U.S. Navy Seeking Answer To Missile-Armed Subs

By RALPH DIGHTON

WASHINGTON (AP) — The United States Navy has embarked quietly on a race—one of the most desperate in its history—to be first to find an answer to a menace of its own creation: the missile - loaded submarine.

As pioneer of Polaris, the deadliest underwater weapon system devised, the navy knows that nuclear - fueled, nuclear-armed submarines are virtually invincible.

It also knows that if the enemy does not have a counterpart to Polaris, it soon will have.

In fact, Admiral Sergei Gorshkov, commander-in-chief of the Russian Navy, announced last month that Soviet submarines have successfully fired rockets from under water.

The implication was that the firing took place from atomic subs. Russia is known to have at least 12 in combat readiness.

Gorshkov asserted that a "radical re-equipment" has provided the Soviet navy with new submarines and surface vessels armed with missiles capable of striking anywhere in the world.

STEP UP TASK

Without fanfare, U.S. Navy planners — hoping to alarm neither Russia nor the U.S. public—have stepped up channeling of men and money into a major effort known as ASW, anti-submarine warfare.

The point is this: What happens if an enemy develops a submarine defence and catches you without one?

"Nukes," as navy men call the atomic subs, can cruise for months at depths beyond the reach of conventional detection gear. From these depths they can hurl missiles far enough to reach most of the world's major cities. They have the speed and manoeuvreability to escape the fastest surface ships. And they can hide from aircraft in the uncharted, ever-changing ocean.

Billions spent so far on anti-submarine research have served to show how big the problem is, but not how to solve it.

Scientists now know why a submarine suddenly can "vanish." It is hiding in a vast underwater cloud of tiny organisms called plankton. But they haven't learned how to see through that cloud and spot the submarine.

EXTEND SONAR

They have extended the range of sonar—sound waves which are the radar of the depths—from a few hundred feet to hundreds of yards. But they still are fooled by whales and by unknown fish which somehow make noises just like submarines.

They have invented a device to spot submarines when conventional gear can't: the magnetic anomaly detector, which senses obstructions, or anomalies, in the earth's magnetic field and is precise enough to say whether the obstruction is a submarine or a whale. So far, its range is extremely short.

Because of its density, seawater is practically opaque to detection systems used in the atmosphere or space.

Electromagnetic radiations such as radio and radar, which whiz through the loosely packed molecules of the atmosphere at speeds approaching light's 186,300 miles a second, are absorbed quickly when they try to penetrate the tightly - packed molecules of water.

Sound waves do not try to go through the molecules of either air or water. They jiggle them. Because air molecules are farther apart, it takes longer for sound waves to make them move over and jiggle their neighbors.

As a result, sound travels through air at only 1,100 feet a second. Water molecules are closer together and the jiggling of one quickly affects the molecules around it. This means that sound can travel through water at 4,700 feet a second.

WAVES GET TIRED

Even sound waves get tired, however, too tired to bounce back from an object more than a few hundred yards away. They have another drawback: sound waves sent out to detect a submarine alarm its sonar receiver, thus betraying the hunter.

Is there any hope of solution?

Nobody is boasting, but now and then come hopeful hints from navy and industry laboratories.

Sonar's shortcomings, for instance, someday may be compensated by the laser, a device for amplifying light beams.

The underwater range of lasered light, far more powerful than light from any other man-made source, is secret but is reported to exceed sonar. Lasered light can be confined to a narrow beam, which means it could strike a submarine and bounce back undetected.

On tests on land, scientists have used intensified laser beams to burn holes in metal and diamonds. Experiments are under way to see whether this can be done in water. One possible goal: the bea mhiat finds a submarine could be intensified to destroy it.

DESTRUCTION DIFFICULT

Destruction of nuclear submarines with today's equipment is almost as difficult as finding them. By the time a depth charge sinks to the submarines' depth, the submarine is long gone. Conventional torpedoes fired by other submarines are but little more effective—"nukes" have been known to outmanoeuvre them.

A possible answer is rocket power for depth charges and torpedoes. Some currently being developed are reported to have reached speeds of 300 miles an hour. But there is no indication when they will be operational.

Another promising concept calls for use of the hydrofoil—a boat that lifts its hull above the water at high speed and rides on stilts attached to submerged skis—as a sub-chaser.

The hydrofoil's speed, more than 100 knots, would exceed that of any submarine in the water today.

The hydrofoil has been proposed as especially valuable in the "cold war."

It could just stay on top of a sub. Then, if the sub launched its missiles, the hydrofoil listening by sonar could fire rockets in time to catch the missiles as they emerge from the water.

USE OLD WAYS

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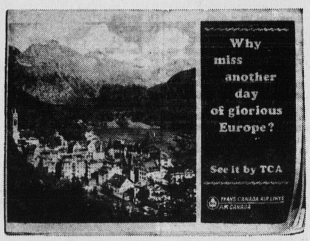

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1½ LBS. LEAN BONELESS STEWING BEEF OR BONELESS LAMB SHOULDER (cut in 1-in. pcs.)
3 cups water
½ tsp. garlic salt
½ tsp. Monosodium glutamate
½ tsp. pepper
½ tsp. salt
6 carrots (cut 2-in. lengths)
10 small onions
10 small potatoes
1-10 oz. pkg. frozen peas
2 tbsp. minced or dried parsley
1 tsp. dried mint leaves (opt.)
1 recipe "Tiny Dumplings" (opt.)

*NOTE: Do not include dried mint leaves if stewing beef is used.

METHOD: Flour Lamb (or Beef) pieces and brown in a small amount of hot fat. Add next 5 ingredients. Cover and simmer for 1½ hrs. or until meat is tender. DO NOT BOIL. Add carrots, onion and potatoes. Cook until done, about 20 mins. Add parsley (and dried mint, if Lamb used.) Drop small spoonfuls of Tiny Dumplings in bubbling Irish Stew.

TINY DUMPLINGS:
Stir together 2 cups tea biscuit mix with ¼ cup milk. Drop by spoonful in hot Irish Stew and cook as above.

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