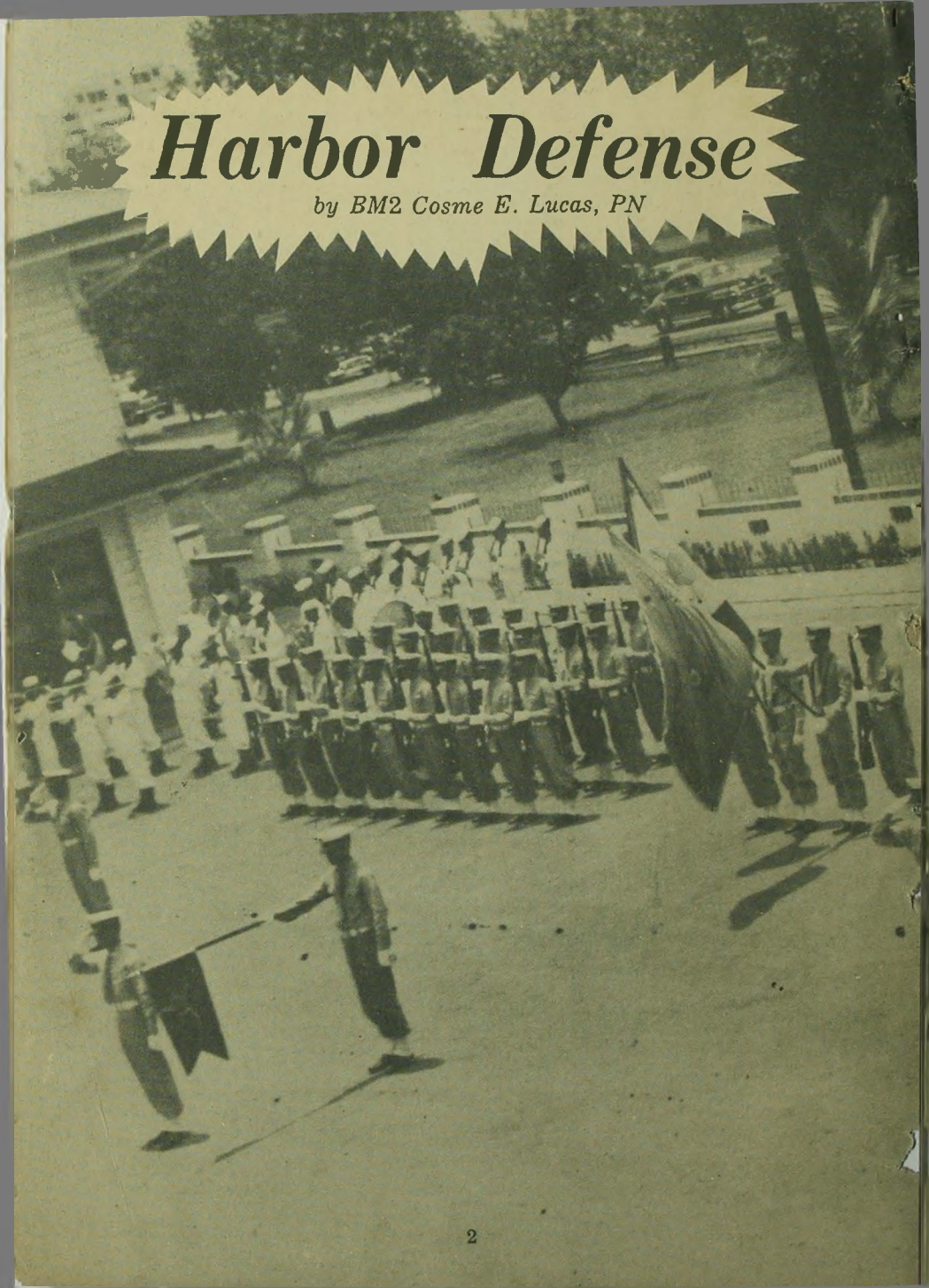
Harbor Defense

by BM2 Cosme E. Lucas, PN



FOR the first time since World War II, the Philippines will embark on a new system of defense for her harbors. In line with the expansion program of our navy, our important ports will be equipped with the necessary underwater protection against sub-surface or sneak watercraft attack.

To be able to provide this protection, naval planners have to answer first several questions. How safe are our harbors? Are they safe places for the anchorage of our ships and those of our allies? Is Manila, our capital port, just like Pearl Harbor which was attacked by surprise during the last war? Upon honest and accurate answers to these questions would our naval planners base their system of defense for our harbors?

The importance of harbor defense against submarine, torpedo, or swift motor boat attack cannot be overstressed. The history

and development of the types of nets, booms, and methods of installing them are important things whose adaptability to our country's harbor defense pattern should be exploited.

Early Harbor Protection

The British made the earliest attempts at port obstruction to block entry of enemy vessels in the 14th century. She made use of mighty iron chains to close Portsmouth Harbor. These chains were recovered from the sea in 1930 and later kept in the English museum as a memento of their pioneering ability on this line.

There were other early indications of harbor protection. The Italians utilized heavy logs to protect her ports from enemy surface craft. In early times were also found large cables encircling the harbors of the North American continent. These cables were later unearthed by the adventurous "sea dogs" and original settlers. Other effective means of harbor blockade were the channel walls, block ships, big logs, and spar booms which had been tried with varying degrees of success during the olden days.

The advent of the submarine and the torpedo as deadly weapons in naval warfare became a serious concern in the rivalry of world powers. Net operation was a necessity and it started on an appreciable scale during World War I. The period that followed the cessation of world conflict in 1918 was marked with varied experiments by the British Navy.

Later Developments

The growth of this type of defense progressed considerably and extensively until the Second World War. Great Britain showed the dominant strides in the protection of her large sea armada overseas, at home, and in her expanding naval bases. The sinking of H. M. S. "ROYAL OAK" on October 14, 1939, by German torpedoes brought greater attention to the ways of providing security to her fleets. There was no indication in the sinking of the ship that the nets failed as to the soundness of their design.

Another development in harbor protection was the conceived method of net installation called individual ship protection (ISP). It was fashioned out to afford a complete barrier to big ships against aerial torpedoes. The idea was derived from what happened during the crucifying raid on the Italian Fleet at Taranto, Italy, in the midst of the global war. Aerial torpedoes were extensively used by the enemy.

The Germans have considerable respect for English net defense systems. During the hostilities, Chancellor Hitler installed his Nazi flotilla, and the English used more submarine and air-borne sorties upon the enemy's supply lines.

The Italians took active part in damaging and harrassing ships and ports by using fast power boats, midget submarines, and un-

Underwater demolition teams (frogmen) have proved effective in damaging and harassing hostile ships and ports. Photo above shows Filipino frogmen being trained by the Navy.

der-water demolition teams (frogmen). This Fascist strategy thrust a serious blow to allied shipping especially during the fury of the African campaigns.

Japan did not extensively use nets for her sprawled task forces and fleet bases in the Greater East Asian Empire. Accurate intelligence information on this fact swelled Emperor Hirohito's losses in terms of convoys and big cargo ships on enormous proportions off the coast of the China Sea, Indian Ocean and Pacific fronts. The concluding months of the war saw Japanese shipping was so greatly depleted, that the Nippon hordes finally resorted to fanatical warfare tactics on land and on sea. The Emperor's torch for world domination was inspired by Japan's two-man midget submarines, a product of designing ingenuity. But these underseacraft aimed against the Allies never attained their purposes in aqua raids because of the effectiveness of harbor protections.

U.S. Developments

While the United States watched closely in the European theater of war struggle prior to her formal entry thereat, she did not lose time in adopting British net designs adequately in her conti-

Harbor defense by means of nets and booms is effective.

nental harbors and strategically-located naval base. There were installations of this kind in Pearl Harbor during the treacherous, surprise attack by the Japanese on December 7, 1941. Although the nets had defects in their design, they contributed immensely in stemming the invader's scores in this particular raid. At this point, the United States Navy conducted more extensive net experiments on the basis of the lesson afforded by the enemy attack.

The experiments later proved their success. The successful attack on enemy ships at Kerman Bay in the Moluccas Islands, although well guarded by flying boats; the famous exploits of the submarine "SEAWOLF" from the Indian Ocean to the Pacific; the advantageous position against Japan as regards the use of nets; and the employment of floating net bases against naval and aerial "Kamikaze" assaults of the Japanese in the vicinity of the Philippines and the Marianas Group, were the very significant American triumphs that led to the present use of net systems for a nation's security.

Nets In Use

Today, the types of nets and

booms in use have definite specifications and models to suit their location and purpose. Some have outlived their designs and usefulness because of changes in postwar planning. Because of their bulkiness and weight, these equipment pose difficult problems to the user. It is seldom that these devices are transported on land.

Of these nets, the typical submarine net, termed "S" net by the United States Navy, is the heaviest of them all. Its principal purpose is to block and expose submarine attack. Chiefly characterized by the interwoven square mesh formed, it possesses a formidable strain of many thousand pounds which provides an elastic yield for any "steel serpent" penetration. Some "S" nets have become obsolete in design and only those which are adoptable and effective for sub-surface blockade are widely in use.

Physically, unlike the S net, the torpedo ("T") net is framed up distinctly by a circular ring called "grommet." It is interwoven to six other grommets until it forms a complete panel. The weave provides local yield upon the impact of a torpedo by distributing the stress to adjoining grommets. The principal feature possessing many tons of immense breaking strength is manufactured by hand at present.

Other Nets

That which serves as an auxiliary to heavier nets are bottom nets. Usually added to the "S" net panels in deeper water, they follow the contour of the sea bottom. They offer protection against submarines trying to push through underneath. When attached to "T" nets, swinging during heavy currents is prevented.

Curtain nets are used on top of light submarine net panels to provide surface protection without raising the whole net. They close the space between the flotation buoys, so that a fired torpedo at nearly surface level would be eventually stopped. But present nets are manufactured with sufficient depths without installing this type on top.

In exposing the presence and exact position of a submerged submarine, a light indicator net is used. It is made up of interwomen mesh rope lighter than the previous types of nets mentioned. A signal apparatus is attached to the net that will reveal the exact position of the undercraft moving through it and beyond the net line. It functions as an advanced screen for patrol craft responsible for destroying enemy undercraft invading their assigned area.

The boom model in existence is an assembled device principally to block and expose swift motor boat attacks. It acts also as a barrier to the frogmen trying to resort to sabotage and infiltration in harbors, ships in ports or for possible landing footholds. The main structure is a heavy iron-strapped wooden float called

"baulk" fitted with spikes and star cutters. It is laid semi-permanently in continuous line at shallow harbor approaches being designed to withstand currents up not exceeding 4 knots and moderate wave crests. Specifically constructed boom models have proven effective where it is correctly installed and existing conditions are suitable. To a wooden-hulled motor boat that tries to penetrate, a boom line is forced to destroy itself. Boom protection may not be so effective to small boats with steel hull used for the same missions, but the fast, attacking watercraft may find its rudder entangled with the cables in the boom line during the projected drive. Thus it gives itself up as a pure prey for defending harbor patrol craft.

Installation

There are three existing methods of installation; namely, the continuous barrier, the non-continuous barrier or baffles and the individual ship protection (ISP). Of these three, the last offers the most complete protection against aerial torpedoes and can be carried aboardship by the ship using it, if the ships stability requirements permit. When installed in the water, it may be opened and closed around the ship in 15-20 minutes.

Usually, the continuous barrier installation requires a gate. When "T" nets are planted with this method from beach to beach, they provide ample blockade against submarines in shallow water, but not in deeper water. The overlap reserved when net panels are connected make it positive and adequately sure that "undersea demons" do not slip through the net.

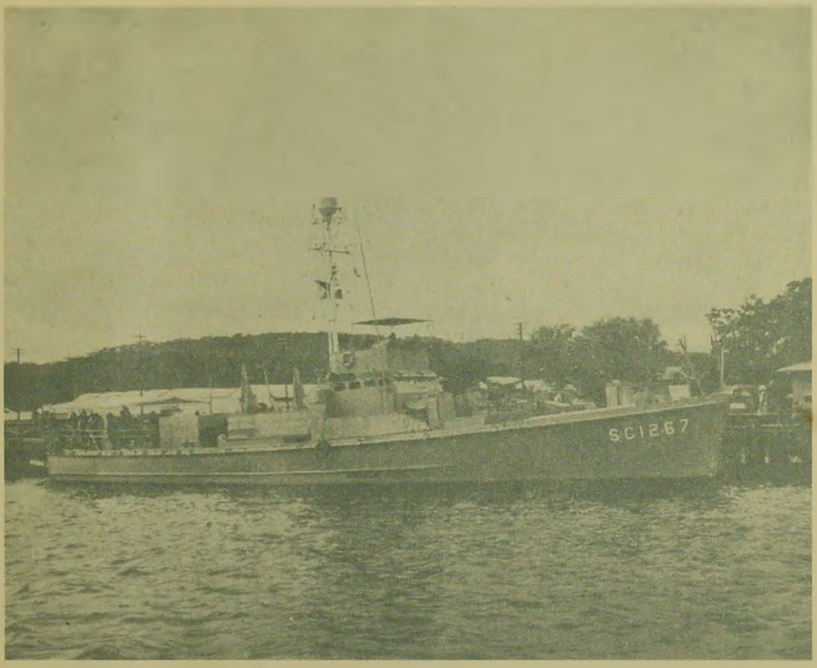
The non-continuous barrier is laid in broken lines across the harbor entrance not exceeding from shore to shore. One end is open to allow ships to enter. This manner of laying net lines is disadvantageous to ship's protection, as it lays open to submarine penetration by expert pilots. Although it may require more material than the continuous line, this method of installation produces more successful effects in intercepting torpedoes fired at angles at the anchorage.

Local Adaptability

Fitting this mode of protection into our country's harbor defense requires thorough planning. There will be subtraction or addition.

Nets and booms will always play an essential role in the harbor defense scheme. The system originated from the United States' patterns and ways of implementation. The Philippine Navy absorbed the theories, techniques, and procedures from one of two existing schools of its kind in the American mainland in 1954 through the Mutual Defense Assistance Pact.

Equipping our busiest ports with this kind of defense for peacetime use is regarded dimly and with skepticism. Although we have one of the finest harbors



Constant vigilance and intensified sea patrol activities in coastal and territorial waters can provide helpful solution to any unforeseen tragic circumstances

in the world wherein to plant and install these devices, there are vital factors to consider, like finances. Doubtless, it will entail a huge expenditure.

Logistics

Logistical support is another problem. Supplies are not readily available. Their scarcity adds to the burden of transportation from one to another position. While the great bulk of supply obtainable for this future plan is from MDAP, the possibility of encountering limitations is likely as the United States uses them for her continental harbors, off-the-continent bases and other commitments. To meet the situation, the local production of the equipment with the same specifications as those of the originals is advisable.

Peacetime Use

The situation that prevails in our territorial waters and home ports necessitates the application of the system in peacetime. The suspected presence of enemy submarines justifies the installation of the devices.

There lies also the danger posed by enemy submarines with *underwater demolition teams.* A sub-

marine could release groups of 3 or 5 frogmen at a distance of 1 to 5 miles from the coastline, pier or anchorage. With flippers and aqua lungs for frogmen convenience, this specially-trained men for sub-surface and surface sabotage or demolition work could work effectively for long durations and blow up one shipping and harbor installations.

Because UDT picturizes a delicate pattern as a menace to ships anchored at the bay and to piers, its growing importance in naval warfare can never be overemphasized. In yesteryears, the big powers in their quest for world domination had used UDT effectively to augment their respective navies. Even today, these powers consider it a must in their intensified training programs. In one noted sortie of this type during the inferno of the Mediterranean maneuvers in World War II, frogmen, sometimes called "ghost swimmers", were able to sink and blow up three destroyers and cruiser in one night of operation. It is perceived clearly then, that missions like this is to take place in our own ports to foresee vast destruction and horrible results.

Red China's Proximity

The nearness of Red China is an imminent threat to our existence. The Chinese communists with the aid of satellites are presently stepping up their submarine fleet. Submarine cruising range, structure, seaworthiness, and propulsions today are not the same ten years ago. And analyzing the proximity and operation perimeter of her vast cruising range x x x to our shores in hours, undoubtedly increase the grave threats to our security. It becomes a growing necessity for the government to provide the suitable underwater and harbor protection in the use of nets and booms. These devices furnish a physical blockade and pose a psychological factor against the enemy.

Conclusion

In the light of the experience of nations who showed major concern for nets and booms, and admidst security, there is no doubt on the urgency of providing our harbors and shipping with this particular type of protection. Although presently new to the Filipino mind, it is understood that the role this aspect of defense plays in our overall defense set-up today is vital to our national security.

ABOUT THE AUTHOR

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