

UNDERSEA

Q U A R T E R L Y

THE NEWSLETTER OF THE NAVAL UNDERSEA MUSEUM AND THE NAVAL UNDERSEA MUSEUM FOUNDATION



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From the President...

NARWHAL (SSN671)



Bruce Harlow

The lifeblood of any museum is the continued vitality and relevance of its exhibits. Since the opening of the Naval Undersea Museum, Keyport, in 1991, the procurement and installation of exhibits has been a continuing challenge.

Last May at the Annual Meeting of Foundation Trustees, the decision was made to undertake a renewed effort to address this problem. For the last several months, Bill Galvani, museum director, has been leading a group of trustees and others in an effort to develop a long range vision relevant to the procurement of new and exciting exhibits.

As a related matter, early in 2009 we were informed by NAVSEA officials that the *Narwhal* (SSN 671) could be made available to the Naval Undersea Museum, Keyport, as a permanent exhibit. The Foundation, of course, would be expected to fund this effort. The trustees at the May meeting voted to explore the possibility of exhibiting the *Narwhal*, a highly decorated, Cold War era nuclear submarine, on dry land in the vicinity of the museum.



Although, even in the best of times it would be difficult to raise the necessary money to complete a project of this magnitude, we are continuing to hold informal discussions with navy officials in an attempt to scope

out the nature and cost of this challenge. Congressman Norm Dicks has indicated informally to me that he supports this effort and is willing, as necessary, to assist in the coordination of discussions between the Foundation's working group and navy officials.

In this end of year message, it is most appropriate to express my deep appreciation for the continued support and dedication of the Foundation's volunteers and staff members. In this Christmas season, I am particularly thankful for our service men and women who are deployed around the world to protect and preserve our freedoms. Merry Christmas and Happy New Year to all.

BRUCE HARLOW

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**Navy Region Northwest
 Naval Undersea Museum**

**1103 Hunley Road
 Silverdale, Washington 98315-1103
 360/396-4148 Fax: 360/396-7944**

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**Naval Undersea Museum Foundation
 P.O. Box 408
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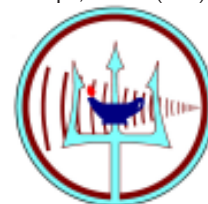
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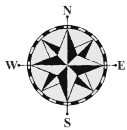
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Providers:	\$25-\$99



From the Director...
LOOKING FORWARD...

I am very appreciative of the continued support of the Naval Undersea Museum Foundation for the annual Christmas party for the volunteer staff and spouses of the Naval Undersea Museum. Our volunteer staff does a wonderful job of greeting visitors and representing the museum all year long. Their enthusiasm and dedication create the public's high satisfaction with the museum. The Christmas party at Kiana Lodge in Suquamish is one of the most significant ways we have of thanking them for their service. In early December approximately 100 people enjoyed a delicious lunch of alder-smoked salmon, and the staff of the store presented each volunteer with a gift. The financial support of the Foundation allows our volunteers to enjoy this yearly and much-anticipated event.

The Foundation supports the work of the Naval Undersea Museum in Keyport. However, the staff has two museums to operate; the other is the Puget

Sound Navy Museum in Bremerton which has additional Navy and volunteer staff. In 2009 much of the Navy staff's attention was focused on Bremerton, as we worked to complete the installation of a new, permanent exhibit about the aircraft carrier *John C. Stennis*, homeported in Bremerton. The exhibit, which represents more than two years of planning and installation, opened on 30 November. The staff is now working heavily on the script and artifacts for two additional major exhibits to be installed in Bremerton in late summer. One focuses on the Puget Sound Naval Shipyard, the other on Special Operations submarines.

Looking ahead to 2010, I see a lean year financially as the Navy works hard to cover all its national requirements within the budget set for it. This will affect the museum, and I believe our ability to develop exhibits and programs will be more limited than in past years. However, we will



Bill Galvani

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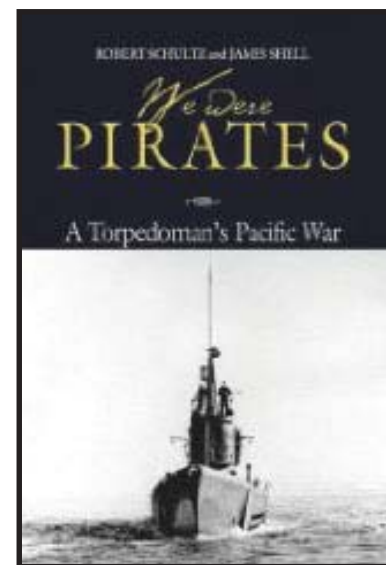
Book Review from a Guest Contributor. **LARRY TUCKER**, Museum Volunteer



WE WERE PIRATES
A Torpedoman's Pacific War

By Robert Schultz and James Shell, Naval Institute Press, ISBN 978-1-59114-778-7, 212 pp.

This book is an interesting story of the life of Robert Hunt. He is a young man from middle America and we follow him as he experiences life during one of the most treacherous periods of our time. During the late 1930's, the United States was gradually building up its fleet to the limits authorized by the Washington Naval Treaty. The pace quickened when World War II commenced in Europe and the Navy rapidly expanded its submarine building program. Volunteers were also streaming into the military due to poor economic conditions and massive unemployment. The Hunt family was well acquainted with these circumstances of our country's depression, when the brothers, Bob and Dick, sat down with their father, R. C. Hunt, to discuss their future. The depression was hitting the Hunt family's five-and-dime store pretty hard and the family was barely able to live on their income. R.C and the boys were looking at ways to make ends meet since both boys were out of school and out of work. Shortly after this family discussion, the Hunt brothers enlisted in the Navy and went to Great Lakes Naval Training Station, north of Chicago. Each had acquired some prior military training in the Reserve Officers Training Corps, and



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WE WERE PIRATES

their talents were quickly recognized by the training company commander, Chief Torpedoman Paugh. The company was split into three units, with each brother being placed in charge of separate company unit. An interesting side note is that the third unit of the company was assigned to one of the five Sullivan brothers. As many of you know the Sullivan brothers were all assigned to the USS *Juneau* and all five Sullivan brothers perished as a result of an attack by a Japanese submarine.¹ Later in their training period the Hunts were allowed a night off from training and they hit the Chicago bars. Good-natured ribbing between unit members led to a brawl between members. As it so often happens, the next day the units were due to be inspected by a local admiral. When the admiral walked by Bob, the admiral noticed that Bob had a black eye. He asked Bob, "What did the other guy look like?" Bob answered, "Worse than me!" The admiral replied, "Way to go sailor." The men of Bob's unit cheered this answer.

After boot camp, Bob became a clerk-typist striker in New London, Connecticut, where his office overlooked the submarine trainees as they operated the training submarines. Luck plays a big part for Bob since he was looking for something more exciting than his present situation. Submarine construction was expanding beyond the capabilities of the New London submariner school to provide crews for new boats and the Navy was filling the gap by sending untrained sailors on-board submarines to learn as they go—rather like on-the-job-training effort. Bob learned quickly and was promoted to seaman 1st class. Being at the right place at the right time continued to work for Bob during the 12 war patrols he made on the USS *Tambor*.

By the 7 Dec 1941 Japanese attack on Pearl Harbor, Bob was on-board the *Tambor* near Wake Island when Wake was also attacked by the Japanese.² Bob continued to be almost everywhere that counted in the Pacific during the early days of the U.S. involvement and through the end of WW II. He was standing on the bow of the *Tambor* as it nosed into Pearl Harbor just days after the devastation of the Japanese air raid. As

the first-line handler he saw the destruction of the ships of battleship row, the floating flotsam and oil on the once clear and vivid blue of Pearl Harbor. Bob's experiences continued when, as a lookout, his boat shadowed Japanese cruisers at the Battle of Midway, and provided supporting American guerrilla fighters in the Philippines by ferried guns and supplies. And of course his primary reason for being on the *Tambor*; firing torpedoes that sank vital Japanese shipping. Bob, as many submariners, survived a near-fatal, seventeen-hour depth-charge attack for which he received a commendation for "exceptional skill and proficiency at his battle station". This WWII torpedoman's account of the war offers the rare perspective of an enlisted seaman that is not available in the more common officer accounts.

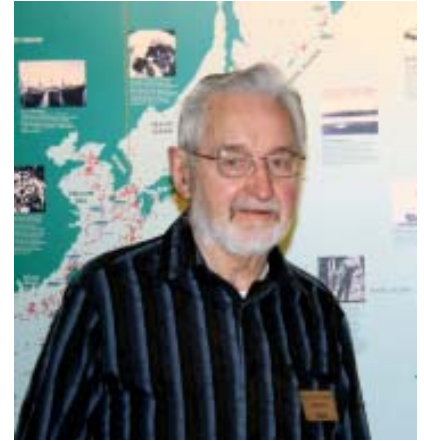
The authors have done a credible job of analyzing numerous documents and interviews to provide a torpedoman's perspective of the Pacific Theater in World War II. They also provide little known facts, photos, patrol maps, diagrams, glossary, and index. This comprehensive and well researched book includes chapters on many other aspects of the Silent Service during WWII. They discuss basic designs of the American submarine and the evolution of the *Tambor* fleet boat. I need to forewarn you that some of the stories Bob has provided to the authors of this book are rather earthy and probably not believable or newsworthy to many readers. The authors go into great detail regarding Bob's exploits while on shore leave in Hawaii and Australia. Bob was a rowdy sailor that spent much of his shore leave between the many patrols drinking, gambling, dancing, and generally looking for trouble. Whether Hunt and his crewmates are in battle or on leave in Pearl Harbor or western Australia, the account is candid and vivid, providing a unique perspective not available in general histories. To capture and recount the progress of the Pacific War through Hunt's eyes, coauthors Robert Schultz and James Shell examined the young submariner's war diary, as well as crew letters, photographs, and captains' reports, and they also conducted hours of interviews. Their clear descriptions of the ways in which sailors dealt with the stress of war while at sea or on liberty show a side of the war that is rarely reported. I thoroughly enjoyed this book

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Meet Your Volunteers..

HERB HAMMOND



Volunteer of the Quarter Herb Hammond has been a regular every Wednesday afternoon volunteer since 2003. Herb enjoys the people he works with and he enjoys continuing his association with the Navy. Herb served with the Navy amphibious forces in the Pacific during World War II. Before the war, Herb worked for the Geological Survey office for three years.

After he was discharged from the Navy, Herb went to work for the Veterans Administration where he was as an engineer in the hospital system for many years. He and his wife built a home in Lake Retreat where they lived for 20 years. Herb did all the finishing of that house. He and his wife did lots of traveling: Hong Kong, Russia, the Caribbean and fourteen trips to Hawaii! After 60 years of marriage, Mrs. Hammond passed away in 2002.

Herb and his wife have one son who lives in Port Orchard. Herb also has a granddaughter and a great granddaughter.

In 2004 Herb married an old friend from grade and high school days, Elaine Allen. Herb and Elaine shared two happy years until Elaine passed away 2006. Herb has recently downsized, sold his home in Poulsbo and moved into Crista Shores. At Crista he enjoys the activities and getting to know some of the residents.

Herb is a vital and interesting man who may be the most "senior" of our volunteers. We won't give it away but if you ask him he will proudly tell you exactly how old he is. We can tell you that Herb is young in spirit and we are delighted to have him here every Wednesday afternoon.

JOYCE JENSEN

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WE WERE PIRATES

because the personal, human side of life as a submariner is portrayed. *We Were Pirates* features an excellent combination of narrative and hard information.

Robert Schultz's website has a link to YouTube videos that you may find interesting³. Bob Hunt is interviewed on the *USS Cobia*, which is located at the Wisconsin Maritime Museum, Manitowoc, WI.⁴ He walked the interviewers through the forward torpedo room and described the operation of the many valves and levers used to fire a torpedo. In the second video he describes his actions as a diving officer. Each of these interviews Bob described the various operations as if it was just yesterday that he was aboard a similar boat – instead of over 60 years ago.

¹ An interesting web site with information about the Sullivan's is located at: <http://www.arlingtoncemetery.net/sullivan-brothers.htm>

² I recommend *Pacific Alamo: The Battle for Wake Island*, written by John Wukovits. This book describes in great detail the battle for Wake Island.

³ Robert Schultz's web site address: http://www.robertschultz.us/nonfiction_wwp.htm

⁴ The Wisconsin museum should be on your list of places to visit. I was particularly intrigued by the fact that Captain of the *USS Lagarto*, a motorcycle enthusiast, disassembled his motorcycle and stored it aboard the *Lagarto* during patrols. And when reaching port assembled the motorcycle and rode it during in port periods. You can find more information about the *Lagarto* and visiting the museum by following this link: <http://www.wisconsinmaritime.org/>

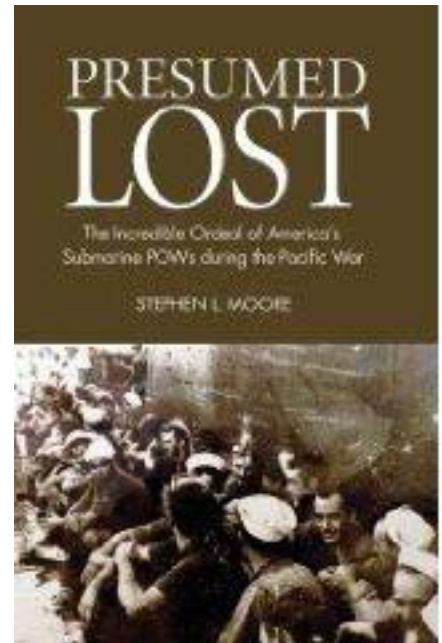


Book Review from a Guest Contributor: **LARRY TUCKER**, Museum Volunteer...

PRESUMED LOST: The Incredible Ordeal of America's Submarine POWs of World War II. Stephen L. Moore, October 2009, Naval Institute Press, 304 pp, ISBN-13: 9781591145301, ISBN: 1591145309

Presumed Lost: The Incredible Ordeal of America's Submarine POWs of World War II. Stephen L. Moore, October 2009, Naval Institute Press, 304 pp, ISBN-13: 9781591145301, ISBN: 1591145309
by Larry Tucker, NUM Volunteer

Before I started reading *Presumed Lost*, my focus was on the book's jacket with a picture of sailors sitting on the deck of a ship. Some were smiling towards the camera and others were keenly interested in what was taking place in the opposite direction from the photographer. Who were these sailors, and why were they in this photograph? As it turns out the sailors in this picture are the 59 survivors of the USS *Perch* (SS-176). By looking at this picture, who would suspect that these sailors had just scuttled their boat after two days of combat and surviving 71 teeth rattling depth charges? The combination of serious structural damage to their boat and combat fatigue had destroyed the ability of this crew to continue their ongoing battle with Japanese destroyers. This crew's ultimate destination was the Japanese prison camp on the island of Celebes. Many of the enlisted crew members of the *Perch* and the destroyer - USS *Pope* (DD-225) would spend the next three and one-half years as captives at this camp. I am immediately reminded of an award winning movie about prisoners-of-war held by the Japanese, in what was then Burma. "Bridge on the River Kwai 1" was quite a popular movie in 1957, even though the



incidents portrayed in the film are mostly fictional. And although it portrays bad conditions and suffering caused by the building of the Burma Railway and its bridges, to depict real conditions and experiences of prisoners would have been too appalling for film-goers.

Over the past six-plus decades since the end of World War II, stories about the circumstances and conditions of men and women held as prisoners of war, have been told in books, movies, and by former prisoners themselves. Stephen L. Moore has gone to great lengths in his book *Presumed Lost* to inform the reader of actual conditions in Japanese prison camps, far beyond any fictional characterization. Moore is quoted on his website - "One of my goals in writing history is using numerous first-person accounts to bring the

action to life for the reader." He has effectively done so with a complete and accurate record of 158 survivors from seven US submarines. Moore is also an author of eight previous books on World War II and Texas history, including *War of the Wolf*, the story of the USS *Seawolf*. In this most recent book, he skillfully draws on many personal interviews with survivors, as well as prisoners' personal records - written and hidden during incarceration.

As years pass and more veterans leave us, we lose a part of history. Moore has captured a rare mix of personal perspective and military history that is unique. The human side of all of the participants in this story engulfs and embraces the reader. The 304 pages contain shocking stories about Japanese atrocities of torture, starvation, and

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PRESUMED LOST

slave labor. Only through discipline and determination did our brave sailors endure the horrors of the POW camps. This book is also an extraordinary account of the events leading up to the sinking or scuttling of seven U.S. submarines—first hand accounts of survivors as they abandon their boats; some unwillingly. The USS Perch and USS Grenadier were so badly damaged by enemy depth-charge attacks that their crews were forced to scuttle their ships. USS Sculpin and S-44 went down fighting, with only forty-two men from the Sculpin being taken prisoner and half of those perishing on the way to Japan in the hold of a Japanese ship. Submarine Division 43's Commander and posthumous Metal of Honor recipient, Captain John Phillip Cromwell, was aboard the Sculpin that fateful day. Due to his knowledge of Allied strategy and the secret behind the phenomenal success of the Allies code breaking efforts, he and other crew members chose to go down with the Sculpin. They chose death instead of suffering the interrogation techniques and harsh treatment in a Japanese prison camp. As many as six men survived the loss of USS Robalo after it struck a mine off Palawan, but none of those survived the prison camps. The USS Tang and USS Tullibee were victims of their own faulty, circling torpedoes. When the Tang fell victim to its own Mark-18 torpedo it was the most successful boat in the U.S. Fleet. You will read the first hand account from Chief Bosuns Mate Leibold as he is sucked under, as the Tang plunges to the bottom and his struggle to the surface and speculations on his uncertain future. His account and that from other survivors will transport you to the fatal day when 40 – 45 Tang crew members, trapped in the forward torpedo room prepared to use their Momsen lungs to surface from 30 fathoms. Only five survived the escape from the sunken and burning Tang, including the unwitting Clayton Decker; who is credited to be the first American sailor to have escaped on his own from a sunken U.S. Submarine.

Some may find this book to be a tough read, but upon completion, I believe will find it is more than worthwhile. World War II history buffs will want to read this strong life historical detail that includes many rare photos, chapter notes, and bibliographic citations. Appendices include final muster rolls of the seven submarines and a complete list of these U.S. submariners who were held as POWs, with details of their various camps of internment. Thirty-eight crew members of the seven submarines either died during transit to POW camps on-board Japanese transports or due to harsh conditions at the prison camps. As the Allied successes isolated remote prison camps, the Japanese attempted to move large numbers of POWs from southeast Asia to Japan. These prisoners were packed into the holds of merchant ships under appalling conditions, and the ships were not marked in any way to indicate that POWs were aboard. As a result, many of these "hell ships" were sunk by Allied submarines and aircraft. There are records that some Japanese ships showed humane treatment of survivors, but generally there was little effort to rescue the Allied survivors.

Reading this book stirred my interest to conduct further research about POWs. Much has been written about POWs on the Internet. According to the findings of the 1946 Tokyo War Crimes Trial, the death rate of Western prisoners in Japanese prison camps was 27.1% (American POWs died at a rate of 37%). In contrast, POWs held by the Germans died at a rate of 1.1%. Also interesting was that the second USS Perch (SS-313) was sponsored by Mrs. David Hart, the wife of the Perch's (SS-176) Commanding Officer, who was at that time in a Japanese POW camp.

I hope that you will purchase a copy of this book from our museum store. And possibly you will do as I have and go back and reread some of the chapters and imagine how it would be to be Presumed Lost.

Why not become a Museum Volunteer?

The Museum and the Museum Foundation offer many opportunities to volunteer your time, your talents, your knowledge. Are you a people person? Become a Docent or work in the Museum Store. Do you love organizing? The Library could use your enthusiasm! Are children your specialty? Family Day and Discover a Day are just the ticket! For more information, contact Daina Birnbaums, Museum Store, wavecable.com, 360/697-1129 or Joyce Jensen, joyce.jensen@navy.mil, 360/396-5547.

The Bridge on the River Kwai, Columbia Pictures Corporation (1957), based upon novel by Boulle Pierre.

From the Curator...



Steve Crowell

POLARIS A-1 MISSILE



With growing tensions between the United States and the Soviet Union during the 1950's, a directive was issued by the U.S. Military that required the U.S. Navy to develop a sea based missile support and launch system. The missile at the center of this new launch system was called Polaris. Named for the North Star, the Polaris missile would take central stage on July 20th, 1960 for one of the most significant events in Naval history. On that day, around 12:39 p.m., an A-1 Polaris missile was successfully fired from a submerged submarine. Up until that moment, this action had never been done before. It was a historic moment. With the launching of the A-1 Polaris missile on that July afternoon, the United States had sent a message to the rest of the world. The United States of America had entered the nuclear deterrence and Strategic Age. It was a launch heard around the world.

In 1955, the National Security Council recommended that the Navy design, develop and implement a submarine launched ballistic missile (SLIM) system by the beginning of 1965. Headed by Rear Admiral W.F. Reborn, Jr., the newly created Navy Office of Special Projects was given the task to develop the new missile system that could be launched from a submerged submarine. The objective was to develop an intermediate range (1500 nautical miles) ballistic missile system which would be used as an offensive weapon against land based targets. With an earlier submarine surface launch missile system (Jupiter) having problems due to unstable liquid fuel and unsteady ocean surface launch conditions, the Navy was authorized in 1956 to come up with a back-up program. The Polaris project was born.

Still ordered to design, develop and implement in the same 10 year window (1955-1965), the Navy Office of Special Projects set its efforts on creating a missile capable of being launched from a specially fitted submerged nuclear powered submarine. With the help of an outside contractor, Lockheed, the Navy moved toward designing a nuclear armed missile with increased dependability and effectiveness. Submitting preliminary plans to the Secretary of Defense on December 8th, 1956, the A-1 Polaris missile system was approved and ready for full development.

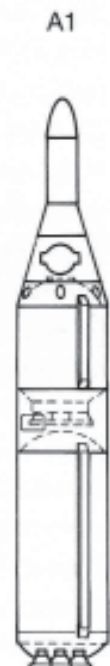
The A-1 Polaris missile was truly the first of its kind. It had an initial range of 1000 nautical miles while carrying a W- 47 600 kiloton nuclear warhead. The missile stood 28.5 feet high and was 54 inches in diameter. At launch, the Polaris missile weighed 28,800 pounds. In order to have this 28,000 pound missile take its intended flight path to its target, the Polaris A-1 had a first stage and second stage solid propellant rocket motors. The Navy had one more thing to solve. It needed to find the perfect stealth delivery platform that could launch the Polaris missile from any ocean location in the world. It needed the right submarine.

With the Polaris A-1 missile nearing its final test phase by 1959, the Navy needed a submarine to carry this new missile system. The USS George Washington (SABIN 598) was selected for Polaris missile system modification. Already 75% built as a nuclear attack submarine, the USS George Washington had to split its hull on the aft of the conning tower to accommodate the new

- AN INTERIM CAPABILITY
- 1200 NAUTICAL MILES

- 54-INCH DIAMETER
- 28.5-FOOT LENGTH
- 28,500-POUND WEIGHT

- DEPLOYED 15 NOVEMBER 1960

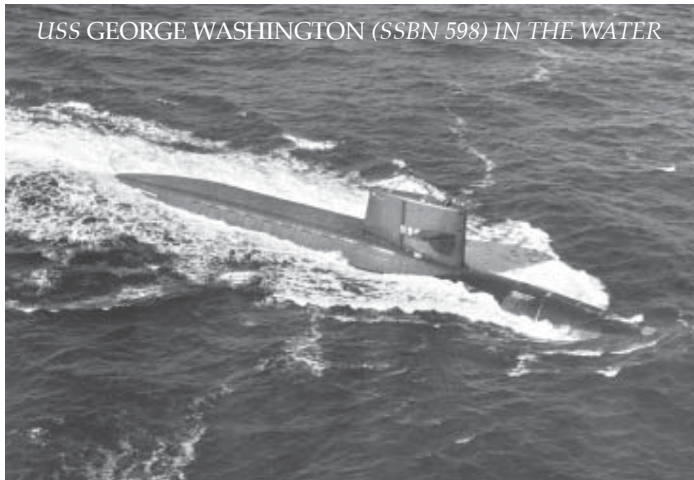


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From the Curator...

POLARIS A-1 MISSILE



USS GEORGE WASHINGTON (SSBN 598) IN THE WATER

missile section. A section of 16 missile compartments (two rows of 8) was installed for optimal launch capability. The crew on board the submarine would often refer to the 16 compartments as the "Sherwood Forest" (due to its tall tree like feeling). To avoid any difficulties during submerged missile launchings, Polaris missile developers avoided any rocket ignition issues within the compartments by developing a new compressed air launch system. Once out of the missile compartment, the missile's motor would ignite well away from the submarine to reduce any possible interior or exterior damage. Another new issue involving a Polaris missile launch was the possible "depth charge" shock

created by a missile launching from a submerged submarine. To get around this, submarine engineers designed and installed a sophisticated shock mitigation system to minimize missile launch effects on the submarine hull. With many of the missile issues resolved and submarine modifications complete, the USS George Washington was ready for its first submerged test launching of the A-1 Polaris missile.

On July 20, 1960, the submarine launched ballistic missile (SLIM) system became a reality. With Rear Admiral W.F. Reborn, Jr. on board as an observer, the Polaris A-1 missile was successfully launched, not once, but twice on the very same day. Rear Admiral Reborn was pleased in what he had witnessed and was later commended for completing the Polaris Missile System well within the 10 year window. News of this important test launching also made its way to President Eisenhower through a message from the commanding officer of the USS George Washington. The message to the president stated that "POLARIS - FROM OUT OF THE DEEP TO TARGET. PERFECT".

The USS George Washington (SABIN-598) had passed the test and was ready for deployment. This submarine had set the standard and was the beginning model for the Navy's desired Fleet Ballistic Missile (FEM.) submarines. These included the submarine classes of the George Washington (5 submarines), Ethan Allen (5 submarines), Lafayette, James Madison and the Benjamin Franklin (31 submarines). The mission of the FEM. submarines or "41 for Freedom" was to create a deterrent force against the threat of a nuclear conflict with the Soviet Union. This stealth platform was a powerful strategy for nuclear quick strike capability for the United States Navy. The development of the Polaris missile system and the alteration of the nuclear powered submarines to handle new launch capabilities would forever change the balance of strike capability to the United State's favor. The Polaris A-1 missile launch, on July 20th, 1960, truly was felt around the world...far beyond the hull of the USS George Washington.

STEVE CROWELL





Lorraine Scott

From Collections Management..

CLIMATE MATTERS: Our Work to Protect Artifacts



Climate Matters: Our Work to Protect Artifacts

Of the many responsibilities held by a museum collections manager, physically preserving artifacts is a major one. When we accept artifacts, photographs, and documents into our care we do so with the understanding we must preserve them "in perpetuity." Nothing is truly permanent, but nevertheless our goal is to preserve objects as long as physically possible. To do this, we must actively monitor the environment of the buildings that house our exhibits and artifact storage.

In areas that house artifacts we are interested in a variety of environmental characteristics. The following factors affect the longevity of artifacts: temperature, light levels, relative humidity, dust/dirt, air quality, and insect activity. In order to keep the environment of our museum up to accepted standards we work diligently to, at any given time, have a good understanding of these factors.

This is achieved through the implementation of an Environmental Monitoring System. This system provides collections managers with information about a given area's temperature, relative humidity, and if applicable, light levels. Part of this system, called Integrated Pest Management, monitors insect presence and movement.

Why work so hard to monitor the museum environment? Because the degradation of artifacts can occur not just from mis-handling, like accidentally dropping an artifact on the ground, but from damaging environmental conditions.

Examples include a torpedo stored for an extended period of time in a room with high humidity levels; this can cause metal corrosion. If a photograph is exhibited under lights that are too bright, it fades irreversibly over time. When the relative humidity levels are too low (which is directly related to temperature), materials can become brittle. Large fluctuations between high and low temperature and relative humidity also

lead to degradation by causing certain materials to contract and expand, all while sitting in place on exhibit or in storage.

Here at the Naval Undersea Museum important steps have been taken over the past few years to better record temperature, humidity, and light levels. The museum began using electronic data loggers throughout our exhibits, storage areas, and library/archives. These small boxes record the temperature, humidity, and where applicable, light levels every 10 minutes, 24 hours a day.

This data is subsequently downloaded once a month by the collections managers for evaluation. We can track trends, spot trouble areas, and respond accordingly when the environment in certain areas are deemed destructive for artifacts.

Recently the Naval Undersea Museum collections managers began a six-month review of specialized software designed to track, organize, and analyze environmental data. Specifically, we are evaluating the software "Climate Notebook". This software imports temperature and relative humidity information recorded 24 hours a day by the electronic data loggers. Recorded information is then translated into reports and graphs that provide us with more in-depth analysis of climate conditions.

The software was developed at the Image Permanence Institute (IPI), part of the Rochester Institute of Technology. Staff at IPI has been studying how different materials degrade over time, and under what specific conditions. Using information gleaned from years of testing, they have developed software which takes particular environmental conditions and analyzes rates of degradation, based on specific metrics developed through their testing.

"Climate Notebook" software gives us rates of degradation measured in years, the ability to study and compare different areas within our

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CLIMATE MATTERS: Our Work to Protect Artifacts

museum, clear warning markers, and recommends courses of action designed to slow artifact degradation.

The software is designed "based on strong scientific evidence that heat and moisture are the primary rate-controlling factors in almost every mode of decay. Control of these factors in the storage environment is of primary importance in preservation and is more broadly effective than other, more limited, preservation actions." (See www.imagepermanenceinstitute.org)

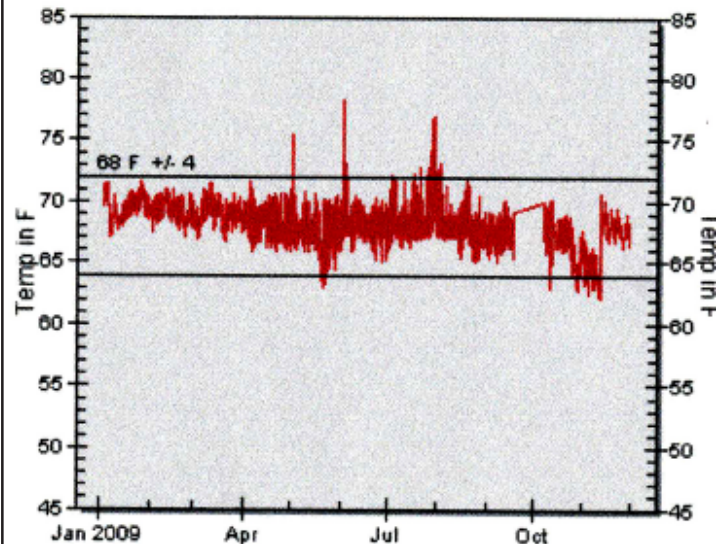
When it comes to understanding how hot, cold, light, dark, humid, or dry our museum spaces are, we make it a priority to recognize what conditions our historic artifacts are kept in. By doing this we work to ensure their continued preservation for decades to come.
LORRAINE SCOTT

(Caption for TEMPERATURE GRAPH)
This is one example of how we record and analyze temperature readings in a given exhibit space. Here are the temperature readings taken from January through the November, 2009. Temperature was recorded every 10 minutes, 24 hours a day in the exhibit area near the Kaiten and Greenling Room. The two horizontal black lines within the graph indicate the accepted Greenling temperature range we want that area to stay within (64 degrees to 72 degrees). As you can see, this particular area of the museum is consistently within these ranges. The bar graph indicates this area is within our preferred temperature range 97% of the time.

SUBMARINE EXHIBIT AREA

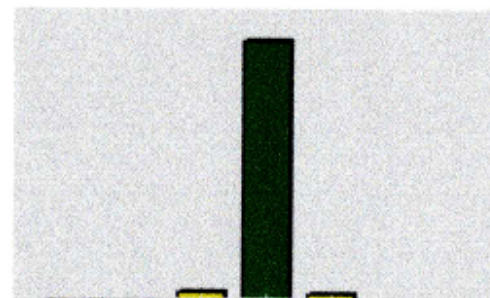
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Temperature



Temp Performance Target : 68 F +/- 4F

Actual Temp vs Target



Tolerance: 64 to 72 F

T Min : 62 F

T Max : 78 F

Within 97 % of the time

T Range : 16 F

Above 1 % of the time

T Mean: 68 F

Below 2 % of the time

T Std Dev : 1.6 F



Ron Roehmholdt

From the Exhibits Director...

“WISDOM BEGINS IN WONDER”

“WISDOM BEGINS IN WONDER”

“Wisdom begins in wonder.” Four words spoken first by Socrates and ever since his words have inspired people to stay wide-eyed, be curious, ask questions and become more wise.

What better quote to explain the notion that an exhibit must arouse a feeling of puzzlement, curiosity, surprise and even doubt? It must to some extent also invoke a sense of awe, admiration and astonishment if it is the supportive element of artifact presentation. It must wrap the object without hiding it to showcase its identity. And of course it must hold the attention of the viewer.

Telling a story is great fun. Telling a story is even greater fun if you get to embellish it and of course adding little tidbits of half truths can make the storyteller puff with pride that he or she has an undivided attentive appreciative audience to perform for. Embellishing can be accomplished by color or shape or material or placement and position or any number of “other” little tricks that exhibitists have. I like that word, exhibitists...it’s like another word I coined: awesomist. It lay somewhere between pessimist and optimist as I was trying to explain to some that I did not care whether the glass was half empty or half full. I am just happy to have a glass with something in it: that’s really awesome! Back to the fun of storytelling.

First and foremost is an important fact for you to know: I embellish the telling of the story truthfully and factually (and it is fun)! Ok, so what I really do is tell the story of the story. Just without words (mostly). I support the object and the storyteller. I guess that makes me a ghostwriter. Awesome! Well, the Curator selects a subject and/or an object and works through the story--collecting facts written and photographic and deciding just how much information is enough. Now the “enough” to a curator can be too much for an allocated display space, so, up pops the exhibitist (Exhibits person, me). Like Mighty Mouse I am here to

“Save the Day!” Well, I secretly would like to think so. At this point Socrates kicks in...I wonder. I wonder what the Curator is really trying to say and I wonder how I can help them tell the story. I wonder how best to present the story. I wonder what the viewer should physically see to help impart enough wonder in themselves that it will then instill wisdom, or keeping it simple, knowledge.

This then is the point at which my wonder turns to wisdom...thank you Socrates! A Eureka moment! I know what to do and how to do it. However, like a circle I go back to storytelling, mine. I have to tell the Curator and those associated with the project the story of what I am doing, why I am doing it and what it will achieve. Advertising wisdom says that if you put 10% of the owner personality into the ad you’ve got the sale. I don’t really do that as much as just listening to the storyteller and making sure that their intent is captured in the design – ok, maybe 10%. (smile) Of course this story telling requires quick little sketches and some hand waving and gesturing (politically correct type) and COMPROMISE. See, I have captured the essence of wisdom in dealing with a team to help realize the final product. A little give and take.

So I tell the story twice to get it right once! Wisdom Begins In Wonder. In case you might wonder more about what I do and how I do it, this has been but one story. I will be happy to tell you more unembellished facts about the life of an Exhibitist if you just wonder enough to ask and I then will fill you with the wisdom you seek.

As always, you know where to find me...
Best, Ron.

SUPPORT YOUR FOUNDATION, YOUR MUSEUM

Have you ever wondered what to give your parents, your grandparents, your grandchildren, your friends for their birthday, for the holidays, to acknowledge their retirement, to celebrate their anniversary? A membership in the Foundation is an excellent gift in so many ways. The articles and information in the newsletter alone are well worth the membership cost. Many veterans and seniors appreciate the memories that the book reviews evoke. Send all contributions to **Naval Undersea Museum Foundation, P.O. Box 408, Keyport, WA 98345**



From the Museum Store...

YEAR ENDING REFLECTIONS..

The Museum Store recently lost a true treasure. **Jean Fankell** was a volunteer in our store for ten years, as well as our jewelry buyer and a dear friend to many. Jean was one of the most relentlessly positive people I have ever met. Though she ultimately lost her battle with cancer, she retained that positive outlook and fight when others would have folded. The last time that she worked in the store, she came in on her loving husband Larry's arm the day after her last chemo session. That in and of itself was amazing, but what really struck me was how she just went straight to work, putting together fantastic jewelry displays and spreading good cheer.

Under Jean's guidance, our jewelry selection expanded tremendously, with a corresponding increase in sales. Her good taste and sense of style was reflected in every carefully selected piece. She was an amazing woman and I know that I speak for her many friends in the store when I say - we miss you!



Volunteers are the lifeblood of both the store and the museum. We truly couldn't do it without them, and I count myself lucky to be able to work with such a fine group. It is refreshing to work with people who give of their time so generously, and I thank each and every one of them for what their give to our organization. I would like to wish all of our volunteers, as well as all of you the very best in the New Year!

DAINA BIRNBAUMS

IN MEMORIAM

LORETTA JEAN FANKELL

Nov. 1, 1939 to Nov. 20, 2009



Loretta Jean Fankell, born in Fort Smith, Arkansas, went home to the presence of her loving Savior and Lord on November 20, 2009. Jean's five month struggle against Glioblastoma, came to an end at home surrounded by her loving family.

She retired as Assistant to the Superintendent for the Central Kitsap School District, after also serving in the Tacoma School District. Jean received her MS from Chapman University and was an active member and Past President of both the Washington and the National Association of Educational Office Professionals. Jean was an active volunteer at the Naval Undersea Museum in Keyport, and a faithful member of Crossroads Neighborhood Church.

Jean will be deeply missed by her husband of 52 years, Larry Fankell; her sons: Ray and Bryan (Cindy) Fankell of Tacoma; her daughter Leanne Fankell of Bremerton; her sister Denise Mecartea of Gig Harbor; her grandchildren: Tyler Charrier, Christina, Sandra and Brandon Fankell, and her niece and great-nephew Mandy & PJ Clute.



Joyce Jensen

VOLUNTEER OF THE YEAR - SCOTT JAMISON

Scott Jamison has been a volunteer at the Naval Undersea Museum since 2004. Scott spent three years in the Navy during World War II. He was aboard the aircraft carrier USS *Hancock* when a Kamikaze plane hit. The ship sustained damage but was able to sail on and finished the war with a distinguished record.

Scott has six children. He is a graduate of Seattle University. He had a heavy equipment business including crane operation, logging and construction. He and his wife Gail lived in Brownsville for many years. Scott tended a huge rose garden at that home and he readily shared his knowledge of how to prune roses, grapes and other perennials.

Scott is one of those rare volunteers who will come in anytime we need him. For many years he has cheerfully filled in all the holes on the schedule. If we got in a tight spot and needed a volunteer staff member on short notice, we could depend on Scott to answer the call. We are proud to award our very first annual Volunteer of the Year Award to Scott Jamison. We feel fortunate to have had him on our staff.

JOYCE JENSEN



DISTINGUISHED SPEAKERS SERIES

On 16 January at 2:00 PM **Robert Carriker** who is a Professor of History from Gonzaga University will speak. He will talk about Lt Charles Wilkes expedition to the Puget Sound in 1891. The US EX EX, as it was called, was part of an American science initiative. Seamen, artists, and scientists explored from Grays Harbor down the Cowlitz Corridor to Fort Vancouver. Additional outfits crossed the Cascade Mountains to visit Fort Colville and the Protestant missions on the Spokane and Walla Walla rivers. Wilkes' greatest achievement was to inform congress about the difficulties associated with the Columbia River Bar and the advantages of Puget Sound Harbors.

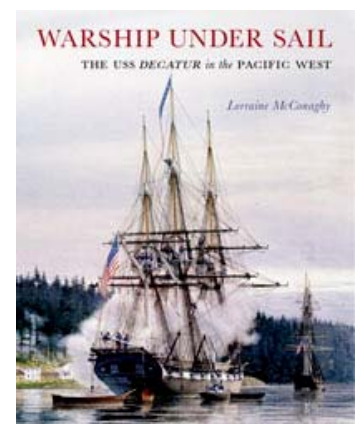
March 6th Family Day from 10:00 until 12:00 with **Boots**, a diving activity, and tour of the Women Diver's Gallery.

At 1:30 we have a visit from retired Navy **Chief Petty Officer Barbara Pixton**. Mrs. Pixton is now an elementary school teacher and she will reprise her role as Sojourner Truth with her famous speech about women's right to vote. Then at 2:00 pm, we have folk singer **Linda Allen**.

Here's to the Women!

Washington State is celebrating 100 years since the passage of Women's Suffrage. Linda has

prepared a special program, highlighting both the silencing and the empowering of women's voices in Washington State. Linda's power-point, musical presentation features songs, stories, readings and images, with a special emphasis on the fifty-year struggle for the vote. Concerts and workshops are also available on the theme of women's history.



MAKING THE DREAM COME TRUE

I believe in the Naval Undersea Museum's vision of the future and I want to help make it come true!
I want to see the Museum complete with state-of-the-art exhibits, quality supporting facilities, and exciting educational programs.

Please sign me up for the following:

- ___ *Seat(s) in the Future* \$500 each
- Dedicated to _____
- Sustaining membership*
- ___ Foundation Associate *\$1000+
- ___ Patron *\$500-\$999
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Make checks payable to the Naval Undersea Museum Foundation (NUMF)

VISA, MasterCard, American Express, Discover accepted.

Card # _____ Exp _____

Signature _____

Send to:

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P.O. Box 408
Keyport, Washington 98345

*Donors of \$500 or more may participate in the Seat-in-the-Future program by dedicating a seat in the Jack Murdock Auditorium for each \$500 given.

- Other*
- ___ As a one-time gift

Sustaining members receive regular quarterly newsletters, invitations to special events. The NUMF is a registered nonprofit 501(c)(3) organization. Gifts and memberships are tax-deductible for federal income tax purposes.

Name(s) _____

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From the Director..

do our best with the resources the Navy allocates to us.

Therefore the support of the Foundation will increase in importance as we seek to achieve our mission with fewer federal dollars. We continue to work on the acquisition of the Deep Submergence Rescue Vehicle *Avalon* with the help of several Navy offices. We are on the right track, and I believe we will receive *Avalon* from San Diego sometime in 2010 or possibly early 2011. This acquisition will significantly improve our collection of undersea vehicles, which is spot-on our mission.

Acquisition of Deep Submergence Vehicle *Sea Cliff* is less certain but likely nevertheless. The Navy considers that it may have a future use for *Sea Cliff*, but I believe we will be successful in obtaining a commitment to get the vehicle when newer DSVs or unmanned vehicles make it obsolete.

I look for the Foundation's support in 2010 in five areas:

1. Events that recognize the contributions of the Volunteer staff.
2. Education program activities such as the Distinguished Speakers series, Engineers Discover "E" Day, and summer Wednesday activities.
3. Website creation to let people know the museum exists and is open to welcome them. Every day the expression "If you're not on the web, you don't exist" becomes more factual. We are barely on the web; our presence should be much stronger.
4. Library catalog operation, making it possible for us to catalog the library electronically and to offer the catalog on the web.
5. Exhibit development to include thematic exhibits inside the building, such as the upcoming exhibit about Navy diving suits, and larger exhibit undertakings, specifically the relocation of *Avalon* to the museum.



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Schedule of Events



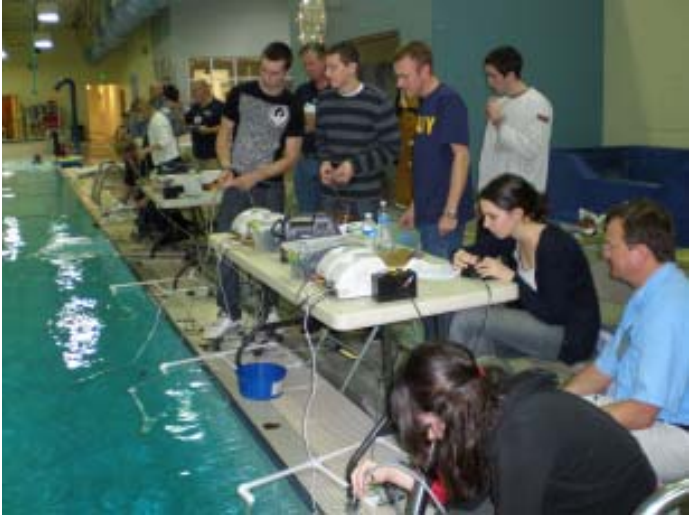
Detailed information on some events may be available in other newsletter articles.
All programs are FREE. Call 360/396-5547 with questions.

EXHIBITS

- Service and Sacrifice: The Trident Family - Pier Room
- Women Divers: Part of the Navy Team - Exhibit Hall
- The Trieste: Teen Docent Exhibit - Lobby

PROGRAMS

- Jan 16** Distinguished Speakers Series
Professor Robert Carriker on Wilkes' expedition to Puget Sound in 1891. 2:00 pm. Auditorium. FREE.
- Mar 6** Women's History Month
Linda Allen, folksinger. 2:00 pm. Auditorium. FREE
- Apr 10** Distinguished Speakers Series
Lorraine McConaghy, author of *Warship under Sail: The USS Decatur in the Pacific West*
2:00 pm. Auditorium. FREE



ROV PROGRAM STUDENTS TESTING THEIR VEHICLES

FAMILY DAY - THE FIRST SATURDAY OF EACH MONTH



Families with children pre-school to age 12 are invited to Family Day the first Saturday of each month. Each Family Day will include an experiment or make-and-take project, a story and song time, and a tour of the galleries. The fun begins at 10:00 am and ends with the tour about 12:00 pm. Parents or a responsible adult must accompany the children.