

the stores would also have to be erected; and a small staff maintained at each place to look after the equipments. On the outbreak of war, the mines would be laid by detachments of the torpedo corps, and men would have to be permanently stationed on the spot to look after them.

Establishment of a Torpedo corps at Wellington.

At the same time, looking at the fact that the scheme of defence proposed cannot be considered to be complete without submarine mines, and that, at some future time, defensive mines may be introduced, I think it advisable to establish the nucleus of a Torpedo corps at Wellington, and to arrange for the instruction of a certain number of employés in the Telegraph Department. I will refer to this matter hereafter.

Offensive torpedo boats recommended

It has already been pointed out that guns alone will not prevent hostile vessels from forcing their way into a port; therefore—in the absence of submarine defences—it becomes necessary to fall back upon *offensive* torpedoes to support the batteries on shore.

There are several descriptions of offensive torpedoes, but the kind best suited for New Zealand harbors is the spar torpedo, which can be adapted for use from boats of almost any size, such as ordinary steam launches and pinnaces. Sir William Jervois has fully recognised their importance, for he has advised the Australian Governments to purchase torpedo boats, and, when ordering steam launches in the future, to bear in mind the practicability of their being so designed as to be available in time of war.

It has been ascertained by experiment that a charge of 35 lbs. of gun-cotton can be exploded at a depth of 10 feet, and at a distance of 22 feet from the stem of a 37-foot steam pinnacle, without injury to the boat or fittings; but that a charge of 50 lbs. of gun-cotton is likely to seriously damage the boat. Torpedo boats are designed to carry one or two torpedoes, the charges being fixed at the end of spars 40 feet long, and fired by electricity. When fitted for service, they are partially covered forward, to throw off the water—which would otherwise be shipped on the explosion of the torpedo—and rifle-proof shields are provided for the man working the outrigger and for the steersman.

Mode of attacking an enemy's vessel with torpedo boats.

The mode of attacking a vessel would be somewhat as follows:—If a single boat be used, it should approach the enemy's vessel as stealthily as possible; at 200 or 300 yards distance, according to circumstances, the spar should be rigged out, the boat put at full speed and steered for the point intended to be struck; at about 30 yards off the engines should be slowed, so that the torpedo may be brought into contact without risk of the outrigger breaking off, and the instant the torpedo touches the ship's side it should be exploded. If several boats were available the attack should be made from different directions, and, when practicable, it should be directed against the vital parts of the ship, viz., the engines, boilers, and screws.

No doubt the attack upon an enemy's vessel with torpedo boats will be a service of great danger, but I am quite satisfied that there will