

# Paratroopers

24,000 British and American soldiers took part in the airborne invasion as part of Operation Overlord. The majority of these soldiers parachuted out of carrier planes. Although the allies had used airborne troops in Italy, an attempt on this scale had never been done before.

The airborne soldiers had mixed success. On the evening of the drop the carrier planes met heavy anti-aircraft fire, meaning that they ordered their paratroopers to jump out of their planes early, rather than over the target area. This led to confusion and units being mixed up. However, due to their rigorous training the mix match of American airborne units managed to group together and localised success was achieved.

For example, members of the 101<sup>st</sup> Airborne manage to take out and destroy an artillery battery, at Brecourt Manor, that was firing on the Utah Beach landings. The decisive destruction of the German artillery allowed the Americans landing on Utah Beach to move up without hindrance.

Overall out of the 13,000 American Airborne used on D-Day over 4,000 were killed or missing.



# Gliders

The British used glider troopers as part of Operation Deadstick. The aim of this operation was to capture bridges along the River Orne and the Caen Canal on D-Day. This would allow the British soldiers on Sword Beach to move further inland and prevent a German counter offensive.

The gliders had been specifically designed so that the tail end of the glider would snap off upon landing, bringing the glider to slow stop. This also meant that they could land closer to their targets. Gliders had the advantage of surprise as they had no engine to alert the enemy of their presence.

One of the most successful examples of their effectiveness was that of the 6<sup>th</sup> British Airborne who landed, and took control of Pegasus Bridge. This allowed for a British advance 7 miles inland, the furthest on D-Day. Out of the 181 men who held the bridge, 2 were killed and 14 wounded.



# Mulberry Harbours

After D-Day, the Allies needed to continually build up reinforcements of men and supplies in Normandy to sustain the invasion's momentum. Previous experience taught the Allies hard but important lessons about the need to secure harbours and ports - harbours to provide protection from bad weather and rough seas, and ports to provide a place to ferry men and cargo. The planners responsible for 'Overlord' proposed creating two artificial harbours - codenamed 'Mulberries' - by sinking outdated ships ('Corncocks') and large concrete structures ('Phoenixes'). Adding floating roadways and piers (codenamed 'Whales') would allow them to use the beachhead as an improvised port.

They allowed the allies to unload vital resources prior to the capture of a deep-water harbour at Cherbourg.



# Crab Tanks

To support the infantry through the minefields on the ground operation in Europe and the Pacific, U.S. military engineers decided to modify their new tank, built from 1942, called M4 Sherman, which is not only used by U.S. forces, but also by the British, Canadian and Free French forces.

The M4 Sherman tank, which is by far not the best tank of the Second World War, used a basic structure which allowed the installation of a number of changes.

Thus, the "Crab" version emerged: it was a "mine hunter" which had two metal arms in front of the tank and connected by a cylinder. Around this cylinder, long strings touching the ground were attached.

In contact with anti-personal or anti-tank mines, the chains would action the explosion which would not destroy any part of the Sherman tank. The tank was then able to continue its mission within the minefield.

The Sherman "Crab" tank is one of the "Funnies", a nickname given to the armoured vehicles invented by the British engineer Percy Hobbart.

Due to the excessive amount of mines planted by the Germans a device such as this was needed to clear a path of the infantry.



# DD Tanks/Hobart's Funnies

These unusual vehicles played an important role on D-Day and throughout the Battle of Normandy. The failed raid at Dieppe in August 1942 exposed how difficult it was to land armoured vehicles during an amphibious invasion and to break through German coastal defences with insufficient armoured support. As a result, armoured vehicles were designed to perform specialist tasks and reinforce ground troops on D-Day. These vehicles were nicknamed 'Hobart's Funnies' after their inventor, Major-General Sir Percy Hobart. They include the Duplex Drive (DD) 'swimming' tank, like the one in this photograph; the 'Crocodile' flamethrower tank and the 'Crab' mine-clearing flail tank. Although the Funnies had been used in simulation and training exercises, they had not been tested in combat until D-Day. Modified vehicles known as AVREs (Armoured Vehicle Royal Engineer) were created by adding specialised devices to tanks. One example, the 'bobbin' Carpet layer tank, laid reinforced matting on sandy beaches so other vehicles could drive across the soft surface.



# Tide-prediction machine

Weather conditions, the moon and the tide were all crucial factors when planning the June 1944 invasion of north-west Europe. Air operations required clear skies and a full moon for good visibility, naval operations required calm seas, and ground troops needed to land at low tide, when German beach obstacles were exposed and easier to deactivate. D-Day required the best combination of all these factors and the Allies consulted a number of meteorologists and other experts when planning the invasion. In 1942, British mathematician Arthur Thomas Doodson had begun working on existing models of tide-prediction machines - essentially mechanised calculators that could reveal tidal patterns. In 1944, using his specially modified machine, Doodson identified the exact time the landings should take place (H-Hour) and that D-Day should fall between 5 and 7 June.



# Landing Craft

Thousands of landing craft were used to transport men and equipment across the English Channel on D-Day. Many different types of craft were used. These ranged from tiny Assault Landing Craft to huge Landing Ships. Other landing craft were fitted with guns or rockets. There was even a 'Landing Barge, Kitchen' to prepare food for the troops. The use of landing craft meant that the Allies could land troops and heavy equipment, such as tanks, on strongly defended beaches that were not previously intended to receive supplies. Because equipment could be brought directly onto the beaches, the landing craft were also a short-term solution to the problem of securing the harbours and ports that were needed for the immediate build-up of men and materiel. Although the development of specialised landing craft began early in the war, it was only on D-Day that they were used on such a scale.



# PLUTO

PLUTO - short for 'pipeline under the ocean' - supplied petrol from Britain to Europe via an underwater network of flexible pipes. It gave the Allied forces access to enough petrol to fuel aircraft and vehicles and to sustain the momentum of their advance. Two PLUTO pipelines ran from the Isle of Wight to Port-en-Bessin - the linkup point between Omaha and Gold beaches. Another pipeline was added later, running from Dungeness on the Kent coast to Boulogne in France, and the PLUTO network continued to expand as the Allies advanced across Europe. The 3-inch-wide pipeline was wound around giant floating spools called 'conundrums' - like the one in this photograph - and then unrolled across the Channel.

