MINESWEEPING

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Introduction: During both World Wars sea mines proved to be relatively inexpensive, but deadly weapons, sinking or disabling hundreds of merchant vessels and warships alike on both sides of the conflicts.

Mines come in a variety of types. The most common is the contact mine that is detonated when struck by a target vessel. Other, more sophisticated types include magnetic mines that are triggered by the magnetic field of a metal ship passing in close proximity; and, pressure mines that are triggered by the increased water pressure caused by a ship passing over a mine.

Mines such as these are usually moored at various depths below the surface, connected to an anchor by a cable, although the "influence" type of mine may be laid to lie on the seabed.

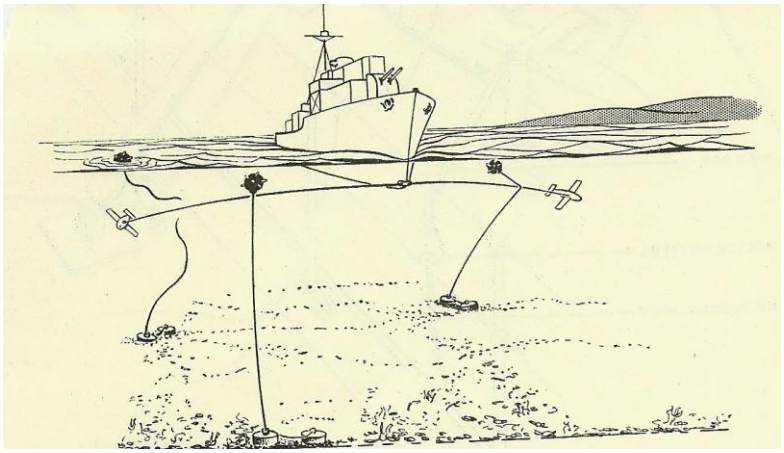
Mines can be laid by surface vessels, submarines and aircraft.

Minesweeping is the traditional means of clearing mines and involved the streaming of a system of floats, wires and cutters designed to cut the mine's mooring cable so that it would come to the surface where it could be destroyed by small arms fire or other means.

In the case of magnetic mines in particular, the need for wooden, and later plastic hulled minesweepers became necessary so that the sweeping vessel did not detonate the mine. Today's more modern and sophisticated mines including non-moored influence mines, are impossible to sweep and hazardous to a minesweeper. They have led to the development of the minehunter, a specialised class of vessel that searches for and destroys mines with sonar and explosive devices.

Types of Minesweeping

<u>Paravane Sweep</u>



The paravane is kind of underwater kite designed to be towed from the fore-foot of a ship and to deploy well away from the ship's side and to run at about the same depth as the ship's keel as shown in the figure above.

It is designed so that the mooring cable of a moored mine will be caught up by the paravane's cable and slide along it toward the paravane. The paravane cable is constructed so that it saws through the mine cable. If that fails, there are also special cutters fitted along the paravane's cable. These cause the mine to float free and bob to the surface where it can be destroyed by gun fire.

"A" Sweep

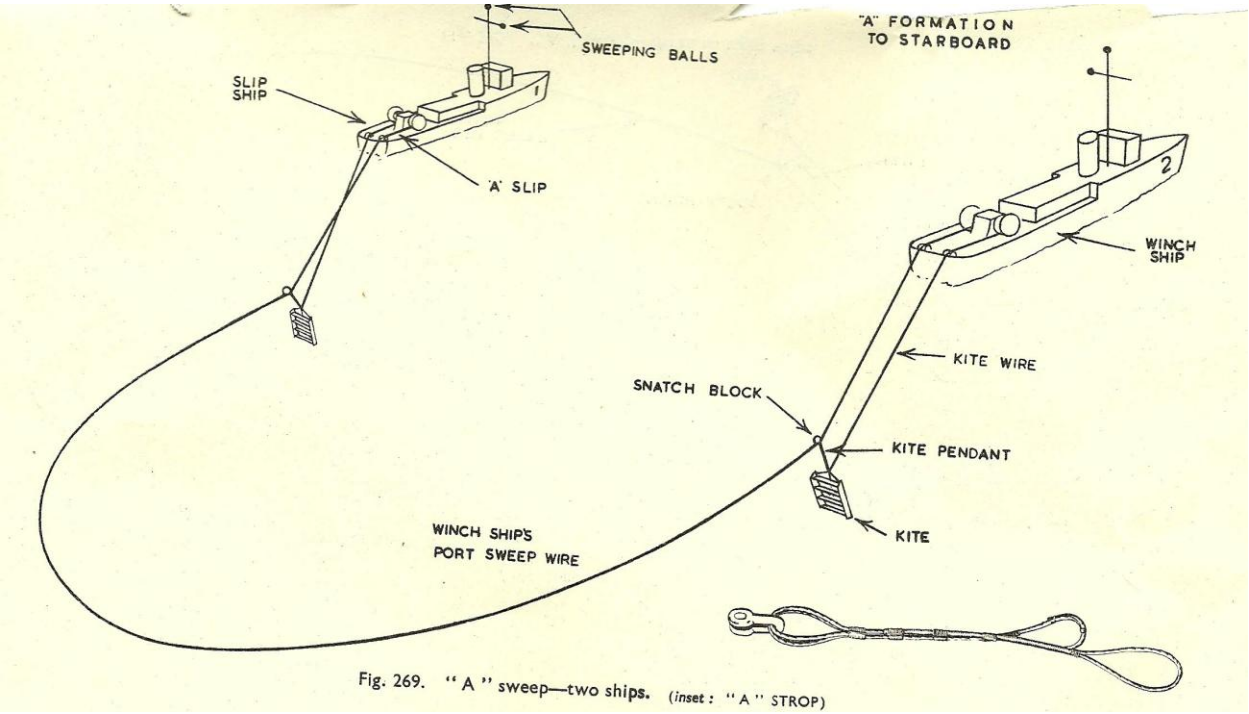


Fig. 269. "A" sweep—two ships. (inset: "A" STROP)

This type of minesweeping consists of a special serrated sweep rope that acts as a cutting agent and which is towed between two or more ships as seen in the picture above. The depth of the sweep is regulated by "kites", known as "otters", attached to the sweep wire.

"O" Sweep

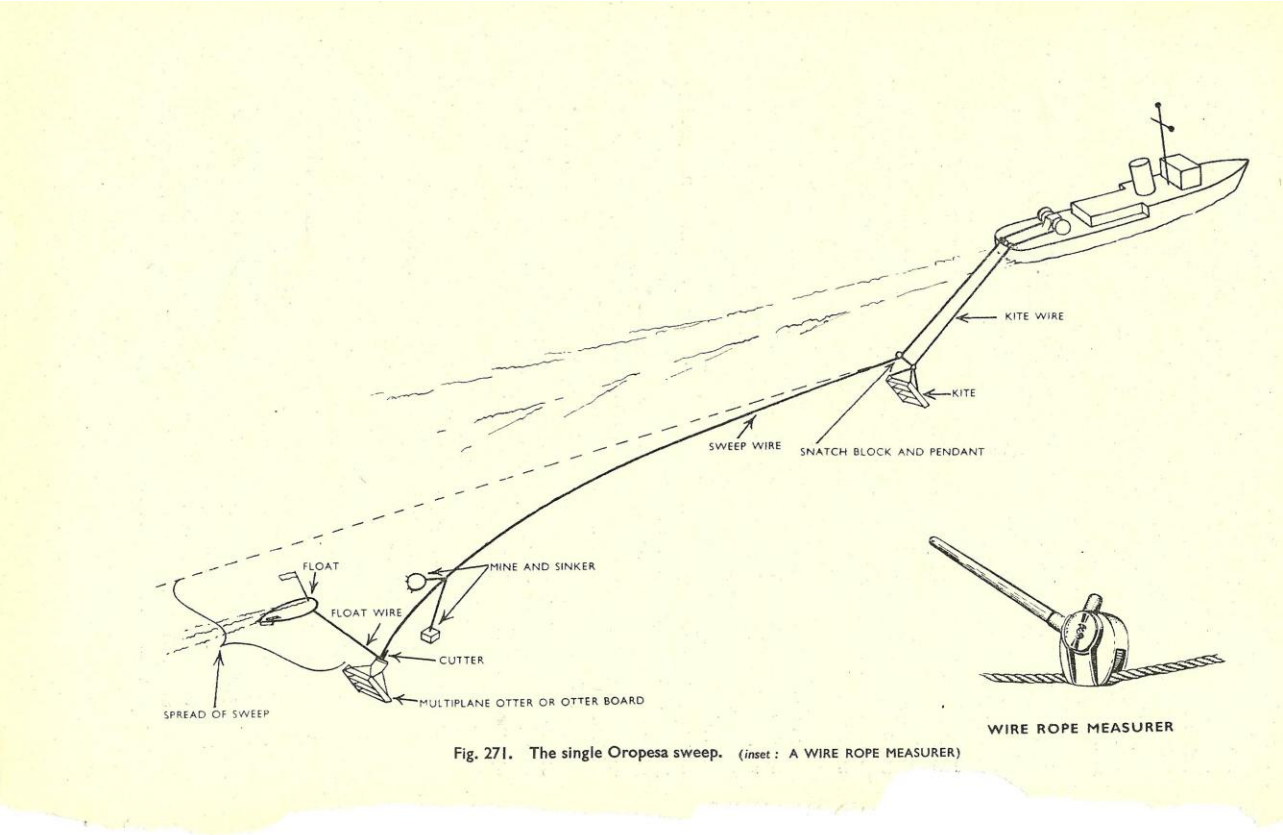


Fig. 271. The single Oropesa sweep. (*inset*: A WIRE ROPE MEASURER)

The "O" type of minesweeping, known by it's Oropesa float, is a single ship technique illustrated above. This technique uses the same type of "kite" or "otter" as the "A" sweep to regulate the depth of the sweep. The Oropesa float is used to take the sweep out from directly astern of the minesweeper to create a sweeping arc. As with the other systems, the sweep cable has a serrated cutting edge that cuts the mine mooring cable, causing the mine to surface where it can be destroyed.

The yellow float located among the naval exhibits in the Lebreton Gallery of the Canadian War Museum is an Oropesa float used in this type of minesweeping.

Reference: Her Majesty's Stationery Office, *Manual of Seamanship, Vol. II,* 1952