

The Day Book

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A Newsletter for the Supporters of the Hampton Roads Naval Museum

Keepers of the Undersea

The Commander of the Submarine Force, U.S. Atlantic Fleet, Vice Adm. George Emery, discusses the past, present and future of his boats.

by Heather Burnett and Gordon Calhoun

Over the years, the submarine force of the United States Navy has made a significant contribution to world wars and to the preservation of world peace. At its current strength today, our Navy operates over 90 fast attack and ballistic missile submarines with several thousand sailors manning them. In command of the Atlantic boats is Vice Adm. George W. Emery.

As a highly decorated and distinguished veteran of the undersea warfare service, Emery has to his credit the following in his naval career: service aboard five nuclear-powered submarines; commander of USS *Groton* (SSN-694) and USS *Ohio* (SSBN-726); Deputy Director of Strike and Amphibious Warfare; and Executive Assistant and Naval Aide to the Under Secretary of the Navy. His first exposure to submarines came at an early age from

his godfather who had a 27-year naval career and was a veteran of World War II. "It was his stories and my respect for the man that lead me to joining the submarine force," Emery says.

In a recent speech at the Hampton Roads Naval Museum, Emery discussed the evolving role of submarine throughout naval history, its influence on Hampton Roads, and the future role the submarine will play in the Navy. The first submarine the Navy acquired was to be called USS *Holland* (SS-1), named after its Irish-American designer, Holland. Competing for Navy contracts with John Holland was a man by the name of Simon Lake.

Among his ideas, Lake wanted to put wheels on the bottom of the boat so that it could clear minefields and destroy underwater telephone cables. He designed two excellent boats, the *Argonaut I* and the *Protector*. While the Navy did finally award a contract to Lake, he never decisively won over the Navy. In the words of Naval historian Antony Preston, "Not only was the *Protector* very strongly built, but her diving was smoother than the *Holland*. Yet those wheels seem to have annoyed the US Navy to the point where they turned her down." With the rejection of the *Protector* by the United States, Lake sold it, and four more like the *Protector*, to the



Pictured here is Vice Adm. George W. Emery, Commander Submarine Force, U.S. Atlantic Fleet. Adm. Emery recently spoke at the museum and discussed the history of the submarine here in Hampton Roads. He reminded the audience about the value of today's submarine force. (U.S. Navy picture provided by the SUBLANT Public Affairs Office)

Russians where they were used in the Russo-Japanese War.

During the First World War, the Hampton Roads area did for the submarine what it was already famous for achieving with the surface ships, repairing and new construction. Newport News Shipbuilding got into the submarine construction business by building USS *Seal* (SS-19 1/2). The *Seal* was what the Navy called the "G"-class

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New & Improved

The Director's Column

by Becky Poulliot

We start the new year with a hail and farewell. By the time you receive this issue, the Hampton Roads Naval Museum will have a new volunteer coordinator onboard. Interviews have been ongoing and we hope to have the staff member in place sometime in January. Take an opportunity to come in the office, or call and say hello to the new member of our museum.

On Dec. 15, we bid a fond farewell to **Senior "Mac", EMCS (SS) Brian F. McMurtrie**, who served as interim coordinator for our docents since last summer. Senior Mac's enthusiasm was infectious. He was extremely flexible and scheduled events with very little notice. He also worked many evenings to keep up with special programs.

Senior Mac's retirement ended a distinguished 22-year career in the U.S. Navy. During his tenure, he served as a nuclear power plant technician and supervisor aboard five submarines, a submarine tender, the aircraft carrier *USS Theodore Roosevelt* (CVN-71) during the war with Iraq and a submarine support facility. We wish him well as he begins a new career, that of a college student.

Other changes at the museum include several additions to the

educational program. First, we welcome the new docents who graduated this past December. They are **Paul Bohn, David Dashiell, Bill Eley, Walter Geddits, Gene Hanlin, Stuart Landersman and Franco Pucci**.

Secondly, the museum will sponsor a series of lectures on Naval aviation, each located at a site related to the topic. The lectures are scheduled during the mid-day to attract active duty personnel in addition to the general public. This program is a new outreach effort for us, so please plan on participating. You can find more information on this new lecture series on Page 10 of this issue of *The Daybook*.

Speaking of the newsletter, this issue focuses on the submarine. The submarine is a most valued weapon by the world navies. Articles discuss the modern U.S. Navy submarine force, the U-Boat menace off the American coastline in 1942 and the Allied efforts in World War I to stop the U-Boats with Hampton Roads-built undersea mines.

Happy New Year!

Becky

About *The Day Book*

The Day Book is an authorized publication of the Hampton Roads Naval Museum (HRNM). Its contents do not necessarily reflect the official view of the U.S. Government, the Department of Defense, the U.S. Navy or the U.S. Marine Corps and do not imply endorsement thereof. The HRNM is a museum dedicated to the study of 200 years of Naval history in the Hampton Roads region. The museum is open Monday from 9 a.m. to 4 p.m. and Tuesday through Sunday from 10 a.m. to 5 p.m.

The DayBook's purpose is to educate and inform readers on historical topics and museum related events. It is written by the staff and volunteers of the museum. The newsletter takes its name from a 19th century Norfolk newspaper.

Questions or comments can be directed to the Hampton Roads Naval Museum editor. *The Day Book* can be reached at 444-8971, by fax at 445-1867, or write *The Day Book*, Hampton Roads Naval Museum, One Waterside Drive, Suite 248, Norfolk, VA 23510-1607. *The DayBook* is published bi-monthly with a circulation of 1000.

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One Raider's Story

by Bob Matteson

Editor's Note: As part of its education program, the Hampton Roads Naval Museum offers first person interpretation of historical characters. Two of these characters are a U-Boat commander and a convoy commander. In this issue, we feature the U-Boat commander.

Hearts pound and stomachs tighten. Throats become dry. Eyes dart uneasily from side to side. Nobody talks. Skin starts to get clammy and palms sweat. The silent crew listens as the seconds tick away. The noise on the surface makes the sailors strain to listen that much harder, anxiously awaiting that unmistakable double clicking sound one hears just before a depth charge explodes.

Suddenly, white knuckles tighten down on anything that can be held onto when the deadly "click-click" is heard. Officers and crew alike are deafened by the sudden barrage of explosions. The boat's outer hull sustains irreparable damage and it has to surface; and the order is given to surface to a very hostile welcome.

Kapitänleutnant Horst Petrich, the U-Boat's commanding officer, wanting to assess the damage to the hull, is the first up the ladder to the bridge. It was his boat that spotted the Allied convoy and signaled to the other boats in the *Iller* wolfpack to attack, he thought. He had sunk one merchant from convoy ONS-7, but he had alerted the convoy guards. No sooner does Petrich open the hatch and climb those last steps to the boat's deck, when suddenly *U-657* is rammed broadside by a British escort. Knocked off the bridge and into the cold water by the jarring blow, Petrich turns around to look for his boat when he sees the water rushing into the tremendous gash the DE left in its side. Within minutes his boat with all hands aboard, save himself, sinks out of sight.

The cold chill he feels is not from the icy waters, but from watching his crew of 44 men and officers go to their
Raider continued page 11

A Relic of a Hard Fought Duel

A recovered torpedo on display from U-352

by Joe Judge

For residents of the East Coast, World War II arrived with a fury in the spring of 1942, a somber and fearful time colored by the bright glow of burning ships. The German Operation *Paukensschlag*, a submarine offensive against American shipping lanes, had opened with spectacular success. German submarines found America unprepared to wage war on her doorstep and the result was a second "happy time."

Kapitänleutnant Hellmut Rathke, commander of *U-352*, had been briefed on the short but eventful history of the American campaign. With success in mind, he crossed the Atlantic and stationed his ship about 300 miles off Cape Hatteras in May 1942. After failing to sink one tanker, Rathke decided to bring his U-Boat closer to shore to change his luck. On May 9th Rathke sighted the mast of a small freighter on the horizon and, determined to sink the ship, fired two torpedoes. Rathke made a fatal mistake, as the ship in his sights was not a freighter but the Coast Guard cutter *Icarus*, under the command of Lt. Maurice D. Jester. Rathke's torpedoes missed their target.

Within two minutes of the unsuccessful torpedo attack Jester, a native of Chincoteague, Va., had his crew at battle stations and the *Icarus* ready for counterattack. Jester ordered a diamond pattern of five depth charges laid, which exploded all around *U-352*. Immediately after they exploded the submarine was crippled, as its electric motors had been knocked off their mounts, other instruments were lost, and the executive officer had been killed. *U-352* began to drift helplessly. Aboard the *Icarus*, Jester's soundmen told him that the submarine was moving, but slowly. The *Icarus* continued to attack, rocking the U-Boat with depth charges. Under the sea, Rathke realized that his crippled ship could take no more, and he surfaced.

Aboard the *Icarus*, gun crews watched as the U-Boat surfaced about 1000 yards to starboard. Without

receiving an order they opened fire, hoping to prevent the German crew from reaching the submarine's deck gun. The crew of *U-352* began to abandon ship, after making sure that their vessel would be scuttled. The crew, still under fire from the *Icarus* and taking casualties, took to the water as *U-352* slid beneath the waves.

A period of confusion ensued as the *Icarus* launched one more depth charge at the sinking hulk, and radioed to Norfolk for permission to pick up the survivors. An answer finally came from the Sixth Naval District in Charleston to bring the survivors in. Rathke and his surviving crew members would spend the rest of the war as prisoners. Jester received the Navy Cross for the destruction of *U-352*.

The short, deadly battle had lasted a little less than an hour. It was one of the first successful U-Boat sinkings by Americans in World War II, and a bright spot amidst the destruction caused by Operation *Paukensschlag*. The museum's U-Boat exhibit contains a reminder of the battle, symbolizing the struggle waged off the coast in 1942.

The artifact is a section from one of *U-352*'s torpedoes. The nose-cone shaped piece of metal is the warhead section of a G7e torpedo, the standard German torpedo of World War II. The G7e had an electric propulsion system, with a range of 5,000 meters and a top speed of 30 knots. Visitors to the museum will notice a round hole in the top of the warhead, which originally



Fort Story based Navy divers recover a torpedo warhead from *U-352*. The warhead can be seen in the museum's U-Boat exhibit. (U.S. Navy photo)

held the exploding mechanism.

The warhead section was recovered from the wreck of *U-352* in the late 1970s by the Navy's Explosive Ordinance Disposal Group Two, operating out of Fort Story and the salvage ship *Opportune* (ARS-41) from Little Creek. The Navy was responding to reports from civilian divers about the presence of live ordnance in and around the wreck of the submarine. *U-352* had become a controversial wreck site after its discovery by a fisherman in the early 1970s. Reports of civilian divers removing human remains, and perhaps exhibiting them as macabre trophies, surfaced in *Parade* and other magazines. The West German government and members of Congress spoke out against the desecration of the ship. The treatment of *U-352*'s wreck is still an oft-cited example in discussions about the need to protect shipwrecks from unprincipled vandalism.

In the meantime, the warhead remains a silent witness to the terrible battle waged between the *Icarus* and *U-352* in 1942, a small but furious snapshot of the Battle of the Atlantic. 

Wolves at the Gates of Norfolk

Operation *Paukenschlag* Gives America a Wake-Up Call

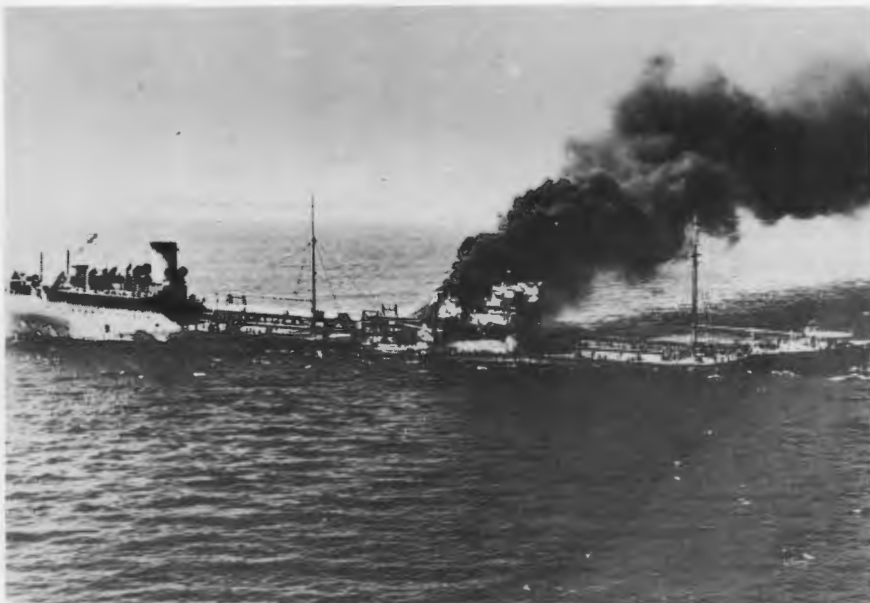
by John Simanton

The United States had only officially been at war for a month when the British passenger steamer *Cyclops* was torpedoed and sunk approximately 300 miles east of Cape Cod. The sinking of the *Cyclops* was the beginning of one of the great disasters in American naval history.

Adm. Karl Dönitz, commander of the submarine forces of the German navy, had elected to greet the United States' new identity as a hostile belligerent with the words "*einen kraftigen paukenschlag*" or "a powerful blow on the kettledrum." In a matter of days, the East Coast of the U.S. was witnessing a U-Boat rampage which would stretch through the upcoming weeks to cover the first half of 1942. *Paukenschlag*, also called Operation *Drumbeat*, the German submarine offensive in East Coast waters, sent a shudder through the American people. Civilians, soldiers and sailors alike were stunned by this dramatic demonstration of America's vulnerability.

Paukenschlag can best be understood as a prolonged raid rather than as a campaign. Even thought short of assets, the Kriegsmarine was always alert for any possibility of vulnerability in the Allies' seaborne commerce. *Paukenschlag* was designed to use limited assets to wreak maximum havoc for as long as the efforts yielded a sufficient return in ships and cargo destroyed. America's increasingly hostile neutrality had been a thorn in the side of the German navy throughout 1940-41. Once Germany declared war on the United States on Dec. 11, American targets were fair game.

With America now an open target, the U-Boat command weighed its assets, and decided to begin the operation group of five submarines to American waters to initiate attacks. Because of the distance from the U-Boat bases in Europe to the American coastline, the larger Type IX boat was initially selected for the



Within sight of Cape Henry, Virginia, the oiler SS Robert Tunney burns after being torpedoed by a German U-Boat in 1942. The Kriegsmarine sunk several other merchant ships in American waters during Operation *Paukenschlag*, or Operation *Drumbeat*. (National Archives photo)

operation. The U-Boat command decided to use the more numerous Type VII boats only after they discovered it could make the trip by adopting strict fuel consumption.

At the time of the operation, the U-Boat crews were at their professional peak. Although the German submarine fleet was growing, the boats could still count on a good leavening of highly trained pre-war personnel in their crews. As a result, these boats could be counted on to take maximum advantage of the opportunities presented to them and were allowed to operate alone. They would cruise near significant landfalls, such as Cape Hatteras, and attack as opportunity offered. Aware that the United States did not have a land pipeline network to carry oil from the Southwest to the industrial Northeast in those days, the German Naval High Command hoped to disrupt American industry, especially shipbuilding, by attacking the coastal tanker traffic. Although it did not do this to the extent hoped, the tanker losses inflicted were especially severe.

The initial measures to counter this offensive were not up to the task. The Commander Eastern Sea Frontier, Adm.

Adolphus Andrews, had no Naval aircraft at the outbreak of war and had to rely on the Army. The Army patrols were not much better as they only had a total of nine bombers for the entire Eastern seaboard. Naval assets amounted to mostly Coast Guard patrol ships, supplemented by a few squadrons of U.S. Navy destroyers and destroyer escorts. What was worse, with convoys not instituted for some time, these assets were used in an "offensive patrol" role hunting for submarines and proceeding at high speed to the scenes of U-Boat attacks, generally arriving long after the U-Boat had moved on. Back in World War I, President Woodrow Wilson had summed up this "offensive" method as "hunting the hornets all over the farm." This description still held true.

It was not until April that the beginnings of a convoy system emerged. Early on, a "bucket brigade" policy was employed as an interim substitute for convoy - with coastal shipping instructed to proceed by daylight and shelter in harbors or defended waters overnight. It was not very effective.

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The individual Naval districts would organize convoys and escort them through their assigned waters but this was less effective than it should have been due to the lack of a system coordinating such convoys and escorts as they passed from one district to another. Ultimately, an effective coastal convoy network was set up which cut the losses. Until this became effective in the summer of 1942, however, the U-Boats had a very easy time of it.

British experience notwithstanding, defense of our coastal shipping did not seem to have received serious consideration prior to U.S. entry into the war. U.S. coast defense policy was fragmented in those days. The long shadow of the Battle of Jutland combined with limited budgets had focused the Navy on defeating an invasion fleet on the high seas, while the Army had a system designed for coastal defense. The most effective organization may well have been the Coast Guard. Tasked with observing coastal traffic to prevent smuggling and in conducting search and rescue operations, they were well oriented for the task. Their lack of numbers prevented them from providing a better asset against the U-Boats.

The military, though, should not receive all the blame. Local authorities in tourist communities did not immediately adopt blackout procedures. This allowed U-Boat commanders to have an illuminated backdrop of neon lights to silhouette targets.

The results were terrifying. There were reports all along the Eastern seaboard of merchant ships and tankers being sunk within sight of land, and thick sludges of oil could be seen on American beaches. Some of the area sinkings included the tanker *Gulfrade* which was sunk two miles off Barnegat, N.C. while it was no more than 300 yards from a Coast Guard cutter; three barges and their tugboat were shelled by a surfaced U-574 off Cape Charles, Va.; and the collier *David H. Atwater* was also sunk off Cape Charles by a U-Boat that was only 600 yards away. Adm. Dönitz himself wrote, "No frantic boast...burning tankers were

not infrequently sighted from fashionable Florida resorts, and on June 15, two large American freighters were torpedoed by a U-Boat within full view of thousands of pleasure-seekers at Virginia Beach." The war had truly come to America.

From the American point of view, one of the most embarrassing sinkings in the Hampton Roads area was the attack on the freighter SS *Tiger*. The *Tiger* was carrying 60,000 barrels of oil from Aruba, Dutch West Indies on the night of March 31, 1942. As it approached the Virginia Capes, it signalled for a pilot. What it received instead was a torpedo from Capt. Oestermann's surfaced U-



This is a picture of a Type VII U-Boat which was the mainstay of the Kriegsmarine's submarine force during World War II. Between five to eight of these boats operated in American waters in 1942. Displacing 769 tons, it was capable of 17 knots on the surface and 7 1/2 knots submerged. (National Archives photo)

754. The torpedo struck *Tiger* amidship, killing a fireman on watch in the engine room. *Tiger* sank in shallow water with its superstructure still partially above water. Most of the crew was saved by a Norfolk-based subchaser.

While the sinking itself was embarrassing, no lessons were learned from the experience. Fifth Naval District documents speculated and blamed the sinking on the U-Boat having been tipped off by disgruntled or "German-born former crew members" of *Tiger* or by an inspector with the tanker's owner. Some even

accused a man of "Nordic type" who supposedly listened to the tanker's crew in the Dutch West Indies. In sinking a ship under the nose of the Navy in Hampton Roads, though, U-754 certainly did not lack audacity.

By the summer of 1942, improvements in American anti-submarine warfare began to fall into place. The convoys were organized and escorted. The Coast Guard was organizing civilian pleasure craft into Corsair squadrons and manning beach patrols to ensure that U-Boats would be sighted and sunk. The Navy and Army were starting to fly aircraft with radar and magnetic detectors to allow effective night search. By mid-July, it became clear that the easy pickings along the U.S. coast were a thing of the past. The U-Boats elected to move to easier hunting grounds.

There were some bright spots for the American military. Two weeks after the *Tiger* sinking, USS *Roper* (DD-147) sank U-85 off Bodie Island, N.C. on April 14. The *Roper*'s crew expertly correlated radar, sonar and lookout reports to track down and destroy the German boat. The sinking of U-352 off Cape Hatteras by the Coast Guard cutter *Icarus* (see article on page 3) was one of the other notable sinkings.

After the U-Boats moved to easier hunting grounds, the results of Operation *Paukenschlag* were nothing short of total success. The U-Boats sank or damaged 291 tankers, freighters and warships, including 85 within the boundaries of the Fifth Naval District, with no more than 12 U-Boats in American waters at one time. The Americans were able to sink five U-Boats (U-85, 215, 352, 516 and 701) before the Germans abandoned the operation in July, 1942.

Of interest to the museum, our old friend USS *Monitor* seems to have put in an appearance. When the wreck was discovered in 1974, it was noticed that it showed signs of having been depth charged. Records from the Fifth Naval District show that on June 19, 1942, a Navy blimp and a Coast Guard cutter dropped five depth charges on a stationary contact. The target is believed to have been the wreck of *Monitor*. 

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of submarines built between 1912 through 1914. The shipyard also received contracts to repair several submarines that had served in the war. Unfortunately, however, after the repair contract, the submarine all but disappeared from the Hampton Roads area until the late 1950's.

The 1950's brought about the nuclear power revolution. With the construction of the world's first nuclear submarine, USS *Nautilus* (SSN-571), submarine roles changed dramatically. With nuclear power, submarines could stay under for



Shown here is the *Robert E. Lee* (SSBN-601) a few days before its launching at Newport News Shipbuilding in 1959. This boat was the first ballistic submarine to be built by the yard. The attack submarine *Shark* (SSN-591) is to the left of the *Robert E. Lee*. (U.S. Navy photo)

extended periods of time. Theoretically, a nuclear boat can stay under as long as crew provisions allow. With this ability, the submarine became an ideal candidate for a nuclear deterrent role.

In 1960, Newport News Shipbuilding launched USS *Robert E. Lee* (SSBN-601) which was the Navy's third "Polaris" missile submarine. At the time, it was the largest submarine ever built. Equipped with 16 of the Polaris nuclear missiles, *Robert E. Lee*, and its sister boats *George Washington* and *Patrick Henry*, were part of the Navy's contribution to nuclear deterrence.

Along the nuclear deterrent mission, the second new role submarines were asked to handle was a "hunter-killer" task. During the first half of the twentieth century, submarines were primarily tasked to sink surface ships. With nuclear power plants and improvements in

these highly successful boats. The shipyard recently completed the last two boats of the class, *Greeneville* (SSN-772) and *Cheyenne* (SSN-773), both of which will be commissioned in the near future.

In 1988, the Navy upgraded the *Los Angeles*-class with the



Measuring over 557 feet in length and displacing 18,750 tons, the *Ohio*-class ballistic missile submarines are the largest American submarines ever built and the second largest in the world. They have the reputation of being among the most quiet naval vessels in service. Each of these silent giants carries 24 Trident ballistic missiles while performing its strategic nuclear deterrent mission.

sonar, submarines could track and destroy other submarines. One of the first of these new "attack" submarines was USS *Shark* (SSN-591). Built at about the same time as the *Robert E. Lee* in Newport News, the *Shark* was an early example of a submarine with a "teardrop" hull. This new design allowed higher speeds underwater.

Nineteen sixty was also the year that Commander Submarine Force Atlantic Fleet or COMSUBLANT, moved from Groton, Conn. to Norfolk. The move of SUBLANT touched off a renaissance of the

commissioning of USS *San Juan* (SSN-751). The "improved" *Los Angeles* or "688i" boats have two major design improvements, and provide a Naval commander with more attack options than ever before. The first improvement is the addition of a vertical launch system (VLS) on the front of the boat, allowing the submarine to carry and rapidly fire the Tomahawk cruise missile. This lethal weapon can attack enemy targets on land or at sea at distances up to 500 miles. Submarines used this system to launch some of the first



With 61 boats built, the *Los Angeles*-class is the most successful submarine design of the post-World War II Navy. It measures over 360 feet and displaces around 7,000 tons. Twenty-five of these boats are based at the Norfolk Naval Station. The class has since undergone two improvement stages. Starting with USS *Providence* (SSN-719), the *Los Angeles*-class was equipped with Tomahawk cruise missiles. In 1988, the Navy commissioned USS *San Juan* (SSN-751) which became the first attack submarine to be equipped with a vertical launch system (VLS). In addition to the VLS, the bow planes were taken off the conning tower and moved to the front of the boat.

submarine in Hampton Roads. In the late 1960's and early 70's, many of the *Lafayette*-class ballistic missile submarines and several of the newer attack subs were built and maintained here in Hampton Roads. In the mid 1970s the Navy authorized its current attack submarine, the *Los Angeles* or "688"-class. Newport News Shipbuilding has built over 30 of

attacks on Iraq during Operation *Desert Storm*. The second major design improvement was to relocate the diving planes. On older submarines, the diving planes were placed on the conning tower. With the 688i-class, the bow planes have been moved to the front of the boat, allowing the submarine to perform

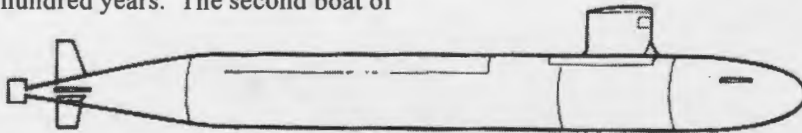
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better in Arctic ice packs.

As today's commanding officer of SUBLANT, Emery is in charge of all submarine operations in the Atlantic. SUBLANT oversees the attack submarines based in New London, Conn., the giant ballistic missile or "boomer" submarines in Kings Bay, Ga. and the attack submarines and support ships here in Norfolk. As of now, there are 25 attack submarines, two tenders and one drydock based in Norfolk.

Emery is looking forward to the newest addition to his fleet. In the spring of 1996, *Seawolf* (SSN-21) will be commissioned. Emery commented that this boat is excellent for its "superb quietness and coincident sensor system." *Seawolf* will carry more than 50 weapons, be capable of traveling at 35-plus knots and have eight torpedo tubes. Compare this with Holland's first submarine from 1896, which had one torpedo tube, was capable of traveling at 7-knots and carried only three torpedoes. One can see just how far the submarine force has come in a hundred years. The second boat of



Due to enter service in the spring of 1996, the Seawolf-class submarine marks the next generation of attack submarine. It measures over 325 feet in length and can carry over 50 weapons. With its eight torpedo tubes, vertical launch missile system and the quietest sound performance of any submarine in the world, Seawolf will be a formidable opponent. Currently there are plans to build one or two more of this class before a new submarine class will take over.

this class, the *Connecticut* (SSN-22), is scheduled for launching in 1998.

Life aboard the modern submarine in many ways is similar to submarines of old, and in some respects, it is harsher. Even though the modern nuclear submarine is 10 times the size of the World War II diesel subs, most of the boat's space is for the nuclear reactor and other equipment needed for propulsion. To give one idea what it is like, a *Los Angeles*-class submarine has a crew of 120 men. These men must live inside an area equal to a three-bedroom house with one washer and dryer, six toilets and



Pictured here is USS Norfolk (SSN-714) running on the surface. The Norfolk is the 26th member of the Los Angeles-class submarine. It was launched at Newport News Shipbuilding in 1981. (U.S. Navy photo)

showers and 90,000 pounds of food. Submarine crews can be submerged for periods of 30 days or longer with no sunlight or direct contact with the outside world. Crews operate on a 18-hour (6-hour shifts), as opposed to a normal 24-hour day, often submerged at depths greater than 800 feet.

Despite the cramped living conditions, Emery very proudly notes that submarine crews are the

2,000. Currently more than 40 contractors ranging from the giant Newport News Shipbuilding and the Norfolk Naval Shipyard to small electrical companies are all tied to the submarine force.

Emery's submarine force today remains ready to support a myriad of diverse missions including intelligence gathering, mine laying and delivery, and retrieval of special forces such as SEAL teams. It is also the most effective anti-submarine and anti-surface platform in the Navy.

"Today submarines are involved everywhere around the world," Emery says. "You can imagine any spot in the ocean and I can tell you plausibly (that) there's a submarine there and you cannot deny it. The ballistic missile submarines continue to provide the nation with a vital strategic deterrent just as they have been since 1960, providing stability to the international world and deterring the use of weapons of mass destruction. The world community is very aware of our submarine and the fleet homeported in Norfolk will continue to play a role."



The editor would like to thank the Commander Submarine Force, U.S. Atlantic Fleet, VADM George Emery and the SUBLANT Public Affairs Officer LCDR Gregory Smith for their cooperation with this article.

Another Nail in the Kaiser's Coffin

The North Sea Mine Barrage of 1918

by Joe Mosier

A centerpiece of the World War I gallery of the Hampton Roads Naval Museum is the Mark VI mine display. The mine consists of a black ball about three feet in diameter fixed atop a two-foot square anchor box with four small wheels. It is a survivor of one of the most successful organizational efforts of the United States Navy during that conflict. Between October 1917 and November 1918, about 100,000 such mines were constructed in the Hampton Roads area. After trans-Atlantic shipment, they were freighted across Scotland, reassembled and laid in a 230-mile long minefield between Scotland and Norway. The purpose of this effort was to keep German U-Boats away from shipping which moved vital war goods from North America to Europe.

On Feb. 1, 1917, the German government instituted unrestricted submarine warfare. This policy meant that there would be no warnings prior to attacks and that neutral ships would be considered fair targets. From Oct. 1916 to Jan. 1917, U-Boats had sunk a monthly average of 154 ships grossing 307,172 tons. In the first three months after Germany removed all restrictions, this statistic zoomed to a monthly average of 326 ships of 648,414 tons. Americans were enraged by the increasing attacks on U.S. merchant vessels as well as other German affronts. As a result, Congress declared war on Germany on April 6, 1917.

But how were the Allies to counter the U-Boat threat? One of the most fruitful hunting grounds for German U-Boats was the area west of Great Britain. Lacking the immediate access to the Atlantic they were to enjoy during World War II, German U-Boats were forced to transit either through the English Channel or northward through the North Sea and around Scotland to reach this area. As early as 1915, the

English had attempted to close the Channel at its narrowest point (about 26 miles), the Dover Straits. The Royal Navy deployed nets and mines in fields of increasing complexity backed up by a flotilla of anti-submarine vessels. Unfortunately, the so-called Dover Barrage proved to be largely ineffective. One of the problems was the poor quality of British contact mines early in the war. U-Boats had to make actual contact with the mine for it to explode. In tests with British submarines deliberately running into

touching the wire would create an electrical charge and thus explode the mine without actually making contact with it. As a result, fewer mines were needed in a field to achieve the same effect. Earle calculated the North Sea Barrage could be laid with fewer than 100,000 mines. Although the British were skeptical, on Nov. 17, 1917, they accepted the American offer to lay the barrage.

The problem for the U.S. Navy was that the Mark VI existed in prototype only. The mines would have



The U.S. Navy Minelaying Fleet underway in the North Sea. Some of the ships in the squadron were converted passenger ships from Norfolk. They could lay one mine every 11 and half seconds. (U.S. Navy Signal Corps photo)

mines (hopefully with reduced charges), the mines only exploded 33 percent of the time. So, while the Admiralty considered attempting to close the northern exit of the North Sea with minefields, it calculated that over 400,000 would be needed. Given that the stock on hand was only 20,000, it was clearly not practical.

The head of the U.S. Navy's Bureau of Ordnance, Adm. Ralph Earle, saw the potential of a new type of antenna mine, the Mark VI, to solve the problem. This mine used a thin copper wire as its trigger. The trigger was suspended above the mine by means of a glass float. A submarine

to be built, transported to Great Britain, loaded on minelayers and properly planted before the barrage would become a reality. To speed production, over 500 subcontractors were hired to build the parts of the mines. These were then shipped to Saint Julien's Creek, Va. on the southern branch of the Elizabeth River. Here, in a newly-erected 22-building facility, sailors assembled the mines and filled each with 300 pounds of TNT. The sailors referred to each mine assembled as "another nail in the Kaiser's coffin." In a few months this facility handled 25,000,000 pounds of explosives. This

Another continued on page 9

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offered the potential for a serious disaster if an accident occurred. The devastation caused by an explosion in the harbor at Halifax, Nova Scotia, in Dec. 1917 caused Navy officials to consider a less urban setting for the assembly point. In April 1918, ground was broken for the Yorktown Navy Mine Depot. Although it did not become operational until after World War I ended, it remains active today as the Yorktown Naval Weapons Station.

At the rate of 1,000 per day, the mines assembled at St. Julien's Creek were transferred to Southern Railroad's Pier No. 4 at Pinner's Point in Portsmouth for loading. The Navy took over a fleet of 24 Great Lakes steamers as mine transports. Beginning in Feb. 1918, two or three of these ships sailed every eight days from Pier No. 4 to the west coast of Scotland to unload. Trains and canal boats then carried the mines to Inverness and Invergordon on the North Sea coast. Here the U.S. Navy had constructed warehouses and servicing facilities for the minelaying operations.

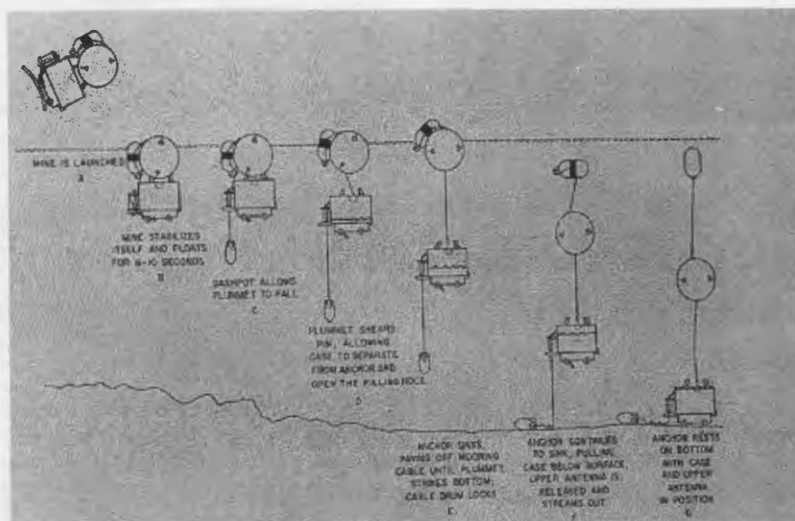
To Capt. Reginald G. Belknap fell the actual task of placing the minefield. Belknap had been in charge of the Navy's first mine-laying experiments in 1913. As Commander Mine Squadron One, he took charge of two 1890-vintage cruisers, USS *San Francisco* and USS *Baltimore* as well as eight former merchant ships converted at shipyards in the New York area between Nov. 1917 and March 1918. The conversion consisted mostly of stripping out the vessel's interior and laying down tracks along which the wheeled mines could be moved. The Otis Elevator Company installed elevators in most of the ships to allow as many as four decks of mines to be carried and deployed.

Many of the converted minelayers had strong ties to the Hampton Roads area. Four had been built at Newport News Shipbuilding and Drydock Co. for service with the Morgan Line between New York and Galveston, Texas. The SS *Jefferson* and the SS *Hamilton* had provided passenger service on the New York-Norfolk run

for the Old Dominion Steamship line. The remaining two had sailed between New York and Boston as part of the Eastern Steamship Company. On May 11, 1918, the squadron departed Newport, Rhode Island for Scotland.

The first mining run occurred on June 6. After departing the Firth of Moray, the squadron made for Udsire Light south of Bergen, Norway.

The barrage began to prove itself even before it was completed. Its first victim was U-86 damaged on July 6, 1918 while returning from patrol. By war's end on Nov. 11, at least six U-Boats (UB127, UB104, U156, UB123, U92 and U102) had sunk and more were damaged. As important, the presence of the barrage caused the German navy to reconsider its



This is a diagram showing the Mark VI mine deploy. The trigger for the mine was a copper wire. A submarine touching the wire would create an electrical charge thereby setting off the 300 pound explosive. The trigger sometimes was too sensitive and over 3,000 exploded prematurely once they were deployed. Over 100,000 of these mines were assembled at St. Julian's Creek, VA. (HRNM graphic adapted from a 1918 National Geographic drawing.)

Taking up station line-abreast, the ships moved off on a southwesterly course and began to deploy one mine each 11.5 seconds. The total laid in the first run exceeded 4,000 mines. A British minelaying squadron joined in the effort but was limited by the smaller size of its vessels. By the completion of the barrage on Oct. 26, 1918, there had been 13 excursions for the American squadron and 11 for the British. In one of the joint trips, 6,820 mines were planted in four hours. At its completion the North Sea Mine Barrage consisted of 70,117 mines (56,571 laid by Mine Squadron One, 13,546 by the Royal Navy) in a field 240 miles long and up to 35 miles wide. On average, there were about a dozen mines to the square mile set at varying depths. Potentially it became a three-dimensional nightmare for any transiting U-Boat.

operational tactics and created another detriment to U-Boat crew morale. Many Royal navy officers considered the whole minelaying effort a monumental waste of resources which did little positive, while constricting where the British fleet could operate. However, by Secretary of the Navy Josephus Daniels reckoning, the war cost the Allies \$100 million a day. The cost to the United States for the North Sea Barrage was \$80 million. Daniels felt that if it shortened the war by one day it had more than paid for itself. Whatever its cost, the sheer complexity of the undertaking and the speed with which it was completed made it one of the most remarkable efforts of World War I in which Hampton Roads played a significant part. 

Wings Over the Bay

The museum to sponsor a series of talks with author
Amy Waters Yarsinske about Naval aviation in Hampton Roads

by Gordon Calhoun

From Eugene Ely's first flight in 1910 to the recent commissioning of USS *John C. Stennis* (CVN-74), the Hampton Roads area has been at the world focal point of Naval aviation. This is the subject of a new book by author and Naval historian **Amy Waters Yarsinske**. Titled *Wings Over the Bay: Where U.S. Naval Aviation Really Began*, this groundbreaking history tells the story of the men and women who have built and served in the aviation arm of the U.S. Navy. Beginning Feb. 7, she will give a series of talks about Naval aviation.

Yarsinske believes that the subject of Naval aviation should be approached from a personal perspective. "Flying is a very personal experience and every experience is different," she said. She noted that one must look at Naval aviation history as any other history, a collection of human experiences within an historical framework of time and place. Naval aviators have the opportunity in this book to tell their story, often in their own words. "The worst mistake we make as historians is overwriting our subject. No one tells the seat-of-your-pants flying story better than the aviator himself. The Hampton Roads experience speaks loudest for itself. Unfortunately, no one has told the whole story, in manuscript from the beginning to the present, until now."

The pilots and the Naval flight officers are not the only people who get attention in *Wings Over the Bay*. Yarsinske includes the experiences of the men and women who serve in a variety of support roles. This list includes everyone from the sheet metal mechanics who overhaul F-14s at NADEP Norfolk to the "white shirts," otherwise known as safety personnel aboard aircraft carriers, who make sure aircrews going to and from aircraft navigate the flight deck unharmed.

Personally, Yarsinske has had a love



The Hampton Roads Naval Museum is proud to sponsor a series of talks by Amy Waters Yarsinske. She will speak on the history and experience of Naval aviation in Hampton Roads. See the schedule at right for topics and locations.

of Naval aviation and aircraft since childhood when she took a tour aboard USS *John F. Kennedy* (CV-67), then a brand new addition to the carrier piers at Norfolk. "I still have all the memorabilia from school field trips and family visits aboard the carriers and air stations in Hampton Roads, thirty years worth of it."

Yarsinske was born and currently resides in Norfolk. She holds two bachelor of arts degrees from Randolph-Macon Woman's College in economics and English; a Master of Planning degree from the School of Architecture, University of Virginia; and is a doctoral candidate in urban studies at Old Dominion University. Yarsinske is the author of several books, a regular contributor to journals, and columnist for several newspapers and magazines. She has most recently completed her participation in an urban design/architectural book destined for international release next year called *The Center is the City: International Issues in the Identity of Place*. Her Norfolk book, *Sunrise City By the Sea* (Donning,

Wings Over the Bay Lecture Schedule

Feb. 7-History of Early Naval Aviation in Hampton Roads-Talk will focus on Naval aviation in the 19th century, Eugene Ely's flight, NAS Norfolk and NADEP Norfolk. To be held at Breezy Point Officer's Club at noon.

March 25-History of AIRLANT-Talk will focus on the aircraft carrier in Hampton Roads and the Atlantic Fleet Naval Air Force. To be held at Norfolk Live at noon. A tour of USS *America* (CV-66) to follow talk.

April 11-Naval Aviation Today-Talk will focus on the history of NAS Oceana and Naval aviation traditions. Co-sponsored by the Hampton Roads Squadron Association of Naval Aviation.

Call the museum at (804) 444-8971 for times and more information. The lectures are open to the public.

1994) has sold out twice and is being reprinted for a third time.

Through job and personal experiences, Yarsinske has gained extensive knowledge on the U.S. Navy as well as getting to know the Naval aviation community up close and personal. She is known and respected for her vast knowledge and writing of Naval aviation history and Hampton Roads historical framework, as well as her urban planning work and community service.

Amy Yarsinske is married to Lt. Raymond Yarsinske, Jr., a Naval flight officer. They have two children. 



When is the museum going to get off its duff and make use of modern technology?

Sometime in January, the museum, in cooperation with the Virginia Association of Museums, has its own little corner on the World Wide Web. By being placed on the Web, the museum hopes to attract more visitors by allowing computer users from around the world to read more about us. Anyone having further questions about the museum's "Web page" or wondering what this World Wide Web is in the first place may call **Gordon Calhoun** at the museum. For those of you who already know

The Museum Sage

Editor's Note: The Hampton Roads Naval Museum proudly presents installment number two of "The Museum Sage." As always, if you have a question write to the Editor of The Day Book c/o Hampton Roads Naval Museum, One Waterside Drive Suite 248, Norfolk, VA 23510-1607 or call (804) 444-8971.

about the web and have access to it, call us for the URL address.

Sage Stumper...

Shown on the right is a picture of the battleship USS *Wyoming* (BB-32/AG-17) at the Norfolk Naval Base in 1941. In the upper right hand corner, you will notice a clock with only ten numbers on it. If you know what this is, call us. You will be rewarded. 



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deaths. Of course he knows it could happen, they all did; but to most young people, death is something way off in the future.

It does not take long for Petrich to be jolted back to reality. Petrich treads water for a lifetime before an Icelandic fishing trawler rescues him. He remembers a better time in late 1942 when he was promoted to kapitänleutnant and given the command of the newly



Kapitänleutnant Horst Petrich in uniform. This first person interpretation is done by HRNM docent Capt. Al Petrich. USN (Ret).

commissioned Type VIIc *U-657* at the *Kriegsmarinewerft* in Wilhelmshaven, Germany. What a glorious day, Petrich thought. The pier was filled with dignitaries. A Kriegsmarine band was playing. Adm. Schniewind, the Chief of Naval War Staff, was there and Adm. Dönitz personally spoke to the officers and crew. It was a happier time then, remembered Petrich.

A few weeks after the commissioning, *U-657* finished her sea trials. It was a time when everything was new. The boat, the crew, no one had worked together before. Everyone was anxious and determined to make sure that everything was right with it. The boat underwent sea trials for two weeks as it crossed the English Channel and back again. *U-657* had its share of discrepancies but none insurmountable. Soon the ship yard had *U-657* back in good shape.

During sea trials, the officers and crew had the kinks worked out and a new comradery emerged. Like all crews, the crew of *U-657* frequented local beer halls, told sea stories, listened to songs and sang a little themselves. There's no better way to unify a crew,

thought Petrich. U-Boat service was considered the cream of the crop and for Petrich to command a crew of these men was like being the creme de la creme himself.

After the sea trials, Petrich and his boat were assigned to XI U-Flotilla operating out of Wilhelmshaven. They were later based out of Bergen, Norway, because there were reports of an Allied invasion of Norway about to take place. While these reports turned out to be false, the flotilla remained in Norway to interdict the convoys bound for the Soviet Union.

For the next three and one-half years, Petrich remains a fisherman onboard the Icelandic trawler that rescued him. He thinks very little about the war his country was engaged in. The disgrace he feels over losing his boat and crew is too overpowering; and not until after the war, when Germany has been defeated, does he feel he can face his mother and family. 