

## Depth Charges

This section is about ASW, namely anti-submarine-warfare. A depth charge is a 'drum' containing explosives with a fuse which is detonated at a preset depth and which is based on hydrostatic pressure. Developed in 1916, during WWI, a depth charge could detonate up to 100m depth and carried 150 kg of explosives. There was little development for this weapon between the wars except for a 300kg variant. At the start of WWII, depth charges were essentially the same weapon as it existed at the end of WWI. This situation changed quickly.

In September 1939, The New York Times wrote about the procedures of U-boat hunting: "Once a submarine is located, British naval plans, so far as they were known before the war, call for attack by familiar methods of an enclosing diamond pattern of depth bombs, supplemented, of course, by shell fire and ramming if the submarine could be forced to the surface. In the diamond-pattern attack, the destroyer goes at full speed to the spot where the submarine, slow and clumsy under water, is thought to be. One depth bomb is charged just before the spot is reached. A few seconds' later two more are lobbed out by a Y-gun so that they land out on either side of the destroyer's wake. In the front part of the diamond pattern, another depth bomb is dropped over the stern, some distance ahead of where the Y-gun fired. This way a large area of the sea is covered by this diamond pattern. The effect is further increased by the fact that the bombs are timed to go off at different levels, so that the area is covered not only horizontally but vertically as well. The bursting area of a modern depth bomb is considerable".

Evaluating the intensity of the destruction caused by the explosion of depth charges from sea surface to sea bottom is not easy. Many naval vessels were not out on sea for combat reasons, but for training, surveillance or testing, etc. For many commanders the situation was new and they took precautions against imminent or assumed threats, as the following report illustrates it: "Russian commanders of the transport ships and torpedo boats were so much afraid of being attacked by a Finnish submarine in the Gulf of Finland that they set off depth charges every 15 minutes or whenever an unconfirmed sighting of a periscope was reported, all that resulting in a total of 400 depth charges having been dropped by the end of the operation that day".

On the 29<sup>th</sup> of November 1939, at dawn, U-35 was cruising east of the Shetland Islands, in the North Sea. At the sight of the British Destroyer '*Icarus*', the U-boat crashed to 70 m depth and started steering evasive courses. As '*Icarus*' electronic devices for U-boat localisation were out of order, depth charges set for 80m were dropped in order to feign an attack. Two nearby destroyers were alerted. After contact had been established, two more depth-charge attacks followed, jamming U-35 diving plans and placing it at a sharp up angle. Crew was sent to the ship's bow to bring it back on even keel, but all their efforts were in vain. Explosions had also destroyed the fuel and ballast

tanks aft. U-35 appeared suddenly at the surface and the crew was ordered to abandon the ship, but they were rescued by their attackers.

During the first sixteen months of war, an estimated number of 33 U-boats were destroyed in about 4,000 depth charge attacks. Each attack could mean the use of a few or, from the contrary, of many dozens of depth charges. The total number of depth charges dropped per month could easily reach several thousands. German naval vessels hunted Royal Navy submarines, too. Up to 10,000 or even more depth charge explosions could have occurred below the sea surface during the first four months of the war.

Since then, development of depth charges focused on increasing the depth at which a submarine might be successfully attacked, due to improvements to their sinking speed. Since 1943, the detonation of depth charges carrying a charge of 100 kg of TNT at a depth of 300 meters became possible.