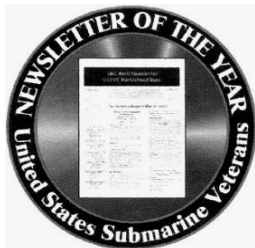


American Submariners Inc.
4370 Twain Ave.
San Diego, CA 92120-3404



The Silent Sentinel

JUNE 2014



Our Creed and Purpose

To perpetuate the memory of our shipmates who gave their lives in the pursuit of their duties while serving their country. That their dedication, deeds, and supreme sacrifice be a constant source of motivation toward greater accomplishments. Pledge loyalty and patriotism to the United States of America and its Constitution.

In addition to perpetuating the memory of departed shipmates, we shall provide a way for all Submariners to gather for the mutual benefit and enjoyment. Our common heritage as Submariners shall be Strengthened by camaraderie. We support a strong U.S. Submarine Force.

The organization will engage in various projects and deeds that will bring about the perpetual remembrance of those shipmates who have given the supreme sacrifice. The organization will also endeavor to educate all third parties it comes in contact with about the services our submarine brothers performed and how their sacrifices made possible the freedom and lifestyle we enjoy today.

Annual SubVets Family Picnic

Where: Smugglers Cove on Pt Loma Naval Base

When: Saturday, July 19 from 0900 - 1630

Why: Food, games, Sub Tours and door prizes and the chance to visit with your Shipmates and their families.

Submarine tours are planned for 0930 and 1300: sign up no later than Thursday July 10 by email at sdsubvets@gmail.com. Provide the full name of each participant and which tour (morning or afternoon) is preferred. Participants will need to carry photo ID (DL is sufficient). Space is limited so sign up early. As always, tours are dependent on submarine availability and subject to last minute schedule changes.

If you already have routine base access (retiree ID, active duty ID, CAC card), you are good to go and just need to show up.

If you do not have routine base access, contact Warren Branges at sdsubvets@gmail.com or (619) 971-8292 no later than Thursday July 10. You will need to provide first and last name, drivers license number, date of birth and SSN for each person requiring access to the base.

U.S. Submarine Veterans San Diego Base

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The Silent Sentinel via Email

To all of my Shipmates and families who currently receive our Great newsletter via the mail who would like it sent via email or continue to receive it via mail, please fill out the form and mail it to the base or myself. We are trying to cut the cost of the newsletter down from \$3700 to about \$1900 a year. By receiving the Silent Sentinel via email will cut down the printing and mailing cost. The other plus to receiving it via email is you can save it on your computer and not have the paper lying around the house.

A subscription to the Silent Sentinel newsletter will be available to surviving family members via internet email, at no charge, upon notification of the Membership Chairman. If a printed hard-copy is preferred, via US Post Office delivery, an annual donation of \$5.00 will be requested to cover costs.

NAME: _____

ADDRESS: _____

CITY/STATE/ZIP: _____

EMAIL: _____

TELEPHONE: _____

Would like the SILENT SENTINEL emailed: YES _____ NO _____

Robert Bissonnette
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USSVI Base Commander
c/o VFW Post 3787
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DUE TO LOGISTICS CONSTRAINTS, ALL INPUTS FOR THE SILENT SENTINEL MUST BE IN MY HAND NO LATER THAN *ONE WEEK* AFTER THE MONTHLY MEETING. IF I DO NOT RECEIVE IT BY THIS TIME, THE ITEM WILL NOT GET IN. NO EXCEPTIONS! MIKE

JUNE Meeting

Our monthly meeting is held on the second Tuesday of the month at VFW Post 3787, 4370 Twain Ave., San Diego. Our next meeting will be on 10 June 2014. The post is located one-half block West of Mission Gorge Road, just north of I-8. The meeting begins at 7 p.m. The E-Board meets one hour earlier at 6 p.m.

***Check us out on the World Wide Web
www.ussvisandiego.org***

BINNACLE LIST

George Koury, Al Strunk, Frank Walker, and Tommy Cox

Submarine Losses in May Originally Compiled by C J Glassford



USS Lagarto (SS-371)

Lost on May 3, 1945 with the loss of 86 men near the Gulf of Siam. On her 2nd war patrol, she is believed to have been lost to a radar equipped minelayer. This minelayer was sunk by the USS Hawkbill 2 weeks later.

USS Scorpion (SSN-589)

USS Scorpion (SSN-589) was returning to Norfolk, VA. from a Mediterranean deployment. On May 22, 1968 she reported her position to be about 50 miles south of the Azores. Scorpion was never heard from again. The exact cause of her loss has never been determined. 99 officers and men were lost.

USS Squalus (SS-192)

USS Squalus suffered a catastrophic valve failure during a test dive off the Isle of Shoals. Partially flooded, the submarine sank to the bottom and came to rest keel down in 240 feet of water. Commander Charles Momsen and Navy divers on

the USS Falcon (ASR-2) rescued 33 survivors use the diving bell he invented. 26 men drowned in the after compartments. Later Squalus was raised and recommissioned as the USS Sailfish. In an ironic turn of fate, Sailfish sank the Japanese aircraft carrier carrying surviving crew members from Sculpin, which had located Squalus in 1939. Only one of survived after spending the rest of the war as slave laborers in Japan.

USS Stickleback (SS-415)

Lost on May 28, 1958 when it sank off Hawaii while under tow after collision with USS Silverstein (DE-534). The entire crew was taken off prior to sinking.



CONSTANT BEARING, DECREASING RANGE

Flag Day

June 14

All Flags at 52 Boat Memorial

*

Oceanside Independence Day Parade

San Diego Base USS Los Angeles SSN-688 Float

June 28 – starts at 1000

*

San Diego Base Sunday Breakfast

VFW Post 3787

June 29 – 0800 to 1200

*

Independence Day

July 4

All Flags at 52 Boat Memorial

*

Julian 4th of July Parade

San Diego Base USS Los Angeles SSN-688 Float

July 4 – starts at 1200

*

San Diego Base Sunday Breakfast

VFW Post 3787

August 31 – 0800 to 1200

*

Poway Days Parade

September 1 – No participation this year;

Float going to San Francisco for USSVI Convention

*

USSVI 50th Anniversary National Convention

Burlingame, CA

September 1-7

<http://www.ussvigholdenanniversary2014sf.org>

Minutes for Submarine Veterans San Diego Base 13 May 2014

1900 - Meeting of the Submarine Veterans Inc., San Diego Base was called to order by Base Commander Bob Bissonnette.

Conducted Opening Exercises:

Reading of Our Creed.

Pledge of Allegiance lead by Secretary Jack Ferguson

Chaplain Jack Lester lead us in prayer.

Conducted Tolling of the Boats for May.

Observed a moment of Silent Prayer for our lost shipmates.

Recognized past E-Board members and Officers.

Secretary Ferguson announced 29 members and 2 guests (Juanita Williams and Frank Campbell, Bonfish Base Commander) present.

The minutes of 8 April 2014 meeting were approved.

Treasurer Report: Treasurer David Ball reported \$4370.46 in checking and \$15,241.64 in savings.

Call for Committee reports:

Chaplain Lester announced Al Strunk, Frank Walker, Tommy Cox, George Koury, J. C. Thompson, Judith Anderson, and Connie Bissonnette on the binacle list.

Norman Mueller, Bill Shellhammer on Eternal Patrol and Chaplain Lester remembered his Father, Doug Lester, who entered Eternal Patrol on this date in 1987.

Parade Committee: Joel Eikam reminded us of the following parade schedule for 2014 - Ramona May 17, LaMesa May 31, Oceanside June 28, Julian July 4th, Borrego October 25, and San Diego Veterans on November 11th.

Membership Committee: no report

Scholarship Committee: Paul Hitchcock reported two candidates had been approved and will receive \$750 scholarships each. A few details remain and the candidates will be announced at the June meeting. A discussion followed regarding the disposition of WW-2 scholarship funds upon their disestablishment and Jack Kane will follow-up with National.

Storekeeper Report: Phill Richeson announced that the Silver Dolphin Belt Buckle can be obtained with an order for at least 15 at a price of \$30-45.

Breakfast Committee: Fred Fomby reported that Warren Branges would be in charge starting the next breakfast to be held June 29th from 0800-1200 for \$7. Volunteers and a replacement cook are needed. Five members have food handling cards.

1926 Base Commander called for a break.

1940 Base Commander called the meeting back to order.

Unfinished Business:

Bob Bissonnette reported that only 43 persons attended the Western Regional Submarine Caucus in Laughlin which is a very small percentage of the Western Region membership and that next years caucus to be held in April, hopefully will be accorded a much better attendance from our members.

He gave a brief recap of the events normally discussed at the caucus.

The Old Timers Luncheon was very well attended but only three members attended the Submarine Ball. One WW-2 veteran attended and he was formally introduced.

Memorial Day services will be held at the Sub Base on 26 May at 1000. Recommend everyone arrive by 0930. Attendees without ID cards to gain entry, should contact Secretary Ferguson with their names, address, phone number, and citizenship so that a list can be given to Base Security.

Phil Richeson offered to drive his Van and pick up members without ID cards if they contacted him.

A motion was approved to give Scamp Base \$75 to help defray expenses for a wreath and refreshments.

The 2014 National Convention in San Francisco will be held 1-7 September and members are encouraged to send in their registrations.

Two new banners for the float have been received. One for Submarine Veterans and the other for WW-2 Submarine Veterans.

Disposition of submarine memorabilia was discussed and a final display area has not been yet determined. It was suggested that Mac Maclaughlin, CEO of the Midway Museum be contacted. Balboa Park Veterans Museum was also suggested.

The replacement plaques for the 52 Boat Memorial at Liberty Station are soon to be delivered.

New Business:

For planning purposes the Sub Base picnic will be held Saturday July 19 from 0900-1600 with submarine tours at 1000 and 1300.

The Christmas Party will be Saturday December 13 from 1330 to 1700 with dinner at 1400.

Good of the Order:

David Kauppinen announced that photos of the Submarine Memorial Plaque dedication at Riverside National Cemetery are on the website as are the Base events. He also reported that the stanchion bolts on the float had to be tightened, a preventative maintenance item to be remembered.

Frank Campbell mentioned a book by Slade Cutter which contained a photo of Joe McGrievy and told a story about submarine hitchhikers from the deep.

Base Commander Bissonnette adjourned the meeting at 2014.

Jack Ferguson, Secretary

Sailing List for 13 May 2014

Fred Fomby	Benny Williams	David Ball
Jack Lester	Jack Addington	Bob Farrell
Joel Eikam	Phillip Richeson	Phill Richeson
Bob Bissonnette	Jack Ferguson	Jim Harer
Rocky Rockers	Chris Stafford	Bob Welch
Bill Earl	Kavid Kauppinen	Russ Mohedano
Paul Hitchcock	Jack Kane	William Johnston
Dennis Mortensen	Richard Smith	Michael Hyman
Manny Byurciaga	Ed Farley	W. J (Joe) Sasser
Warren Branges	Don Mathiowetz	

VA VA VABOOM!

Opinion by Michael Hyman © 2014 / Mr. Hyman's opinions do not necessarily reflect those of Subvets Inc.

May 31, 2014 9:37 a.m.

Congress legislated pensions for Revolutionary War veterans in 1789. It soon was discovered that many veterans had been left off the roster; consequently, legislators extended and rewrote the law. This time it resulted in as many veterans being dropped from the rolls as those being added to them. Some veterans waited years to receive the first payment; and while they did, Congress once again changed the requirements for eligibility. In 1820 the law was changed still again to award pensions to only “indigent” veterans. In 1832 Congress set the standard for future veterans programs by eliminating the benefit entirely.

The American Civil War officially ended on April 9, 1865. Author Teresa Riordan writes that the casualties included “60,000 [veteran] amputees” (“When Necessity Meets Ingenuity: Art of Restoring What’s Missing.” *The New York Times*. March 8, 2004). Pensions for all disabled veterans (with service related issues ranging from gunshot wounds which would not heal to total deafness) were often denied compensation via a system of red tape that would make George Orwell shudder in fear. A good example is the account of the crew of the USS Alligator (the Union submarine—the North’s version of the CSS Hunley). Alligator crew members suffered latent effects from the Bends—the symptoms lasted for the rest of their lives. Their claims for veteran’s disability pensions were denied until a physiological mechanism for the Bends was discovered (the Alligator crew suffered symptoms identical to those experienced a few years later by workers who were building the underwater foundations for the Brooklyn Bridge via caissons). This finally occurred in 1900 when Dr. Leonard Hill discovered that Caissons Disease (the Bends) was produced by gas bubbles in the blood—thirty-five years after the end of the war. However, by this time, most of the Alligator crew were dead.

Look back to the promises made to WW-I veterans and to the events which transpired in order to allow these men to receive their benefits when really needed. Given in 1924, the WW-I veteran \$1000 Bonus Certificate was designed to not be redeemable until 1945. In 1932, with the Depression in full swing, the government sent in MacArthur and Patton with Army troops to disband out-of-work Bonus March protestors who were camping on Washington, D.C.’s Anacostia Flats—four veterans were killed and over one-thousand were injured. Only after hundreds of these same veterans were later killed on a Works Progress Administration (WPA) contract in Florida in 1935 did the matter really get real attention—with public outrage over the incident and midterm elections coming up, pensions were awarded in 1936 (nine years sooner than planned and four years later than desired) after Congress overrode President Roosevelt’s veto.

Take under consideration the ten years plus of suffering and the countless number of dead Vietnam veterans who were denied treatment and pensions on account of a Veterans Administration (VA) which refused to admit any connection between cancer and exposure to Agent Orange. Also think of the countless WW-II submarine veterans who developed Mesothelioma as a result of exposure to asbestos but who were also denied a service connected disability status by the VA.

If reports are true, more than half of today’s homeless population is comprised of honorably discharged veterans. At the same time, retired veterans eligible for disability pensions (these are persons who have been classified as having a service connected disability by the Veterans Administration) are having their disability payments deducted from their military retirement pay (this is often the case with career Navy Seal, Green Beret, and other Spec Op type personnel—by the time they retire, old war wounds, damaged joints, and related conditions have come back to haunt them—big time). Quite simply, a wounded, disabled veteran with 20 years of service will receive essentially the same retirement

pay (the disability payments are tax exempt) as one who was fortunate enough to get through his military time without a scratch!

VA issues come up every few years. After a short time, it is all forgotten when more serious news comes along—for many, this can amount to a report on the three top spots for Spring Break. I believe that it was back around 2008 when Bill O'Reilly and Congressman Peter King (R. NY) were going to change the way the VA does business. After lots of noise—and much pomposity—nothing happened. The matter was never again mentioned on his show. *Déjà Vu*. I truly hope—but am reluctant to bet—that this time things will significantly improve.

When President Obama took office in 2008, his plan was to merge veteran healthcare and other government managed healthcare programs—for example, Medicare, Medicaid, and Tricare—into an integrated system (the Affordable Care Act [ACA] had not yet been passed). Everything was on the table except the plans which Congress falls under—apparently, these are the Holy of Holies! Veterans groups—in particular, the American Legion and the Veterans of Foreign Wars—were up in arms. Even Congress on both sides of aisle came out strongly against the idea that veteran and military healthcare programs be touched. There was, to put it politely, wailing and gnashing of teeth—so much, in fact, that the President had to have a special press briefing in order to say in so many words, “Just kidding!”

So what changed? Frankly, I believe that our government (and this includes many of the elected officials who vehemently opposed the idea of privatized healthcare for veterans not that very long ago) is selling us out to the highest bidder! Transferring care to the private sector is the last thing needed if veteran healthcare is truly a priority; however, most of the persons suggesting that we do so have never been a patient in a VA hospital. Many of them have never had an overnight stay in any hospital at all. They don't know enough to be talking on the subject but talk they do—and lots of it. They have no way of knowing that a VA hospital has a better nurse to patient ratio than a private hospital (which means that when you're waiting for a shot of Morphine at 8 p.m. after abdominal surgery the same afternoon, the nurse is there on the dot rather than at 8:25 p.m.—and if you don't think it matters, you've obviously never been in serious pain). VA hospitals are likely to hold patients longer than private hospitals do and are more conservative in their treatment plans. Though one often will not have a private room (unless in ICU), the quality of care is usually better than the kind received in the private sector. Moreover, many on the VA staff also practice elsewhere—for example, many doctors in VA San Diego, CA also practice and teach at UCSD, La Jolla, CA to name just one example of this scenario.

Admittedly, the VA bureaucracy is nightmare. Veterans who were injured while in service must wait sometimes years before their ailments are classified as service connected. The ones who this affects the most are working veterans—men and women who earn too much to be on Medicaid but who earn too little to afford decent healthcare. Single veterans whose total income falls under \$1000 month are, however, Medicaid eligible and can be treated at a VA hospital. While their applications are being processed, they can be treated at a facility accepting Medicaid—for example, UCSD Hospital in San Diego, CA. The point here is that persons such as these will not be without care. On the other hand, the current issue in the news concerning the VA revolves around uninsured veterans whose injuries are waiting to be classified as service related—at the moment they are in no man's land without any health coverage at all. Currently, the number of VA claim examiners is staying constant while the claims come in at a rate of over 4000 per month. It is impossible that at the current staffing level, claims will ever reach a quiescent point. Still, transferring care to the private sector is not a solution.

When Medicare HMOs began—for example, Secure Horizons—it was a zero share of cost program and provided excellent coverage. This lasted for only a few years. When AARP purchased Secure Horizons, things immediately changed. Shares of costs were introduced, monthly premiums were started, and the level of care decreased significantly—many conditions were no longer covered. A similar scenario occurred at Kaiser Permanente as well as at all other Medicare supplemental HMOs. Prices rose and care decreased—albeit at one time it was zero cost and the care was superb.

Corporations such as these are now accepting non Medicare patients through the Affordable Care Act. How can they afford to handle such a significant increase in patient load and still provide acceptable care? It's quite difficult (perhaps even impossible). Regardless of what some would have you believe, healthcare providers still must make a profit in order to stay solvent. Taking in as many patients as possible, charging them hefty monthly premiums, and deflecting treatment to lower-paid physician's assistants and other non M.D. staff helps meet operating expenses. The method permits them to competitively bid. The government likes it and so do the providers. It's win/win for them. Of course, the one who often winds up getting the short end of the care stick is the patient. On the other hand, this never seems to be an issue when high ranking bureaucrats receive premium healthcare services for themselves and for their families; rather, it only occurs when they are selecting care options for us!

Does anyone reading this believe for even a moment that government will forbid HMO—Medicare Supplement—ACA providers from providing veteran's healthcare? Frankly, I have few doubts concerning it. I am sure that Congress with the President's blessing will make them an offer they can't refuse, ignoring the fact that these providers are already stretched beyond capacity (healthcare corporations such as these will jump at an opportunity for increased profits by telling Congress anything it wants to hear—and this is a federal bureaucracy which enjoys having its ears tickled regularly). Consequently, if one wants a disabled combat veteran whose legs have been blown off to wait in line for mediocre care behind an "undocumented worker" on the public dole, the realization will be fulfilled sooner than later if veteran's healthcare is transferred to private providers. I guarantee it!

The VA can be fixed. The problem is primarily a bureaucratic one. First, it needs more claim processors—lots of them. Otherwise it will never keep up with the increasing claim load. Second, the VA has to change its draconian regulations concerning disability claim procedures—a reasonable burden of proof for a veteran filing a claim for a VA service disability pension is one thing but denying the claim after the veteran was hospitalized multiple times for the same condition while in service—and clearly documented in the veteran's service record—stretches the limits of reason (most veteran service records have been digitized and are immediately accessible by claims investigators). Third, the VA must reduce the paperwork load on its medical staff—since the Phoenix VA incident, the paperwork load for all VA medical doctors has increased by 10 minutes per patient throughout the system (this reduces the total number of patients that VA medical personnel can see). Fourth, the VA needs to increase the size of its medical staff in order to accommodate an increasing number of veteran clients. Fifth, the VA needs to consider the welfare of the veteran rather than its own public image (which is poor at best). Sixth, all VA policies and procedures need to be examined and analyzed to determine if they really are necessary—ones not required or redundant should be discarded. And Seventh, bonuses for all VA employees (from top to bottom)—medical as well as executive—must be eliminated immediately. There's too much temptation to play the system at the veteran's expense.

Were issues with the VA a new phenomenon, I'd argue that the problems were singularities. But this is far from the case. Issues concerning relations between the government and its veterans have existed long before the VA's beginnings in the early 1930s. Some today would like to throw out the baby with the bathwater, essentially transferring all veteran care to the private sector. And to those who do, consider what the result will be—specifically, a disaster of a magnitude which will make VA Phoenix appear as an indiscretion.

It seems irrational for Senators, Congressmen, and other talking heads to enthusiastically embrace a plan today which they labeled as vacuous only a few years ago. Why did they fight tooth and nail to oppose private provider healthcare for veterans not that long ago, completely reverse themselves, and now come out in favor of it? What could possibly be the driving force behind their 'about face'—what changed? An honest answer to this question makes it quite clear that if veteran healthcare is as much a priority as everyone professes—from the President and Congress on down (“[A]y, there's the rub” [Hamlet])—fixing the VA rather than integrating it within a framework of overburdened civilian healthcare provider programs remains the only possible solution.

Current News

“Plataginet, I will; and like thee, Nero,
Play on the lute, beholding the towns burn” (*Henry VI*, Shakespeare)

Senate Bill Would Create Separate Fund For New Trident Submarine

Rachel Oswald, Global Security Newswire, May 27

A Senate defense panel wants to create a separate fund to underwrite the nation's new nuclear-armed submarine fleet, a step the House also supports.

The Senate Armed Services Committee's mark-up of its annual defense authorization legislation calls for the establishment of a "National Sea-based Deterrence Fund" to finance the construction of new submarines to replace today's Ohio-class ballistic missile vessels, according to a detailed panel summary of the bill released on Friday.

The Democratic-controlled committee approved the legislation on Thursday by a near-unanimous vote. On the same day, the Republican-controlled House passed its own version of the fiscal 2015 policy-setting bill that also included language ordering the creation of a special fund to pay for the new "SSBN(X)" fleet.

The House legislation authorizes the Defense Department to transfer up to \$3.5 billion to the Ohio-class replacement account from "unobligated funds" authorized for fiscal years 2014 to 2016. Meanwhile, the Senate bill would authorize an initial \$100 million to get the fund going.

Congressional support for creating a separate fund for the Ohio-class successor stems from concerns that the submarine-building effort could eat up too much of the Navy's overall shipbuilding budget. The project currently is in the design and development stage, with construction of the planned 12 new strategic submarines expected to start in fiscal 2021. The vessels are to be armed initially with the Navy's nuclear-tipped Trident D-5 ballistic missile.

The latest moves in the two chambers come on the heels of skepticism by a key supporter of the separate-funding idea for new submarines, Representative Randy Forbes (R-Va.), who said recently that the approach would be unlikely to gain full congressional approval this year.

Meanwhile, the Senate Armed Services Committee also approved boosting funds for the Ground-based Midcourse Defense system to the tune of \$30 million above the Obama administration's request. The additional money is to be used "for improvements in reliability and maintenance" of the antimissile program, according to the summary report.

The GMD program – comprising 30 Ground Based Interceptors deployed in California and Alaska, plus a network of sensors – is the country's principal line of defense against a limited long-range ballistic missile attack. However, it has had a number of recent testing problems that have been so troubling that the Pentagon's Missile Defense Agency in March announced it would redesign the interceptor's front-end kill vehicle.

This comes as the military is planning to procure another 14 interceptors for fielding in Alaska, in response to a possible missile threat posed by North Korea.

The draft Senate legislation would order the Pentagon to "develop a robust acquisition

plan" for the redesign of the kill vehicle, which uses kinetic energy to destroy incoming ballistic missiles, in order "to provide confidence that it will work in an operationally effective manner," the summary states.

The bill also would mandate that the Department adhere to the "fly-before-you-buy" approach for affirming through testing the soundness of ballistic missile defense technologies before they are purchased or deployed. The Missile Defense Agency has come under repeated criticism from independent experts and by Congress' internal watchdog for not sufficiently following this acquisition strategy in its development and expansion of the Ground-based Midcourse Defense program.

Missouri Man Chronicles Losses On WWII Submarines Jim Salter, Associated Press, May 25

Serving aboard an American submarine was one of the most dangerous assignments in World War II, with nearly 1 in 5 crew members losing their lives somewhere in the ocean depths.

Paul Wittmer of suburban St. Louis has spent years working to ensure that those men - more than 3,600 sailors - are remembered, including a book that has been years in the making.

Wittmer, a submarine veteran who turned 90 last week, has conducted research for eight years at the National Archives at St. Louis, which houses millions of military personnel records. He compiled biographical information on every man lost aboard a submarine during the war. The research fills six volumes.

The painstaking effort even helped correct history. The Navy previously listed 3,505 submarine officers and sailors lost on 52 subs downed during World War II. Wittmer calculated a larger number - 3,628.

The duty was highly risky, Wittmer said, and about 20,000 men volunteered.

"When you go on a patrol, you are essentially alone," Wittmer said. "You didn't have any support group, and you went deep into the enemy harbor. You rescued people. You plotted enemy mine fields. That was a very nasty business."

Wittmer has been active in submarine veteran organizations, helping to get monuments erected to honor the dead. For years, he wanted to compile their life history in a book, but much of the personnel information wasn't available to the public. Wittmer tried Freedom of Information requests, but to no avail.

In 2007, the government made public personnel records for all veterans discharged as of 1945, the end of World War II.

"Mr. Wittmer was right there at the door waiting for us," said Whitney Mahar, the archives' research room manager, who says 10 to 20 people show up each day to do research. "He's very persistent, very serious about his research and what he's trying to accomplish."

Wittmer poured through thousands of documents, compiling information such as the name of each veteran, his date of birth and birthplace, parents' names, service dates and dates - or approximate dates - of death. In some cases, he was able to find photos of the men, who came

from all across America.

Wittmer, who grew up in New York City, joined the Navy in 1942. Curiosity led him to enlist on a submarine.

"They had the best diesel engines, and I wanted to know about diesel engines," he said. "I actually learned quite a bit - how to operate them and take them apart and put them back together again."

After the war, Wittmer worked as an engineer in New Jersey and Connecticut. He moved the family to St. Louis in 1978 to work at Ferguson Machine Co.

Five years earlier, a fire at the archives destroyed records of thousands of servicemen, including about 80 percent of Army personnel discharged between 1912 to 1960 and countless Air Force personnel discharged from 1947 to 1964.

Fortunately for Wittmer and families of submarine veterans, the Navy records were intact.

The latest edition of Wittmer's self-published, six-volume set of the hardbound books, "United States Submarine Men Lost During World War II," was published earlier this year. It is co-authored with Charles Hinman, curator of the USS Bowfin Submarine Museum in Hawaii.

The set is available for \$300. Wittmer said the information in the books will not be posted on the Internet. Wittmer has sold 11 sets and donated one to the records center. He would like to get one in every state library and archive.

It wasn't easy, he said, but it needed to be done.

"It was labor-intensive," Wittmer said. "It was the equivalent of a 40-hour week job at my personal expense. But it was a labor of love, really."

Quantum Technology To Help Submarines Find Their Way

Stephen Harris, theengineer.co.uk, May 22

British scientists have developed technology that could allow submarines to determine their exact location without needing to surface.

Researchers at Imperial College London are working on a portable "quantum" accelerometer, which they claim could be up to 1000 times more accurate than current technology, by engineering smaller and better-controlled lasers.

This could allow accelerometers to help map the exact movements of a submarine or other vehicle as it moves around the globe, enabling the crew to determine their current position with an error range of just 1m.

Submarines currently need to surface to access satellite navigation – which is also vulnerable to interruption by outside signals – and cannot use radar or sonar without risking detection, so underwater navigation is usually based on calculated estimates.

But current accelerometers, which measure the force applied to a physical component, are not accurate enough to provide a precise navigation record because they tend to drift and need

recalibration. For submarine navigation, this can produce errors of up to a kilometre when the boats finally surface.

The quantum accelerometer provides a much more accurate reading by measuring the force applied to individual atoms. A laser cools the atoms to near absolute zero, effectively freezing them in position and allowing another laser to measure any changes in the atoms caused by acceleration.

‘An atom is the same as every other atom of that type and it is also the same in a year from now, whereas if you have a piece of material [in an accelerometer], that material has stress in it and will change its properties over time,’ research leader Prof Ed Hinds told The Engineer.

‘So the zero of [a conventional] accelerometer will change over time. With an atom-interferometry accelerometer that doesn’t happen so you have a tremendous improvement in both the calibration accuracy and zero drift.’

Manufacturing challenges

The key engineering challenge is in miniaturising the quantum accelerometer’s components, including its lasers, optics, and control system. A crucial part of this is developing manufacturing techniques to produce control chips with very precise structures using the same techniques as processor fabrication.

‘The chip we make will be on a substrate – of silicon, gallium arsenide or one of the standard materials – and use the same kinds of methods such as lithography to make the structures,’ said Hinds. ‘But the structures will be totally different and therefore the recipes, until we develop them, don’t yet exist.’

Another key element will be producing a very small vacuum chamber with perfect optical properties – from glass rather than the typical steel – that doesn’t require mechanical pumping and is very good at preventing atoms from escaping.

The research is one of 13 projects funded by the government’s Defence Science and Technology Laboratory (DSTL) aiming to make greater use of quantum technology in navigation, sensing, communications and computing applications.

The current iteration of the accelerometer is housed in a box around 1m in length, but further work could make it portable enough to carry around, opening up other applications where GPS cannot currently work, such as indoor navigation.

‘Your GPS will never tell you what floor of a multi-storey car park you’re on’ said Bob Cockshott of the National Physical Laboratory where the technology was presented last week.

‘For navigation within buildings, shopping malls, airports and particularly within tunnels, there’s demand for that to happen,’ he said. ‘But the exciting applications are probably the ones we haven’t thought of.’

Northwest Critical To Military's Pivot To Pacific

Ed Friedrich, Kitsap (WA) Sun, May 20

BANGOR – The Northwest is key to the Obama administration's rebalance of military forces toward the Pacific, the man directing Navy efforts in the region is telling local sailors this week.

Adm. Harry Harris Jr., commander of the Pacific Fleet, visited naval bases Monday and Tuesday in Bremerton and Bangor and Wednesday and Thursday will travel to Whidbey Island and Everett.

"The strategic value of the Northwest can't be overstated," said Harris, who commanded a P-3 Orion patrol squadron at Whidbey in 1995-96. "This is a huge center of gravity for the U.S. military. I think it's critical. That's why I'm taking time out of my schedule to come up and visit this area."

It is Harris' first trip here since becoming one of about a dozen four-star admirals and assuming command of the Pacific Fleet on Oct. 16.

About 52 percent of the Navy's surface ships now are in the Pacific. By 2020, it's planned to climb to 60 percent, Harris said, as the country reorients its foreign and military policy toward a strategic part of the world. Submarines, including 13 based at Bremerton and Bangor, are already 60-40, Harris said.

The most advanced weapons systems will be assigned to the Pacific, including EA-18G Growler electronic warfare aircraft and P-8 Poseidon patrol planes at Whidbey, Zumwalt-class super destroyers, possibly at Everett, F-35 joint strike fighters and new Gerald R. Ford aircraft carriers.

Directing the advanced weapons will be superior officers, including Navy Region Northwest commander Rear Adm. Bette Bolivar, who'll take over this summer in Guam.

"Most important is putting leaders in key positions who are experts or served in the Pacific before," Harris said. "This is not a training ground."

Harris epitomizes that philosophy. Born in Japan and raised in the United States, he graduated from the Naval Academy in 1978 and is serving his seventh tour in the Pacific. His graduate education, which includes Harvard's Kennedy School of Government, Georgetown's School of Foreign Service and Oxford University, focused on East Asia security.

Across-the-board cuts to the defense budget, called sequestration, could disrupt the Navy's rebalancing efforts. Congress passed legislation in December that eliminated some of the spending cuts for 2014-15.

"You fund what you believe in. You fund what's important," Harris said, quoting Defense Secretary Chuck Hagel. "I think we'll continue to fund it."

"It can be affected, but I think in the aggregate we're going to march right down the road to rebalance, and Washington state will play a key role. It's an exciting time to be living in the great Northwest."

The rebalance is more than aircraft carriers and submarines. It's diplomatic, economic, political and military. Military is the most visible and economy the most important, Harris said. Navy ships based or maintained here help keep shipping safe and tensions low so trade can

flourish.

“It means the (Kitsap) area remains relevant,” Harris said. “There will always be work for the shipyard.”

North Korea and its effort to develop nuclear weapons and missiles remains the biggest concern, but something new is always popping up. The Thai army declared martial law Tuesday while American forces were participating in exercises there. A Chinese oil rig erected in a contested area of the South China Sea sparked riots last week in Vietnam. The United States and several other countries cooperated in the search for a disappeared Malaysian airliner and responded to a sunken South Korean ferry. It’s never dull.

“It’s a fantastic job to be Pacific Fleet commander,” Harris said. “I’m happy to have it.”

DEFENSE WATCH 6/6/14

Coronado’s Final Contract Trials. The Littoral Combat Ship USS Coronado (LCS-4) completes final contract trials on Friday consisting of post-delivery testing of the ship and its major systems. The four days of trials included combat systems, air-and-surface detect and engages scenarios, 57mm gun exercises, main propulsion powering and maneuvering. The ship’s 11-meter rigid hull boat was also deployed and recovered. The LCS program manager at PEO LCS, Capt. Tom Anderson, said changes built into the Coronado from lessons learned from its first predecessor, the USS Independence (LCS-2), have shown improvements. “It is clear that the changes incorporated into Coronado, based on lessons learned from the construction and operation of USS Independence, have contributed not only to her affordability, but to her operational capability,” Anderson says. The Coronado will go into a post shakedown availability this fall.

A Navy First. Naval Sea Systems Command (NAVSEA) announces on Thursday that it has planned out and detailed the modernization and maintenance availabilities for all of the surface ships scheduled to receive them in fiscal 2015. The service says the extensive planning to achieve the “right-sizing” of availability durations for the 44 shipyard availabilities next year will save time and make the process more efficient. “This marks the first time the Navy has collectively assessed and integrated all advance planning efforts for a full year of surface ship availabilities, the result of which will be a reduction in lost operational days,” NAVSEA says. “This effort was an incredibly rigorous planning initiative,” says Capt. Michael Malone, commanding officer of SEA 21’s Surface Maintenance Engineering Planning Program (SURFMEPP) in Norfolk, Va. “By understanding specific planned maintenance and modernization work required for each ship in advance, we can give fleet commanders a realistic analysis of how long availabilities will last. Doing so really limits the potential for surface navy schedule shifts and lost operational days.” NAVSEA says that previously it “did not have a formal process to treat surface maintenance and modernization as an integrated, lifecycle business, which meant schedules were, at best, notional.”

Sub Illinois’s Keel. The Navy holds a keel laying ceremony for the future Virginia-class attack submarine the Illinois (SSN-786) on June 2 at General Dynamics Electric Boat. The sub’s sponsor is Michelle Obama and her initials were welded on to a steel plate that will be attached to

the hull. The first lady is a Chicago native. “The event marks the first major construction milestone for the submarine and helps forge a special bond between Mrs. Obama, her submarine and her crew that will last for years to come,” says Capt. David Goggins, the Virginia-class program manager. Construction on Illinois began in March 2011.

Commander of USS San Juan Relieved of Duty Johanna Somers, New London Day, June 4

A “CATASTROPHIC” systems failure on board a Devonp GROTON – The Navy said Wednesday it has relieved Cmdr. Joseph Biondi from his duty as commanding officer of the Los Angeles-class attack submarine USS San Juan.

Biondi is one of five commanding officers relieved of their duties since January 2014 across the entire Navy, said Timothy Hawkins, a spokesman for Submarine Group 2.

“Biondi’s relief was related to shortfalls in professional performance, leading to leadership’s loss of confidence in his ability to serve in a position of command authority,” according to a Navy press release.

Capt. Vernon Parks, the commander of Submarine Development Squadron 12, relieved Biondi from his position because of “a loss of confidence in his ability to serve effectively as commanding officer,” the release said.

The professional shortcomings were determined from periodic assessments and examinations over the course of his command tour, which began in April 2012, Hawkins said. The deficiencies were not related to personal misconduct. They had to do with how he did his job, Hawkins said. Hawkins would not describe the specifics of Biondi’s professional shortcomings.

At this time Biondi has been reassigned to the staff of Commander, Submarine Group 2, which works for Rear Adm. Ken Perry, who has oversight responsibilities for attack submarines on the East Coast.

Biondi’s future depends ultimately on what is recommended by the chain of command and the Naval Personnel Command during a formal process called “detach for cause.”

“A detach for cause is the administrative removal of an officer from his current assignment before their normal transfer or planned rotation date,” according to a military personnel document. “A DFC is one of the strongest administrative measures available.”

The “detach for cause” is filed in the officer’s personnel record and “has serious effects on the officer’s potential promotion, duty assignments, selection for schools, and special assignments,” according to the document. “The relieved commander will be reassigned pending the outcome of the formal process.”

The Navy holds commanders to “very high standards” and holds them accountable when the standards are not met, the Navy press release said.

Biondi enlisted in the Navy after graduating high school in Spokane, Wash., in 1987 and his first assignment was on the USS Sunfish. He reported to the Professor of Naval Science at Cornell University in January 1999 and served as a visiting lecturer. He completed a master’s degree in industrial labor relations during his tour.

In April 2012 when Biondi was given command of the USS San Juan from Cmdr. Ollie

Lewis he said, "Cmdr. Lewis and the crew have done an amazing job completing the modernization and returning to sea one of the most technologically advanced submarines in the fleet. I am looking forward to leading the crew in the employment of her new systems."

Biondi has been replaced by Cmdr. Sam Geiger, deputy commander at Submarine Squadron 4, until a permanent replacement is named. Geiger finished a three-year tour as commanding officer of the USS Toledo on May 16.

Submarine Commander Recounts How Disaster Was Narrowly Avoided The Guardian, June 4

HMS Turbulent crewmembers collapsed at control panels as the vessel's air conditioning failed, causing temperatures to soar

Royal Navy submarine HMS Turbulent has been decommissioned since the incident occurred in May 2011. Photograph: Tim Ireland/Press Association Ima

A nuclear submarine commander has told how he narrowly avoided disaster when the vessel's air-conditioning system became clogged with shellfish, causing searing temperatures on board.

HMS Turbulent was on patrol in the Indian Ocean during a gruelling 268-day tour when the temperature on board soared to 60C (140F) and crew members began to collapse at their control panels and in their cabins.

As the submarine was cruising on the surface, its commanding officer, Ryan Ramsey, ordered its hatches to be opened but the sweltering outside temperature gave no respite.

Desperate, he gave the order for the submarine to dive into cooler water, bringing the temperature down and giving the engineers the chance to find out what the problem was and fix it.

Ramsey, who retired from the Royal Navy in March, said: "I genuinely thought there was going to be a loss of life. People were collapsing, many at their work stations. We had casualties in the control room, the engine room, the bridge, cabins, and the toilets and showers.

"I remember looking at a picture of my family quickly thinking 'we need to pull through this'. Walking around the boat I saw true fear in my crew's eyes. I saw genuine concern because we simply did not know how we were going to get through it."

Ramsey said the incident took place in May 2011 after Turbulent left port in a Gulf state. He was on the bridge when he was told the air conditioning had failed.

He said: "I came down below and I was met with this incredible blast of heat." Ramsey went to the cabin of the first submariner who had collapsed and found him crying and shaking, apparently suffering from a heat-related illness. Within hours almost every free bit of space had become a makeshift sick bay.

"I felt like the world was against us. I was looking up and asking: 'When are you going to give me a break to gain the upper hand here?' People were crying – it was all about survival."

According to Ramsey other systems on board the submarine began to fail but it was able to dive. Within 24 hours the submarine was completely back to normal and was able to continue on her mission. Crustaceans had clogged up pipes linked to the air-conditioning system.

Ramsey said: "It was touch and go before we dived as to what might happen to us and the

submarine. I could have radioed for help but it would have taken hours for anyone to reach us. In that time people would have died. We were alone in our steel tube. There really was no one to call. There's not a day that goes by that I do not think about what happened. The pain of seeing my crew like that."

Ramsey spoke to his local newspaper, the Plymouth Herald, to highlight the "fantastic" work submariners did.

He told the Guardian: "My team was absolutely amazing; without doubt teamwork was key, people's ingenuity in dealing with something so unique, out of our control initially, surreal on occasion and life-threatening, all of which we had to deal with on our own. I know the Royal Navy would have done all it could to have helped, but it was us and us alone."

Ramsey said he believes the feats and challenges the submarine service faces are rarely recognised.

"My well-trained team were inspirational at every level, from the engineers that fixed a variety of issues brought on by the heat, the petty officer medic who led his small team to save lives, to the team leaders who recovered the situation," he said. "I will always be absolutely proud of them."

HMS Turbulent retired in 2012 after 30 years service.

The Trafalgar class submarines are being replaced by the Royal Navy's new class of Astute submarines.

A Royal Navy spokesperson said: "In 2011, a technical issue in HMS Turbulent resulted in a temporary rise in temperature on board the submarine. The problem, which caused no damage to the submarine or its reactor systems, was resolved by the crew after a few hours using standard operating procedures. A number of personnel who showed signs of heat-related symptoms were treated by the submarine's medical team. All recommendations resulting from the investigation into the incident have been fully implemented."

The Pillars Of Submarine Safety

Rear Adm. Michael Jabaley, Proceedings Magazine, June 2014

The U.S. Submarine Force actively applies the knowledge gained from historic incidents such as the loss of the H. L. Hunley and the USS Thresher to inform its approach toward safety.

On 11 April 2014, the U.S. Submarine Force marked its 114th birthday, celebrating its rich history of tradition and success. But just one day earlier, it observed a more somber milestone: the 51st commemoration of its worst non-combat loss, the sinking of the USS Thresher (SSN-593). Reflecting on this tragedy reminds us of a formative truth: The U.S. Submarine Force operates incredibly complex machines in hazardous and unforgiving environments for extended periods of time, and the U.S. Navy's all-volunteer submariners put themselves in harm's way every time they take their boats to sea.

To ensure the safety of our sailors, the Submarine Force offers a premier safety effort based on three programs: the Quality Assurance Submarine Safety program (SUBSAFE), the Deep Submergence Systems Scope of Certification (DSS-SOC) program, and the Fly-By-Wire Ship Control System program. Although all of them came into being within the past 50 years, the disasters they seek to prevent have been present since the earliest days of operations beneath the sur-

face.

The Need For Safety Programs

On 9 April 1963, the USS Thresher was nearing the end of her post-shakedown availability when she left Portsmouth Naval Shipyard to conduct sea trials. At approximately 0949, she rendezvoused with her escort, the USS Skylark (ARS-20), a Penguin -class submarine-rescue ship. After completing a shallow dive, the two vessels transited independently during the night to a second rendezvous point. During the transit the Thresher conducted test evolutions, surfaced, submerged, and exercised the propulsion plant at full power.

On the morning of 10 April, the ships met to conduct a depth test. At approximately 0747, the Thresher commenced a deep dive. At approximately 0913 she reported, "Experiencing minor difficulties have positive up angle. Am attempting to blow. Will keep you informed." At approximately 0916, the Skylark heard a garbled transmission believed to include the words "... test depth" and at 0917, another garbled transmission containing the words "... nine hundred North" was reported. At 0918, a high-energy, low-frequency noise disturbance was observed. The water depth in the area of operations is about 8,500 feet. The Thresher, along with 129 souls, was lost that day.

After the incident, a court of inquiry and the Joint Congressional Committee on Atomic Energy hearings concluded that a flooding casualty in the engine room, resulting from a piping failure in one of the sea-water systems, was the most probable cause. On 3 June 1963, the SUBSAFE program was established within the Bureau of Ships to develop the Submarine Safety Certification Criterion, outlining the minimum actions required to provide a satisfactory level of confidence in the integrity of submarine systems and the adequacy of certain depth-control capabilities. The first effort to apply additional rigor in design, manufacturing, operation, and maintenance to a subset of critical systems within the nuclear submarine, the program's goal was to provide maximum reasonable assurance of hull integrity to preclude flooding, and the operability and integrity of critical systems and components to control and recover from a flooding casualty, should one occur. The Bureau of Ships issued a certification criterion addressing design, material, fabrication, testing, and record keeping on 20 December 1963.

Over the next ten years, changes and improvements to the original criteria were established, and the "Submarine Material Certification Requirements Manual for the Submarine Safety Program" was issued in 1974. During this time, the Bureau of Ships evolved into the Naval Ship Systems Command and ultimately the Naval Sea Systems Command. The latter continues to review and update the administrative and technical requirements of the SUBSAFE program.

The second foundation of submarine safety, the DSS-SOC program, had its watershed event in 1982. Five divers lost their lives when a vacuum was inadvertently drawn in a lock-out chamber on the USS Grayback (SS-574), leading to increased requirements for deep-submergence systems' design, construction, maintenance, and operation. DSS-SOC efforts are designed to provide maximum reasonable assurance that a material or procedural failure will not imperil personnel by focusing on the operability and integrity of critical systems, components, maintenance, and operational procedures. In assessing the risks to operator and occupant safety, DSS-SOC considers hazards such as breathing gases, material off-gas toxicity, flammability, implodability, explodability, electrical hazards, and procedures.

The third foundation of submarine safety, the Fly-By-Wire Ship Control Systems program,

was designed and executed to provide maximum reasonable assurance that the fly-by-wire ship control system in a submarine will not cause a casualty or prevent ship recovery from flooding or a control-surface jam casualty. Instituted with the initial introduction of limited electronic fly-by-wire systems for ship control on Seawolf -class submarines, the program expanded with a much greater capability on the Virginia -class. Fortunately, this system was not the result of a tragic event. Navy engineers recognized the risk similarities between submarine fly-by-wire control systems and commercial and military aviation systems and implemented the program proactively.

While the Thresher's loss is the pinnacle event that led to the SUBSAFE program, much older disasters also lend perspective to our work. Submarine casualties are a rarity in modern times, but this was not always the case. From 1915 to early 1963, the Navy lost 16 submarines in non-combat related incidents – an average of one submarine lost every three years. All together, these accidents took the lives of 454 submariners.

Lessons From The H.L. Hunley

Reasons to develop all three submarine safety programs can be traced back more than 150 years ago to the sinking of the H. L. Hunley . Incredibly, she sank three times over the course of her career. All of the events that led to her sinkings share elements with the dangers facing submariners to this day and serve as a reminder of why the U.S. Navy implemented the aforementioned safety initiatives.

Originally known as “the Fish Boat,” or simply “the Boat,” the Hunley first sank on 29 August 1863 during surface operations. Lieutenant John A. Payne, the officer in charge, inadvertently stepped on the lever that actuated the dive planes, which resulted in an uncontrolled dive. With both her hatches open, she experienced uncontrolled flooding, and five of the eight men on board perished. Perhaps the first control-system casualty in the history of submarine operations, this “jam dive” produced the result that today's Fly-By-Wire Ship Control System program is designed to prevent.

Despite the loss of life and sinking, the general in charge of Charleston's defenses, Pierre Gustave Toutant Beauregard, saw the boat's potential and had her salvaged and repaired. The lost men were buried, a new crew was formed, repairs were made, and she was put back to sea in less than two months. This time, she was commanded by Horace L. Hunley, her creator and financier. He helped build the submersible and therefore knew her better than anyone else. In theory, this would be safer than training people who lacked comprehensive knowledge.

On 15 October 1863, Hunley and his crew were doing training dives with a surface ship as an escort. The submersible made several dives and surfaces throughout the day and then failed to surface. Once again, Beauregard requested salvage and recovery. The divers found the boat in 54 feet of water, partially flooded, with her bow buried in the mud at a 30-degree angle. The assessment at the time was that she had suffered a ballasting problem; unable to carry the additional weight, she plowed toward the bottom at high speed. With the bow firmly stuck in the sea bed, the crew could not free the submersible, and all eight of them either drowned or were asphyxiated. This loss foreshadowed the danger of flooding and the importance of ship-recovery systems, other factors the SUBSAFE program is designed to mitigate.

Despite a track record of two sinkings and the loss of 13 men, including her inventor, the boat was raised once again, refurbished, and put back into service. And again, an eight-man crew assembled, this time with Lieutenant George Dixon in command. After further training, the

Hunley prepared for her fateful mission. On the night of 17 February 1864, she departed South Carolina's Charleston Harbor and approached the sloop-of-war USS Housatonic, a Union warship that was lying at anchor off the shore. As the Hunley approached the starboard side of the Housatonic, watchstanders spotted her and opened fire with muskets and shotguns. Then the Hunley affixed an explosive charge to the Housatonic's hull, using a 25-foot spar on the submersible's bow, and detonated the charge, dooming both vessels. The Union lost five sailors from the Housatonic's crew, and the Confederates lost the Hunley and her entire crew when she sank soon after the attack.

The Union fleet outside of Charleston Harbor immediately knew its warship's fate, but no one knew what happened to her attacker until 1995 when the Hunley's final resting place was discovered. In August 2000, she was raised once more and has been undergoing conservation and examination at the Warren Lasch Conservation Center in Charleston, South Carolina. Now that the Hunley has been salvaged and continues to be carefully preserved and examined, the mystery as to why she sank for a third and final time can hopefully be solved. What has been determined so far is that the crew was found at their stations, not crowded around the hatches trying to escape. This suggests that something other than flooding or a loss of ship control may have occurred during the attack to imperil the crew. Additionally, she was found to the seaward of the Housatonic, the opposite direction of the planned return to Confederate-controlled waters.

Taken together, a plausible explanation might be that the crew was incapacitated and the vessel was set adrift in the ebb current, eventually sinking outside the harbor. The crew's debilitation may have been caused by the poor air circulation, which would have heightened the deprivation of oxygen. This and other similar hazards are principal risks countered by the DSS-SOC program, which exists to prevent the imperiling of the operators of a submergence vessel. While this linkage is admittedly less certain than those of the Hunley's first and second sinkings, it is compelling to take her entire history and align it with the programs we rely on now to protect our submarines and their crews.

Today's Challenge

The U.S. Submarine Force's outstanding safety record since the Thresher tragedy is a direct result of rigorous compliance with the technical and administrative requirements of the SUBSAFE program. This success has not gone unnoticed. The January 2011 Report to the President of the United States, "Deepwater Horizon Gulf Oil Disaster and the Future of Offshore Drilling," cites the SUBSAFE program as a model of an organization that successfully operates a high-risk program, referring to its "rigorous nature." Since the program's inception in June 1963, the United States has not lost a SUBSAFE-certified submarine.

Today's challenge, 51 years after the Thresher's loss and 150 years after the Hunley's, is to maintain the standards established by the safety programs. Part of that effort is looking at the past to identify failures so as not to repeat them. Such retrospection is ingrained within the Submarine Force's culture and must be continually reinforced at all levels of the submarine community. This rigorous compliance with requirements and attention to detail begins with design and extends through every aspect of construction, maintenance, and operation. The ability of submarines to continue to operate successfully depends on the vigilance and integrity of everyone who works in the submarine community.

The pressures of shrinking budgets and personnel, coupled with a workforce that has not, thankfully, endured the loss of a ship, cannot cause diversion from the principles that have taken

decades to build and refine. The Submarine Force must remain vigilant in its work to avoid the three threats to the SUBSAFE program: ignorance, arrogance, and complacency. The supreme sacrifice of those lost with the Thresher and other submarines can best be remembered by never letting it happen again.

Rear Admiral Jabaley is the Naval Sea Systems Command Deputy Commander for Undersea Warfare, leading the organization responsible for ensuring compliance with the requirements of the SUBSAFE, DSS-SOC, and Fly-By-Wire Ship Control Systems programs. He commanded the USS Louisville (SSN-724) and was program manager for Virginia-class submarines from 2008 to 2012.

Man Admits Selling Counterfeit Sub Parts To U.S. Navy Edmund H. Mahony, The Hartford Courant, June 3

A Massachusetts businessman pleaded guilty in federal court Tuesday to importing thousands of counterfeit Chinese electronic components and reselling them for installation on submarines stationed in Groton and elsewhere.

Peter Picone, 41, of Methuen pleaded guilty to an indictment charging him with conspiracy to traffic in counterfeit military goods, the second such conviction under the law enacted in 2011.

Federal prosecutors said Picone bought electronic components known as integrated circuits from suppliers in Hong Kong and China and resold the material to military subcontractors working for the U.S. Navy.

Picone's suppliers in Hong Kong and China manufactured components that carried counterfeit trademarks of 35 major electronics manufacturers, including Motorola, Xilinx and National Semiconductor, the indictment said. In addition, the components were falsely marked as meeting U.S. military specifications.

The indictment against Picone refers specifically to shipments in early 2012 of counterfeit components to the U.S. Naval Submarine Base in Groton, where they were intended for use in submarine radio and alarm systems.

The U.S. Department of Justice said prosecutors are not aware of any fraudulent parts being installed into submarine systems.

Experts familiar with submarine construction said all parts, including electronic components, are subject to naval quality control testing that likely would identify counterfeits.

Such testing by the Navy and an unidentified Navy contractor revealed that in fact the integrated circuits purchased from Picone had been manufactured in a way that falsified the date code and affixed counterfeit marks, all in order to hide their true pedigree, according to a justice department press release.

Federal agents searched Picone's business and residence on April 24, 2012, and recovered 12,960 counterfeit such integrated circuits.

Many of Picone's customers specified in their orders that they would accept only new integrated circuits and none from China. Picone told them that his components were new and manufactured in Europe, the justice department said.

The existence of counterfeit electronics is a cause of concern to the military on practical and security grounds. Circuits not designed for high-stress military use might degrade and dam-

age larger electronic systems, jeopardizing crew safety. Counterfeit systems could contain compromising programming.

As part of Picone's plea bargain with the government, Picone agreed to a forfeiture to the government \$70,050 in cash and the seized electronic components. Faces between three and four years in prison and a fine of up to \$75,000, based on federal sentencing guidelines.

He is scheduled to be sentenced Aug. 22.

Chinese Cruise Missiles Could Pose Biggest Threat To U.S. Carriers

Wendell Minnick, Defense News, Jun 2

TAIPEI – Saturation strikes from Chinese anti-ship cruise missiles could become the biggest threat to U.S. Navy carrier strike groups (CSG), according to a paper issued by the Center for the Study of Chinese Military Affairs at the National Defense University.

The paper, “A Low-Visibility Force Multiplier: Assessing China’s Cruise Missile Ambitions,” draws from both Western and Chinese-language open source documents and concludes, “experienced Aegis warriors will respect China’s emerging capabilities.”

Written by cruise missile specialist Dennis Gormley, and China military specialists Andrew Erickson and Jingdong Yuan, the paper states that, due to the low cost of developing, deploying and maintaining cruise missiles, the Chinese believe that cruise missiles possess a 9:1 cost advantage over the expense of defending against them. China assumes that “quantity can defeat quality” by simply saturating a CSG with a variety of high-speed, low-altitude, cruise missiles.

The common belief in U.S. Navy circles that China would “need to approach parity in deck aviation capabilities” to defeat a CSG “may no longer be valid.”

China has “clearly” elevated cruise missile development “over an organic carrier capability with the apparent goal of acquiring the capability to neutralize U.S. carrier strike group forces through overwhelming” cruise missile attacks.

The paper also delves into a darker future that includes nuclear-armed cruise missiles. Noting that the former Soviet Navy emphasized the employment of nuclear-armed cruise missiles against a CSG, the paper suggests the possibility the Chinese Navy might pursue the same option in the future. The argument against China pursuing this capability is its weakness in command and control and the fact that such a capability would be “inconsistent with [China’s] current nuclear doctrine.”

The possibility, according to the paper, cannot be ruled out. Quoting retired U.S. Navy Rear Adm. Michael McDevitt, China is “likely already ‘arm[ing] nuclear attack submarines with nuclear-tipped cruise missiles.’” The paper’s authors could find no evidence of “substrategic nuclear weapons,” but the “Soviet Navy has clearly influenced” the thinking of the Chinese Navy.

The paper looks at the publications of Senior Capt. Liu Yang, a Chinese naval officer at the Wuhan Office of the Naval Armaments Department. Liu’s writings suggest that “all options are on the table” for the “special anti-aircraft carrier mission.”

Liu outlines three courses of actions, such as a cruise missile armed with a low-weight nuclear burst warhead, a fuel-air explosive warhead, and an undefined “special type of warhead with even greater power to inflict casualties.”

The fact that Liu is associated with the Wuhan Office suggests his writings should be “under serious consideration and may even have moved beyond the theoretical stage.” However, Beijing’s history of centralized control of nuclear weapons argues against allowing deployment of sea-based nuclear-armed cruise missiles.

U.S. Conventional Power And Nuclear Asia
James R. Holmes, *The Diplomat*, May 20

To stop allies in Asia from going nuclear, the U.S. needs to shore up its conventional military power.

Creak. Short-notice, long-distance travel is a great and a terrible thing. My back is reminding me of that, and of some geographic facts. Basic facts, such as: North America is wide; the Pacific Ocean is broad, and largely empty; Asia is tall north to south, its offshore terrain complex and fascinating.

While they appear petite on the world map, moreover, peripheral seas like the South China Sea, an anteroom to both the Pacific and Indian oceans, occupy enormous geographic space in their own right. I changed planes in Hong Kong, along the sea’s northern rim. But another three-and-a-half-hour flight lay ahead before I alighted in Changi Airport, Singapore.

Thirty-six hours, all told, to Singapore from the Naval Diplomat bunker somewhere along the shores of the Narragansett Bay. Big world. It beats me how Robert Kaplan keeps up such a travel schedule year in, year out.

But enough of the geography lesson. As my last column reported, I was summoned to the city-state last week on a hyper-clandestine mission to spread disinformation about ballistic-missile submarines among our Chinese friends. Mission accomplished!!

Tell no one. In all seriousness, our workshop explored how to preserve and defend strategic stability as Asia and the world enter a second nuclear age. This new age is populated by nuclear oldtimers such as the United States, Russia, and France, relative newcomers such as India and Pakistan, and nuclear oldtimers inventing their arsenals anew, such as China.

That portends an end to bipolar, relatively stable, predictable deterrence. A kaleidoscope is a better metaphor. More nuclear-weapon states means more rivals to deter. Some nuclear-weapon states are bulking up and configuring their arsenals. Others are pursuing arms reductions. Virtually invisible, omnipotent SSBN fleets, consequently, represent a big part of second-nuclear-age strategy. Oldtimers have them; newcomers want them.

So far, so good. In the last session, though, an unwary panel chairman asked me to tender my number-one bit of advice for the U.S. government as it strives to manage this brave new world. Here it is: stop separating nuclear strategy from strategy writ large. There is strategy, and there are implements used to execute strategy. Some of these are unconventional, others conventional. It takes a mix of both, coupled with obvious resolve to use them in times of strife, to sustain the alliances that constitute the bedrock of America’s strategic position in Asia.

Letting conventional deployments wilt while keeping nuclear deterrence strong will let Washington deter doomsday scenarios that justify nuclear-weapons use. But rivals can make lots of mischief beneath the nuclear threshold unless faced with powerful conventional counterforce.

That's the lesson of the 1950s, when massive retaliation fended off all-out war but did little to discourage subversion, insurgencies, minor-league military aggression, and other methods deployed by godless communists to expand their sway.

In short, nukes can deter some things – but not the things allies fret about on a day-to-day basis. It's doubtful U.S. leaders would pull the nuclear trigger over, say, the Senkaku Islands or China's nine-dashed line in the South China Sea. It takes conventional armies, navies, and air forces to manage such controversies. Yet Asian allies see vital interests at stake in such struggles, even if Americans don't. If the allies lose faith in U.S. military might, and conclude they cannot field forces strong enough to ward off Russia or China, then they may seek nuclear deterrents of their own. The kaleidoscope turns.

Ergo, if U.S. leaders want to simplify the geometry of deterrence – and keep Asia from descending into brutish, Hobbesian competition of all against all – then they must keep the number of nuclear-weapon states as compact as possible. By sustaining a credible nuclear deterrent in concert with unbeatable conventional forces, Washington can suppress U.S. allies' incentive to burst through the nuclear barrier. Again: nuclear strategy is indivisible from strategy.

A robust U.S. strategic posture, then, means more than providing nuclear security guarantees to allies such as South Korea and Japan. It means shoring up conventional military power. So to navigate the second nuclear age, let's revivify the alliance system, and thereby America's strategic position in Asia.

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Opinion/Commentary: Down Periscope
Darryl Manzer, SCVNews.com, May 15

When I tell folks I served on submarines, most of the time I hear, “What was it like?” and “I couldn't do that; I'm claustrophobic.” Followed soon after by, “Why did you pick submarines?”

I didn't “pick” the Submarine Service. I enlisted as a musician. I played bassoon. The Navy didn't want another bassoonist. I also auditioned for clarinet and sax. Passed those auditions, but I didn't want to play those instruments any longer. I figured I had started on clarinet in third grade at Castaic Union Elementary School and continued it at Peachland. Once at Placerita Junior High, Mr. Downs asked me to play bass clarinet, and in eighth grade I added bassoon. I switched between bass clarinet and bassoon through my senior year at Hart.

But I didn't want to play a single reed instrument any more, so back at my company in boot camp, following my auditions I asked my company commander, Chief Machinist Mate (SS) Leo Yavarosky, what I should do. His reply was quick and to the point. “Go submarines.”

I did volunteer the next day. I was hooked for 36 years with the Navy and a few more as a contractor. I love the boats.

The Submarine Service isn't for everyone. I like to think we qualified by flunking our psychological evaluation for the rest of the fleet. You had to be crazy to get on the boats.

Getting on the boats after basic training or, as sailors and Marines say, “boot camp,” was a

long process. Schools, schools and more schools. (Even more schools once you were aboard a boat.)

I'll never forget going aboard my first submarine after that long and sometimes tedious education.

Menhaden (SS377) in the 1960s.

The first submarine is always a special memory. USS Menhaden (SS377) was a modernized submarine built in 1944. I'll never forget the smell. Diesel fuel. Cooking oils. Perspiration. Cigarette and other tobacco smoke.

Greases, oils and all manner of odors. It got worse if the cooks prepared meals that tended to increase the gases a sailor could produce. My calf barn-cleaning chores in Pico Canyon did much to prepare me for those smells.

I thought when I went to a "nuke boat," or nuclear-powered submarine, the smells would get better. They really didn't. I did have a new odor added to all those before: amine. That is a chemical used to remove carbon monoxide and dioxide from the air inside a boat. It leaves its own smell that permeates every article of clothing you take on the boat with you. I've got a couple of old uniforms that still have the smell nearly 45 years later.

That first time underway and that first-time dive. Was I scared? You bet. Couldn't show it, because all of your shipmates would let you know what a "wuss" you were if you did. Plus, you were too busy getting qualified to worry about stuff like a few leaks and weeps.

Imagine a large RV that can go underwater. Depending on the boat, there were 80 to 150 sailors aboard. Crowded? Yes. I was lucky and never had to "hot rack," meaning I didn't share the bunk with another sailor. Some guys had to do that. When one was sleeping, the other was awake and on watch or maintaining equipment.

We got fed four meals a day. Breakfast, lunch, dinner and mid-rats. Serving times were 0600, 1200, 1800 and 2400. Up until recently, submariners lived an 18-hour day. Six hours on watch and 12 off to sleep and keep things running. Most boats have now switched to a 24-hour day. I don't know how that is working out.

Back in the day, we had movies to watch and endless card games of all types. We held "casino nights," and on long deployments we had "Mid Patrol Follies." There was always work to do, and when nothing else was going on, we had "field day." That is the Navy way of saying "housecleaning." We did that at least weekly.

On the "nuke" boats, on deployment, I spent anywhere from 57 to 87 days underwater at a time. When we got near the surface, we got to look out the periscope at times. Today the periscope camera can be seen all over the boat on flat-screen monitors, but back then we got maybe a minute each to see things ... like the surface of the ocean for miles in every direction, and a very special time when we saw Mount Etna, the volcano on Sicily, erupting. That was a great "periscope liberty" time.

Growing up in the Santa Clarita Valley, I could hike or ride up a ridge and see for miles and miles all around. On a submarine, the maximum direct line of sight might be 100 feet in the missile compartment of a ballistic missile boat. So when you get back to port, your eyes have to adjust for distance vision again.

What was it like? I guess I could say it was like being stuck in an RV on a rainy day with a lot of other guys. Now there are women on the boats. Officers. Soon I suspect the enlisted ranks

will have women, too. There will be some changes made in berthing assignments and areas and maybe use of the “heads,” or bathrooms, but I don’t see a big problem with women on a boat.

Unless a couple is into some sort of exhibitionism, it won’t be a problem. Surface ships have all kinds of places a couple can get alone. On a submarine, the only place you can be alone is between your own ears.

It is also the only part of the Navy where no matter the size of your ship you still call it a “boat.” Tradition runs deep. Very, very deep.

And for those other questions: Deeper than 800 feet. Faster than 30 knots. Underway as long as there is food. Trash and garbage get compressed in special cans and ejected. Human waste gets pumped overboard via the “sanitary pump.” Oxygen is made on board, and the air is cleaned in any manner of ways. Water is either distilled or made by a reverse osmosis machine.

Even today, we old non-nuke diesel boat sailors like to say: “Every boat still has an emergency diesel generator as a back-up to the nuclear power plant and around 120 tons of battery.”

Gee, my RV has an emergency diesel generator and six batteries, too. Guess that is why I feel so at home in “Billy Bob” – my RV.

Darryl Manzer grew up in the Pico Canyon oil town of Mentryville in the 1960s and attended Hart High School. After a career in the U.S. Navy he returned to live in the Santa Clarita Valley. He can be reached at dmanzer@scvhistory.com and his commentaries, published on Tuesdays and Sundays, are archived at DManzer.com.

Submarines May Turn to Quantum Positioning for Guidance

Alun Williams, Electronics Weekly, May 15

In 2016 a British submarine will slip its moorings and set sail under the guidance of the quantum world. The navigation system it will be testing should record the vessel’s position with 1000 times more accuracy than anything before.

If successful, the system, known as quantum positioning, could be miniaturised for use in aircraft, trains, cars and even cellphones. This would provide a backup navigation tool in cities’ concrete canyons, or in autonomous vehicles, where a loss of GPS signal can be dangerous.

GPS doesn’t work underwater, so submarines navigate using accelerometers to register every twist and turn of a vessel after it submerges and loses its last positioning fix. But this isn’t very accurate.

“Today, if a submarine goes a day without a GPS fix we’ll have a navigation drift of the order of a kilometre when it surfaces,” says Neil Stansfield at the UK Defence Science and Technology Laboratory (DSTL) at Porton Down. “A quantum accelerometer will reduce that to just 1 metro.”

To create the supersensitive quantum accelerometers, Stansfield’s team was inspired by the Nobel-prizewinning discovery that lasers can trap and cool a cloud of atoms placed in a vacuum to a fraction of a degree above absolute zero. Once chilled, the atoms achieve a quantum state that is easily perturbed by an outside force – and another laser beam can then be used to track them. This looks out for any changes caused by a perturbation, which are then used to calculate the size of the outside force.

The DSTL team wants this set-up to be usable in the real-world setting of a submarine, where the size of the force would correspond to the movements as the sub swings around in the sea.

Their prototype quantum accelerometer, which resembles a 1-metre-long shoe box, will be trialled on land in September 2015, the team will say at a conference at the UK National Physical Laboratory in Teddington this week.

It will initially operate along just one axis, before two more sets of lasers and trapped atoms are added to accommodate motion in all three dimensions. Each will cool 1 million atoms of rubidium. "Once we have understood the first generations, we'll start to miniaturise it for other applications," says Stansfield.

It's not a done deal yet, though, because the accelerometer can't distinguish between tiny gravitational effects and accelerations caused by a vessel's movement. "If the submarine passes an underwater mountain whose gravity attracts it to the west, that feels exactly like an acceleration to the east," says Edward Hinds at the Centre for Cold Matter at Imperial College London, who is developing the accelerometer for the DSTL. "This means that very good gravity maps will be required to navigate correctly."

The DSTL isn't alone in pursuing quantum navigation: teams in the US, China and Australia are chasing the same prize.

"Super-accurate navigation makes sleeping easier for the captain of a submarine," says John Powis, head of the NATO Submarine Rescue Service in Faslane, UK, and a former navigator on Royal Navy submarines. It will also make it easier to go on patrol undetected, as submarines will no longer have to expose a mast to GPS, he says.

But Powis thinks this technology may have the greatest impact in future generations of weapons – once it has shrunk down in size. "The submarine does not need to know its position in metres and centimetres," he says. "But a projectile like a missile or shell might."

The DSTL team believes the technology has applications beyond warfare, though. "Ten to 20 years ago this would have needed a huge cryogenic cooler, but laser-cooled atom clouds are changing all that," says team leader Stephen Till. He says future generations of the technology are likely to make their way into everything from cars to our smartphones. "We're convinced the size and power will come down for broad use."

The Navy Is Outfitting Sailors With \$3000 Kindle Knockoffs

Paul Szoldra, Business Insider, May 13

The U.S. Navy is outfitting its submarine fleet with Kindle knockoffs that come with less features at a much higher price, according to Navy Times.

For about \$3000, deployed submariners will get an e-reader called a "NeRD" or, Navy e-Reading Device, which comes preloaded with 300 books.

Why not just outfit sailors with Kindles or iPads? Well, since there is plenty of secret information on subs, the Navy needed a device that couldn't take photos or give away positions with electronic signals.

That means no internet connection, so sailors won't be able to download any other books.

"This is our first run at it," Nilya Carrato, an official with the Navy's library program, told The Times. "So for NeRD 1.0, the titles won't change because it can't connect to the Internet and can't do a digital push."

The device, built by Ohio-based Findaway World, will come with titles selected from the Navy's professional reading list, as well as public domain classics and contemporary non-fiction and fiction, such as "Ender's Game," and "The Stand," among others.

At roughly \$3,000 each, they aren't cheap. The cost includes the e-reader itself and the rights to all 300 books loaded on it.

With each sub set to receive five NeRDs each (385 total), the total cost is just north of \$1.15 million.

Tomorrow's Stealthy Subs Could Sink America's Navy Bill Sweetman, Aviation Week & Space Technology, May 12

The U.S. military is relying on sub-hunting tech that's decades old. Meanwhile, the targets they're trying to find are getting quieter and more invisible by the day.

Submarines are getting quieter, stealthier, and better armed. And that could mean major trouble for the U.S. Navy and its aging fleet of sub-hunters. The tactical balance between the surface warship and the submarine has strategic impact. The submarine is not made for a show of force. Its principal weapon is designed not to damage a ship, but to sink it – rapidly and probably with much loss of life. It's a sure way to shift the trajectory of any conflict in a more violent direction.

The best deterrent against submarine attack is robust defense – but as little as surface sailors like to discuss it, that defense has seldom been less assured.

Modern diesel-electric submarines (SSKs) are very hard to detect. It's not that SSKs with air-independent propulsion (AIP) systems are much quieter, but they mitigate the SSK's drawback: lack of speed and endurance on quiet electric power. When the Swedish AIP boat Gotland operated with the U.S. Navy out of San Diego in 2005-07, the Navy's surface ships turned up all too often in a photo album acquired by the submarine's mast. The sub was so quiet, that it consistently managed to get within easy torpedo range.

AIP submarines are a high priority in the budgets of nations such as Singapore, Korea and Japan. Russia has struggled with its Lada-class boats, but persisted, and is selling them to China. Sweden, whose Kockums yard developed the AIP technology for Japan's big 4,100-ton Soryu-class subs, had trouble getting its A26 replacement submarine program started. In an indication of its importance, Saab will buy the Kockums yard back for Sweden from ThyssenKrupp Marine Systems.

AIP – which uses stored liquid oxygen and fuel to generate power underwater – seems to be here to stay, whether it uses the Swedish-developed Stirling-cycle engine (a 19th-century curiosity, but very efficient) or fuel cells, favored by ThyssenKrupp's German yards and Russia. Lithium-ion batteries will further increase underwater performance. Kockums advertises another step in invisibility called Ghost (genuine holistic stealth) which, like stealth technology on an airplane, involves the careful blending of hull shapes and rubber-like coatings to make the submarine into a weak sonar target.

Other improvements are making the submarine more elusive and lethal. Masts with high-definition cameras are as clear as direct-vision optics – so the mast needs only to break the

surface and make a single sweep to provide a full horizon view. Finmeccanica's WASS division and Atlas Elektronik offer modern all-electric torpedoes with multiple guidance modes, from fiber-optic to wake-homing, and back-breaking influence fuzes that work too often for comfort.

Antisubmarine warfare (ASW) has not stagnated, but it shows signs of disarray. After the end of the Cold War stopped the Soviet Union's push for quieter submarines, the U.S. scrapped improvements to the P-3 sub-hunting plane and the P-3's replacement. The carrier-based S-3 Viking went the same way, and the U.K., more recently, retired the Nimrod and canceled its deeply flawed MRA4 replacement sub-hunters. ASW assets and crews have been diverted to reconnaissance missions in overland and littoral wars. The Navy's strategy for the new Boeing P-8A Poseidon is to get the airframes first, because P-3s are wearing out.

The U.S. Navy's ASW future hinges on two new technologies: multistatic, active, coherent (MAC) acoustic systems, or sonar, and automated radar detection of periscopes. Today, airplanes mainly hunt submarines by para-dropping a pattern of sonobuoys, most of which are passive listening devices. "Active" search nodes depend on noise sources that can be as simple as an explosive squib. Planned for later P-8A models, MAC uses buoys that can transmit tones and sophisticated waveforms that, when they bounce off the sub and are picked up by the other buoys in the network, can accurately pin down its position. MAC is likely to be quite costly to operate – the P-8A carries many more buoys than a P-3, and the buoys are more complex. Testing so far has not been a disaster, but it has been limited. One series of tests last year was truncated so that the test aircraft and crew could go and chase drug-runners. Picking real targets from false targets and clutter is still down to operators.

Better ways to detect periscopes – with the radar cross-section of a floating Coke can – have been under study since the early 1990s, but the Navy has vacillated on deployment plans. The new Automatic Radar Periscope Detection and Discrimination (ARPDD) technology – which uses very fast scanning and a lot of signal processing to tell a slow-moving scope from drifting debris – was to be used on upgraded P-3 radars. But in 2005 – after the Gotland tests started, which may not have been a coincidence – the plans changed to stress close-in defense of the aircraft carrier, with ARPDD used first on MH-60R helicopters and on a radar mounted on the carrier itself. ARPDD disappeared from the P-8 radar requirement, then returned. More recently, the carrier-mounted radar has been discontinued and surface combatants will have ARPDD.

But the key to telling the periscope and the Coke can apart is that one of them is moving purposefully, and an electronic mast that surfaces intermittently makes an even less obvious track than a direct-view periscope that has to stay up to function. That change was not in sight when ARPDD was conceived.

Surface warfare may be heading for a strategic dilemma. The surface combatant is vital for many missions – but its utility could be drastically limited if a submarine threat imposes a no-go area. And as more new AIP subs enter service, denying the problem is less and less of an option.

WAR ON THE SHORE: The Glory of Death

Brice Stump, delmarvanow.com, May 12

EASTON – Joseph Ridgeway, about 30, was just yards from an explosion that would make maritime war history at 8:45 p.m. Wednesday, Feb. 17, 1864. He was also minutes away from death in a floating iron coffin.

Ridgaway and his seven fellow crew members aboard the Confederate submarine, H.L. Hunley, had successfully detonated an almost 135-pound explosive charge, or torpedo, in the starboard quarter side hull of the 1,200-ton, 205-foot-long Union sloop-of-war, the USS Housatonic.

In five minutes, she would be at the bottom of the sea, more than 4 miles east of Charlestown, S.C., in 30 feet of cold sea water. Five people were killed, and 150 jumped in two boats or climbed the masts above the waterline to survive. It was the first time in history that a submarine sank a ship during war. While sometimes referred to as CSS Hunley, the Confederate government never officially commissioned the vessel into service.

The Hunley, which was a proven death chamber, having already drowned 13 men of two previous testing crews just months earlier, would soon follow the Housatonic.

In the sub, a single candle provided a weak light for the men cramped in the 42-inch-wide by 48-inch-high by 22-foot-long crew compartment. It was a precious, ominous flame of life. When the light died, so, too, would the crew.

A deep-sea mystery

Ridgaway, of Easton, second in command, and six others in the 200-cubic-foot compartment, provided the manpower propulsion for the sub, working the same propeller hand crank and sitting in the very spots on a wooden bench occupied by the drowned crewmen before them. Researchers believe that something went wrong on the Hunley, minutes after the explosion.

"The submarine attacked very close to the surface, with the conning tower and hatch above the water," said Michael P. Scafuri, archaeologist with the Clemson University Restoration Institute, working on the Hunley since 2000.

Just 1,000 feet away from the Housatonic, the Hunley sank and slid to the bottom, listing 45 degrees, causing the bodies of the seven to slip from the bench and onto the floor between the crank and bench, where they remained until touched by the hands of archaeologists in Charleston, S.C., in 2001. Commander Lt. George Dixon, 27, who handled navigation, was still at his station when the vessel sank. He was the eighth member of the crew.

What damage may have been done to the sub hull from the explosion, and the immediate fate of the crew, has been a historical mystery for 150 years.

The Hunley was discovered in 1995 and raised in 2000. It was moved to a conservation lab at the Warren Lasch Conservation Center in Charleston and is still undergoing conservation and investigation. The remains of the crew were removed from the sub in 2001. To this day, there is no indication of panic or attempts to escape by the eight men.

"That's a puzzle for us," Scafuri said "If they didn't drown, what did happen to them? Was there CO2 poisoning? Were they knocked unconscious by the blast?"

Even after the remains were excavated in the 13 tons of sediment in the sub, how the men died still perplexes archaeologists. The locations of the remains indicates that each man remained at his designated station. Researchers do not know if the concussion of the explosion rendered the crew unconscious or if they ran out of air or simply drowned as water entered the sub hatch.

"We still don't know at this point how that detonation affected the Hunley. And we don't know what killed the crew," Scafuri said. "You would think after 14 years we would have all the answers. No, it doesn't really work that way.

"We need more clues. The hull and certain portions of the submarine are still covered in

concretion for their protection. The hull is the last stage of examination of the submarine, and that is going to happen this year. For the first time since the Hunley was lost, we are going to be able to take a look at the hull to see the exterior and interior to look for damage, cracks, holes, breaches that may have occurred during the life cycle of the submarine or during the attack. We may find huge clues or we may find nothing conclusive. There is no log book for the Hunley, no (extensive) official records. It was a semi-secret project ... we are trying to get to the truth to figure out what happened that day 150 years ago."

"These men were willing to take these risks under extreme war-time circumstances," Scafuri continued. "They knew what happened to the previous crews. These guys were surrounded by death and did amazing things. It's a story of courage. These crewmen were dynamic and risk-takers. Part of this story is, what motivated these guys? In this Victorian era, men wanted to do something heroic. If you were going to die, die as a courageous hero for a cause."

Glory in death

There could be glory in death.

One of the men on board was believed to be in his late teens. His life was just beginning and now it was going to end. He may have known the fate at hand, but may have been too cold with fear to cry or sob or shake and choke with dry heaves. Like the six others, he remained at his station and on his seat at the propulsion crank.

As for Ridgaway, who joined the Confederate Navy in Richmond on Aug. 29, 1862, and, like the others, had volunteered for the honor of serving on the Hunley, he was so far from his friends, family and safety and so close to death. The water that was claiming him was also at the same time softly lapping the shoreline near his boyhood home in Maryland.

Second in command, Ridgaway, at almost 6 feet tall, took his position at the hand crank at the end of the bench, identified as Station 8. Just above him was the aft hatch that provided an entrance and exit to the sub. Its opening was just 14 inches by almost 16 inches. He would be the last in, the first out. Ridgaway was also responsible for operating the aft pump, the flywheel on the crank and the seacock.

He came aboard with precious little.

Excavation and an analysis of Ridgaway's remains aboard the Hunley indicates that he took his seat with a slouch hat, a smoking pipe with remains of tobacco inside, two toothpicks, matches, a straight piece of copper wire about 2.5 inches long and another short piece of wire with two loops, a single copper pin and a very small length of pencil.

Close to him, a wrought iron pipe wrench and a canteen. Then, too, these was the copper identification tag. Around his neck in death, Ridgaway wore a half-dollar size tag that belonged to Union soldier Ezra Chamberlin — a mystery yet to be solved.

For Ridgaway, it was the end of a life on the sea. When he was 16, he and his brother, James, 12, obtained their Seaman Protection certificates in Baltimore in 1850. Their father, James, began his life at sea when he was just 14. The boys appear to have followed that tradition.

In death, there was insult to Ridgaway's legacy. He would lose his identity.

Record keepers, researchers and writers would give him a new name: Ridgeway.

The difference an A makes

That error would be corrected and make history, thanks to the efforts of Emma Ditman, a

very determined elderly former computer programmer in Silver Spring, Md.

"About 20 years ago, I started to work on my wife's family (Joyner) genealogy and history, starting with her father, Ridgaway Joyner Busbey," said her husband, Joe. "I discovered the Ridgaway family was in Easton in 1860. They had been in Talbot County since 1684, with the same name spelling. That A in the Ridgaway name is important, because it identifies a certain family line," Ditman said.

Emma was intrigued by what was uncovered and began looking into family history and made a chance discovery. There was a family tale that involved the Hunley. A Joyner descendant wrote, in 1963, that Joseph Ridgaway had asked "a buddy," James Joseph Joyner Jr., to return his personal belongs to his family should the Hunley not return from its attack on the Housatonic.

Ridgaway family lore had it that he had served with James Joyner Jr., a coxswain, on the CSS Indian Chief, also at Charleston, when Ridgaway was quartermaster on the vessel. Joyner's occupation was noted in his military record as "detail painter," with a rank of corporal and private in 2nd Co. I Reg 3 Kempers Brigade.

According to family tradition, Joyner did bring Ridgaway's belongings back to the family home known as Maxwell Moor, near Easton. He met his friend's four sisters and married Mary Elizabeth Ridgaway, 21, in 1867. He was 24.

"There was a neat little story I had never heard of the Hunley before," Emma said, "and I shared it with my nine children."

"Shortly after this, my son, Jimmy, called and told me, 'Mom, they are raising the Hunley.' We followed the news and when the Friends of the Hunley listed the names of the crew, I notice they spelled Joseph Ridgaway's name wrong and also said he was a native of Richmond, Va. I said, 'Whoa, I can't let that stand. I've got to fix that name.' It bothered me. That name was wrong," she said.

"I may have been the only one to catch that, because my father's name is spelled with an A. This was the key to the whole thing," she said. "I contacted the Hunley group and told them I had this little family story handed down to me. I told them his name was spelled wrong. And that was at about the time they were making arrangements for the funeral. I tried to tell a newspaper about my story, but they never got back to me."

It was one wrong letter in a name that got Emma Ditman irritated. She was reading an account of the work on the Hunley and saw that one of the sailor's names was misspelled. Joseph Ridgeway, she knew, was misspelled. It was Ridgaway, and she was positive. She should know — the second in command aboard the Hunley was her great-granduncle.

Researchers for the Friends of the Hunley were trying to identify the skeletal remains of each crew member. So far, none had been identified through DNA testing. If Emma's claim was correct, DNA testing would identify which remains on board belonged to Ridgaway. Additional research by the Hunley group supported her assertion that Ridgaway was from Easton, not Richmond.

"Two sisters of Joesph, Mary Elizabeth and Emma Matilda (who I'm named after), are buried in Arlington Cemetery in Philadelphia, in the same grave, with Mary Elizabeth on top," Emma said. "As the oldest living relative, I signed the documents that gave them permission to take DNA samples."

Her DNA sample and Joseph's matched in 2004.

"It wasn't until after this that I met members of my (Joyner) family for the first time," she said. To this day, Ridgaway remains the only crew member whose identity has been conclusively verified through DNA testing.

Emma Ditman waived claim to the skeletal remains of her great-granduncle, knowing they would be buried along with other sailors of the Hunley's three crews in Charleston.

Unanswered questions

It was that family story about the Joyner and Ridgaway friendship that would help give life to Ridgaway and answer some questions about his life.

Elizabeth "Lizzie" and her husband, James Joyner Jr., are listed on the 1870-1880 Talbot County census, then moved to Baltimore shortly afterward.

As for Joyner, he died of a heart attack at 46, on Feb. 13, 1888, at 2:20 p.m. while writing at his desk in Baltimore. If Joyner wrote about one of the most important incidents in naval history of which he had firsthand information, his memoirs have never been found. There are not even oral stories in the family from him. Ridgaway and Joyner, linked by the Civil War, were friends that would become two ghosts sharing one eternity.

It would become one of the curious unsolved mysteries — what happened to the cherished possessions Joyner brought back to Ridgaway's family? Why wasn't a single item treated as the special heirloom it should have been? If Ridgaway wrote to his family, where are the letters and why didn't the family ask Joyner for details?

"I believe that the family thought the Hunley attack was immoral and cowardly, like shooting men in the back," Emma said. "I had the feeling, talking to his descendants in the mid-1990s, that they were ashamed of him."

The "personal possessions" may have been kept, but hidden.

There is a tantalizing clue of what happened to those items. They may have been secreted away in a mysterious trunk mentioned by his descendants. That trunk may have held Joseph's Ridgaway's military legacy in letters, diaries and items.

"According to the late Ruth King Keith, whose grandmother, Julianna — Joseph Ridgaway's sister — had most of the family things (heirlooms) including one silver spoon they showed me. Ruth and her sisters were very angry, resentful, because Julianna had a trunk full of things and when she moved from Maxwell Moor to live with her son in Washington, D.C., she put that trunk in storage and later she did not have the money to redeem it. It was sold off to pay the storage fees," Emma said. "Whatever was in that trunk, whether it was Capt Ridgaway's log book or Joseph Ridgaway's belongings, I don't know. 'She would not even let us know so we could redeem the truck,' Ruth told me. There was a lot of anger in that family."

Four coin silver serving spoons, by Baltimore silversmith Samuel Kirk, remain with Mark Jeffrey, Joyner's great-great-grandson, of New Bedford, Mass. They were made for Ridgaway's mother and father and may be the only remaining artifacts tied to the Civil War seaman's youth. Jeffrey also has a unique family heirloom — a self-likeness of Joyner said to have been carved by him in a beech nut. It was so unusual that Jeffrey took it to an Antiques Roadshow appraisal event in Providence, R.I., in 2006. The appraisers determined it was a fine piece of American folk art, but probably worth more to the family than it would be to retail buyers.

The last funeral of the Civil War

Of Ridgaway's past in Talbot County, only one structure remains of the Hunley's hero in Easton.

Land records researcher Priscilla Morris has proven that the modest-size house at 925 Port St. was the home of Ridgaway's grandparents, Frisby and Matilda Kirby, and their two children, Elizabeth, who married Ridgaway's father, 19, when she was 17, and her brother, Frisby.

"I believe the F is for Frisby, Joseph's middle name," Emma said.

"The house is located on Easton Point, and this was an important location on the Tred Avon River. It was a prominent port and the front door of Easton," Joe Ditman said.

"I was working on the history of the house and discovered that Joseph Ridgaway's grandmother was a Kirby and was living here. I knew Ridgaway and the Hunley stories were tied to the 925 Port St. house. Joseph's mother was just 17 when she was pregnant, and I think she remained at her mother's house while the seaman was away," Morris speculated. "The house is owned by the town of Easton and is presently vacant. It is architecturally rare as an 18th century period frame dwelling in the community. I think Joseph was raised here."

"I think it is very plausible that Joseph was born 925 Port St.," Emma said. "The father was away at sea and his mother was very young when he was born. Her husband owned land at Benoni Point in Talbot County, but it was so far away — a wild, desolate place. Why wouldn't she stay with her mother in town?"

Capt. Ridgaway went to sea when he was just 14. On Jan. 2, 1850, the captain was at the customs house in Baltimore with his two sons, James, 12, and Joseph, 16, to acquire their seaman's protection certificates. About that same year, the captain was in San Francisco aboard his schooner, *Laura Bevan*, built in 1849 in Talbot County. He may very well have been accompanied by both sons.

A memorial service for Joseph F. Ridgaway was held at the Hartzler Funeral Home in Libertytown, Md., in March 2004. A funeral service was held for Ridgaway and the other Hunley crewmen in Charleston in April 2004, noted as being the last funeral of the Civil War, and was attended by thousands.

The services marked a milestone in the life of Carl Berenholtz, a former Baltimore City prosecutor of 16 years, and was a history-making opportunity.

"At the time, I was state commander of the Maryland Division Sons of Confederate Veterans, and I coordinated efforts to have Maryland camps participate in the funeral services in Libertytown and Charleston," Berenholtz said. "Years ago, when I started doing research about my family, I had no idea that Jews were involved in the Civil War on either side. I am very proud that they were the largest minority contingency in Confederate service. And now I think I am the only Jewish member of the Sons of Confederate Veterans in Maryland.

"I can't describe how proud I am to have been a part of the memorial and funeral services. When I was on my knees praying by the side of Joseph Ridgaway's casket, I could never, ever, ever imagine that as a little Jewish boy growing up, that I would be having this honor in my wildest dreams. It was the proudest moment in my life, a defining event for me," he said on the verge of tears. "I put thousands of hours of work into those two programs and I wanted our color guard to carry the coffin of Joseph Ridgaway. He and the others are heroes."

Iranian Sub Lost While Practicing To Sink U.S. Carrier StrategyPage.com, May 11

In the Persian Gulf there are rumors that one of Iran's Ghadir mini-sub sank while practicing tactics for attacking an American Nimitz class carrier. It was believed that a recently built two-thirds replica of an American Nimitz class aircraft carrier would be towed out so the Ghadir could get some experience in how to approach such a large ship and launch torpedoes at it. The rumored loss of a Ghadir was accompanied by talk of some new stealth technology on the Ghadir. That is probably just rumor as the small size of the Ghadir already confers a substantial amount of stealthiness. This purported stealth technology is supposed to explain why Iranian salvage ships are not out looking for the sunken Ghadir as that activity would tell foreigners where, approximately, the sub went down.

Even with the real, or imagined, sinking, the Ghadir is another example of Iranian resourcefulness in the face of embargoes. Since 1996, when Russia agreed to stop selling them submarines, Iran has been working on their own designs. After ten years of trial and error they produced the 120 ton Ghadir (Qadir) class vessels in 2005. Iran claims to have a 21 of these small diesel electric subs and no less than four have been shown together in photographs. The Iranians are not releasing specification sheets to anyone, but Ghadirs look very similar to the Italian Cosmos SX-506B submarines that Columbia has operated since the 1980s. The 100-ton SX-506Bs are only large enough to carry 18 people (including up to a dozen commandos) and two torpedoes or two mines in the two 533mm torpedo tubes. News video shows what looks like to be two torpedo tubes on the Ghadirs and Iran claims that the Ghadirs carry torpedoes.

It should also be remembered that Cosmos exported a number of larger mini-sub to Pakistan in the 1990s. Dubbed the SX-756 they may have also been the design basis for the Ghadir. It should also be acknowledged that the North Korean Sang-O class submarine closely approximates the Ghadir type. In 2007, North Korea gave Iran, outright, four of its Yugo-type midget submarines. These Yugos were well worn 90-ton 21 meter (65 foot) craft but Iran accepted them all the same. Taking them apart taught the Iranians much about how to design and build mini-sub.

Then there is the claimed practice target for the Ghadirs. This huge vessel is not a rumor. For nearly a year Iran has been building a two-thirds replica of an American Nimitz class aircraft carrier. It's basically a barge with the carrier deck and "island" up top. Included is the number (68) of the USS Nimitz painted on the Iranian ship.

U.S. Naval intelligence officers, who have watched the Iranian vessel take shape via satellite photos, have called it the Target Barge, in the belief that it might be used by Iranian aircraft or boats to practice attacking a full size Nimitz. Iran has done this before, building mockups of ships and aircraft. If American intel knows anything about what Iranian officials have said to each other about the barge they aren't talking (a typical procedure to keep from the enemy details of how you are eavesdropping).

Some Iranian media have reported that the Target Barge is being built as a prop for a movie about Iran Air flight 655, which was shot down by an anti-aircraft missiles fired by an American cruiser in 1988. If that's the case then it's a very expensive prop. The USS Nimitz was not anywhere near Iran when Flight 655 was shot down. Nimitz was then (July) in Washington State

preparing to head out on a deployment. Nimitz did not arrive off Iran until October 1988. So maybe the movie involves some kind of payback. That goes over well with Iranian audiences.

MILITARY: HIEU TRAN PHAN

The U-T San Diego 06/01/2014

[Submitted to the *Silent Sentinel* by Steve Lamprides]

Share your memories of serving on the seas

Maybe it was the aircraft carrier on which you served your first deployment — a floating city with thousands of fellow sailors.

Or it could have been the amphibious assault ship that took you and your Marine expeditionary unit to a combat zone.

Perhaps it was a submarine that tested your ability to deal with small, confined spaces for weeks at a time.

And how about that hospital ship where you and other health providers performed surgeries, gave dental care and checked people's vision during amultination goodwill tour?

At the center of the Navy's storied history are fleets of ships that have, over centuries, carried sailors, Marines and aviators to all corners of the world.

On those vessels, men and women have started their military careers — and forged friendships while honing their seafaring skills.

They have launched torpedoes, missiles and special-operations attacks during combat missions. They have shown the spirit of humanity in helping the sick and poor find better health.

San DiegoBay is a hub of naval might, and becoming even more so as the nation sends additional ships westward to counter perceived hreats from countries such as North Korea and China.

The area is home to veteranwarships, including the Peleliu, as well as the latest littoral combat ships.

U-T San Diego wants to hear bout your experiences of serving aboard a Navy ship — whether or not it was homeported in this region. Which ship was your favorite, and why? Were there any special anecdotes, hilarious moments or poignant encounters?

Email your memories — and any related photos you might have—to hieu.phan@utsandiego.com.

Please include your full name, your city of residence and a telephone numberwhere we can contact you. (The phone number will not be published.)

