the breakthrough of Christopher Cockerell in 1954. While experimenting with the usage and further perfection of air lubrication, he thought of using air "curtains." While a fan blew air into the curtain, Cockerell observed that this produced a "lift" of the device. In 1958, C.H. Latimer Needham created the segmented skirt. Cockerell and Needham's designs became the basis of all the modern air cushions seen in hovercraft today.

Cockerell's hovercraft, once patented, was implemented into ship building; once completed, the hovercraft was first used to cross the English Channel in 1959, on the 50th anniversary of the first flight over the English Channel. During the 1960's and 70's, the British military attempted to use it as navy transport vehicles. The technology was not fully developed at this time, leading to many accidents and explosions, however. In the late 70's, the United Kingdom, Japan and China successfully used hovercraft for passenger transport. The invention also became popular for recreational use in the 1960's, starting with the formation of the Hovercraft Club of Great Britain. The first toy hovercraft were seen on the market in 1989. In 2010, the World Hovercraft Championships were started. The evolution of the hovercraft was rapid and most likely would surprise Cockerell that his initial invention progressed from military use to toys for children.

Since the creation of Cockerell's hovercraft, the design has been altered through the years, producing many new patents throughout the world. One specifically made in the US named the Homeostatic Flying Hovercraft, utilizes two fans spinning in opposite directions. The idea behind the counter-rotating fans is that they create homeostasis, or balance. The design also includes a controller that allows the user to change the orientation of the craft by altering the fans' abilities (Pedersen).

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