SEPTEMBER 2018

FEATURE

ARTICLES

WORLD WAR II HISTORY

COLUMBIA CLASS SSBN
BUILDING THE FUTURE – TODAY

The World Demands Deterrence…The Times Demand Affordability

General Dynamics Electric Boat has demonstrated a new method of constructing the next-generation SSBN that will save millions of dollars per ship, a decade before work begins. Program has achieved Acquisition Milestone B and is proceeding with Engineering & Manufacturing Development Phase. One Navy admiral called it 'The most successful prototype program I have ever been involved with.' It's part of the Navy-EB commitment to controlling costs of a program vital to national security.

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FROM THE PRESIDENT

Your Naval Submarine League staff has been busy this summer and I wanted to mention a few of their recent activities. In July the Executive Committee approved the Distinguished Civilian and Distinguished Submariner awardees who will be formally recognized during our Annual Symposium awards banquet on 8 November. Two awardees were selected in each category with Mr. Fred Harris and Mr. Bill Johnson as the Distinguished Civilians and ADM Hank Chiles, USN (Ret) and RADM Jerry Holland, USN (Ret) as the Distinguished Submariners. More information on the Annual Symposium can be found on our web site (https://www.navalsubleague.org/events/annual-symposium/).

My letter in the last issue of *The Submarine Review* mentioned the success of the 30th annual Submarine Technology Symposium (STS) held this past May. This issue contains a transcript of the STS luncheon remarks by Mr. Ron O'Rourke, Specialist in Naval Affairs at the Congressional Research Service. I strongly recommend you read that article.

The Naval Submarine League headquarters and staff have recently relocated to a much better office space in Alexandria, Virginia. The new address is 1737 King Street, Suite 600 Alexandria, VA 22314 which is less that one block from the King Street Metro station. We sold our condominium in Annandale where the League has been headquartered since 1990. The proceeds from the sale have been deposited into the League's reserve fund. All Submarine League members and prospective members are welcome to visit the new office if your travels bring you to the Alexandria area.

Finally, if you a know someone who might be interested in joining the Submarine League, please encourage him or her to visit our recently upgraded web site at www.navalsubleague.org. Membership fees start at as little as $30 for a three-year electronic membership. Students are eligible for a free one-year membership. Active duty submariners both enlisted and officers are especially welcome as members.

John Jay Donnelly
President
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EDITOR'S NOTES

Welcome back after what seemed like a short but eventful summer. We have an interesting issue that we hope you will enjoy, find informative, and thought-provoking.

As our President notes, we open with an always challenging report by Mr. Ron O'Rourke of the Congressional Research Service, given at the Submarine Technology Symposium. His report addresses the state of support for expansion of our Navy with emphasis on submarines, the renewed major power competition on the seas, and, in some unconventional remarks, his view of some "…unsettling trends in the greater world surrounding the submarine community."

Next, we take a step back in history to look at the Pacific Coast Torpedo Station by J. Overton. Mr. Overton is a writer and historian currently serving as writer/editor for the Naval Undersea Warfare Center, Division Keyport. He takes us on a very readable trip from the commissioning of this station in 1914 to the present. It is interesting to share the benefit of his research and knowledge on the ups-and-downs and growth of the Keyport station as our Nation developed more and more need for the weapons and expertise resident in the cadre of experts who supported these efforts.

On a somewhat lighter note, Dick Brown takes us to "sea" with President Theodore Roosevelt on the *Plunger* for tests in Oyster Bay, just about 25 miles from New York City. You'll enjoy his account of this "plunge."

The next segment of this issue should be of great interest to all readers of this journal. We are fortunate to have four excellent personalized accounts of World War II submarine veterans. First, we have an account by Jan Herman, who was the historian for the Bureau of Medicine and interviewed Johnny Lipes, a Pharmacist's Mate, who performed the first appendectomy on a submerged submarine and did it during the War. Next, we have an interview of GMC(SS) Hank Kudzik, USN (Ret) who has given us an account of his experiences on the USS *Nautilus* (SS-168) at the Battle of Midway Island as well as his remaining service during the War. Third is the interview with CAPT Max Duncan, USN (Ret) who made four war patrols on the USS *Barb* (SS-220) under (then) CDR

Gene Fluckey, Medal of Honor awardee along with four Navy Crosses. Last is the detailed account by Judge Jack Weinstein of his war patrols as an officer on the USS *Jallao* (SS-368) and the lessons learned from his experiences. This collection of "war stories" left me feeling, again, honored and fortunate to benefit from the proud tradition established by men such as these and I expect you will feel the same.

The remaining articles and anecdotes add to the sense of tradition and service on the part of all of us. There are some serious tidbits and some light ones. We are also pleased to have an interview with one of our Corporate members, the President of Hydro Group Systems, Inc. This type of interview is a feature that we intend to continue to better acquaint our readers with corporate members of the League.

Finally, we have two excellent book reviews. The first by RADM Phil Davis, USN (Ret) on *Going Deep, John Holland and the Invention of the Attack Submarine*. The second is written by a familiar contributor, LCDR Ryan Hilger, and the book is *Oceans Ventured: Winning the Cold War at Sea.* These reviews will convince you to expand your professional libraries, I'm sure.

We appreciate the support you give by sharing your work and ideas through the *Review*. I ask you to continue to keep your shipmates in mind and share your submittals with us.

Good Hunting!
Mike Hewitt
Editor@navalsubleague.org

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2018 SUBMARINE TECHNOLOGY SYMPOSIUM
CAPT Mike Hewitt, USN, (Ret)

The Submarine Technology Symposium (STS) is the premier classified, non-attribution event of the year for the submarine community. STS is sponsored by the Naval Submarine League and hosted by the Johns Hopkins University Applied Physics Laboratory at its Kossiakoff Conference Center in Laurel, MD. The 2018 event was the 30th annual symposium.

More than 600 people, a combination of military, government civilians, academic and industry representatives were in attendance. The program consisted of two and one-half days of top-notch classified presentations.

There were sixteen exhibits manned by experts from both government (program offices, operations, research and intelligence) and industry organizations. The sessions were challenging and informative. Many attendees were interested in talking with U.S. Naval Academy midshipmen at their exhibit.

The Symposium was co-chaired by VADM Michael J. Connor, USN (Ret), and Lisa Blodgett, JHU/APL Sector Head. This year's theme, *Designing the Undersea Force of the Future*, was explored in five sessions over the course of the conference. The sessions were:

I. *Next Generation Warfare from Under the Sea*
II. *Accelerating Design to Capability*
III. *Future of Strategic Deterrence (Nuclear and Conventional)*
IV. *Distributed and Cross-Domain Warfare Enablers*
V. *Anticipating and Disrupting Adversary Technology*

In addition to these terrific presentations given by a cross-section of uniformed submarine officers and civilians, the symposium attendees were honored to hear from the Chief of Naval Operations, Admiral John Richardson; the Director, Naval Nuclear Propulsion Program (NAVSEA 08), Admiral Frank Caldwell; the award-winning Congressional Research Service specialist in Naval Affairs and Defense Policy, Mr. Ronald O'Rourke; the Commander of the U.S. Submarine Forces, VADM Joseph Tofalo; the new Director of Strategic Systems Programs, VADM Johnny Wolfe, Jr,; the Former Deputy Secretary of Defense, the

Honorable Robert Work; and the Deputy Commander, USSTRATCOM, VADM Chas Richard. A more notable and informative set of speakers on submarine matters could not be found elsewhere.

The presentations were interspersed by coffee and cookie breaks as well as luncheons each day, a banquet on the second day and no-host liquid refreshments following the afternoon sessions, all the above allowing for networking and collaboration. There were also opportunities for informal mingling with military and government customers (or potential customers) to ask questions or exchange ideas.

All in all, this Symposium is an opportunity that should not be passed up by anyone with a secret clearance and an interest in submarine technology.

LUNCHEON ADDRESS TO THE SUBMARINE TECHNOLOGY SYMPOSIUM

Ronald O'Rourke

May 15, 2018

Introduction

Thank you for the kind introduction. As always, I should state at the outset that these views are my own and not necessarily those of my employer.

It's an honor to once again have a chance to speak to you at this event, particularly given the challenging international security environment and the prospect of an expanded shipbuilding effort for achieving a larger Navy, including a larger submarine force.

My talk to you today has three parts. The first two parts are longer, and the third and final part is fairly brief.

Current context

In the first part, I want to outline some factors that help form the current context for discussing submarine programs.

One of those factors is the outlook for defense spending. The most recent budget agreement increased the defense spending caps for FY18 and FY19, permitting additional spending on various things, including shipbuilding.

The outlook for defense spending after FY19 is less clear. Some observers are of the view that the outcome of the mid-term elections in November, combined with concerns for the increased deficit and debt projections following enactment of the recent tax bill, could slow or halt the growth in the defense topline. Not everyone agrees with that prediction, but it's a possibility, and if it were to come to pass, FY19 could turn out to be a high point for defense spending, for a while at least, making it possibly the last chance for gas, so to speak, for certain efforts that could be funded under a higher defense top line, but perhaps not under a more-constrained one.

A second factor shaping the current context is strong bipartisan support for Navy shipbuilding. That's been true for a long time, but it has been particularly evident during the years of the Budget Control Act,

during which shipbuilding has actually been plussed up by Congress year after year, notwithstanding the caps on base-budget defense spending.

That support is due to a number of factors, including not just the jobs generated by shipbuilding, but also the increased defense planning emphasis on the Western Pacific, which for the United States is primarily a naval and aerospace theater, and the improvement in the execution of Navy shipbuilding programs that took place during the nine years that Sean Stackley served as the Navy's acquisition executive, which made it easier for policymakers to support proposals for increased shipbuilding.

Within that strong support for Navy shipbuilding, a third factor that helps to form the current context is especially strong support for submarine construction. Attack submarines are viewed as particularly responsive to the A2/AD challenges being mounted by China and other countries, and the Virginia-class program's record in delivering boats largely on time or ahead of schedule, even while reducing planned construction times and improving capabilities, again makes it easier for policymakers to support the program and consider higher procurement rates.

A fourth factor shaping the current context is the valley or trough in SSN force levels projected for the 2020s and 2030s, which I've been talking, reporting, and testifying about since 1995. Over the last couple of years, policymakers have begun to focus more on this issue. It's now late in the game to do something about it—the options for addressing it are now narrower than they were years ago. But there are a still a couple of options that could be pursued, which I'll get to in a moment.

And a fifth factor shaping the current context for discussing submarine programs is the shift in the international security environment from the more benign post-Cold War era, also known as the unipolar moment, to a new era of renewed major power competition.

The December National Security Strategy and the January unclassified summary of the new National Defense Strategy put the return of great power competition front and center, and formally shifted U.S. national security strategy and national defense strategy from the previous 4+1 construct—where Russia, China, Iran, and North Korea, plus the challenge of international terrorism, were all given some degree of prominence—to the new 2+3 construct, where China and Russia are clearly in the forefront, as the 2, and the other three concerns, though still import-

ant, are now in the next tier.

Within the submarine community, when it comes to Russia and China, there is often a focus on Russia, because Russia is the submarine technological pacing threat. But I want to focus for a minute on China, because even though China isn't the technological pacing threat on submarines, the totality of China's actions in the long run may have at least as much importance for the U.S. submarine community, if not more, than Russia's.

Last year I mentioned a new shipyard that China was building—a shipyard that some observers had concluded was intended for building nuclear-powered submarines—and I expressed concern about what that was going to mean for China's future nuclear-powered submarine force levels. Not too long after that, other observers concluded, based on the characteristics of this new shipyard, that the facility would be used for building commercial ships rather than submarines. So, other things held equal, that would be cause for breathing a little easier, at least for the time being.

But other things have not held equal. China's statements and actions over the last year have made it clear that China has ambitious goals for advancing its interests and values not only in its home region, but across Eurasia and the Indo-Pacific region, and elsewhere around the world, and that China has an integrated, whole-of-society strategy for achieving those goals. As others have remarked, China is playing a long game. China is implementing its comprehensive strategy with deep pockets, persistence, patience, tactical flexibility, limited concern for rules and norms that it finds inconvenient, and an understanding of how to boil the American frog.

In this sense, China is unlike any challenge the United States has ever faced, and over the last year, there has been rapidly growing awareness of this. But even so, my sense is that there remains a lag in recognizing and internalizing the full scope and scale of China's challenge to the U.S. position in the world, to the U.S.-led international order, and to U.S. values. In short, even though China is part of the 2 in the 2+3 construct, it's not clear to me that there is a full understanding and appreciation, when it comes to China, of just what's hitting us.

To the extent that there are efforts to fully apprehend, absorb and act

on China's challenge, we're also subject to having our attention frequently drawn to other concerns, such as Europe and Russia, or the Middle East, or North Korea. And even though the unipolar moment ended years ago, there still seems to be a struggle to break free of an attitude that appears to have developed during the quarter-century or so of the post-Cold War era that the U.S. place of leadership in the world is somehow automatic or preordained, and that the United States doesn't have to put more than a certain amount of effort into defending it.

So what does all that have do to with this submarine force?

Well, from time to time, you see calls for a whole-of-government U.S. strategy or a U.S. interagency effort to counter China. The summary of the new National Defense Strategy mentions the interagency process several times. But slowness in recognizing the breadth and resourcing of China's challenge, as well security challenges in other parts of the world and a lack of recent experience in devoting more than a certain amount of time, attention, and resources to defending the U.S. position in the world could combine to make it difficult to devise a U.S. whole-of-government strategy for countering China, to resource it adequately, and to stick with it over time.

If the United States were to fall short of that, then the U.S. effort, instead of consisting of a sustained and well-resourced balance of diplomatic, information, economic, and military dimensions, might instead come to lean more heavily on the military dimension. And within that military dimension, as China continues to field improving A2/AD capabilities, and develops key emerging military-applicable technologies such as quantum technology, artificial intelligence, and hypersonics, it is the crown jewels of U.S. military capability that may take on more importance as bastions of remaining U.S. military superiority.

And now I think you can see where this is going—because submarines and undersea warfare are not only one of those U.S. crown jewels, but one that is resistant to being overcome quickly, because it is a product of technologies, design knowhow, environmental measurements, tactical development, and operational experience amassed over a span of decades, and is therefore something not easily replicated or undermined by a single technological counterstroke.

I'm not saying that when it comes to competing with China, it's

all going to come down to submarines. But I am saying that in a long-term competition against China, submarines and undersea warfare may emerge as an increasingly important element of the U.S. response.

So, with those five factors shaping the current environment for discussing submarines, I want to shift to the second part of my talk, which provides some comments on some specific programs, within the time available.

Columbia class

Let's start with the Columbia class, and here I want to observe two things. First, the Navy as of last year assigned a confidence level of less than 50% to its cost estimates for the program, suggesting that the cost of this submarine is more likely than not to exceed its current cost estimate. And second, the new Nuclear Posture Review refers to the planned total of 12 Columbia-class boats as a minimum, suggesting a possibility that a future NPR might increase that figure. These two considerations underscore the importance of minimizing the cost of the Columbia-class boats by taking advantage of acquisition authorities that that Navy has at its disposal through the National Sea-Based Deterrence Fund or elsewhere in the U.S. Code.

Also, I've talked in the past about the need for the submarine community to generate some space within the schedule for designing and building the lead boat to absorb the potential schedule shocks of technical problems. The submarine community is now working to achieve that kind of resiliency in the program schedule. Any progress that can be made on that front would be welcome, particularly given the technical challenges involved in the boat's new electric-drive propulsion system.

Virginia class

I want to shift now to the Virginia-class program. The factors I mentioned earlier that form the context for discussing submarines have produced nothing less than a pedal-to-the-metal atmosphere regarding attack submarine procurement. The new 30-year shipbuilding plan turned the 1+1 Virginia-Columbia years into 2+1s, and policymakers are now looking at whether and how to turn the 2+0 years in the shipbuilding plan to 3+0s, beginning in FY22 and 23.

As an initial step in that direction, the House Armed Services Committee's mark on the FY19 NDAA recommends a bit more than $1 billion in Economic Order Quantity advance procurement funding for two additional Virginia-class boats in FY22 and FY23. That's a notable step. For policymakers who might be interested in doing something in FY19 even more robust than that, one option would be to authorize and fully fund both of those additional boats in FY19, on top of the two already requested this year, for a resulting an FY19 buy of four boats. Under this option, even though the two additional boats would be authorized and funded in FY19, they would execute on schedules consistent with boats authorized and funded in FY22 and FY23.

There might be three reasons for considering this option. The first is that it's entirely possible to authorize and fund the procurement of ships with the understanding that the ships in question won't begin construction until a few years from now. When Congress funded a 2-carrier buy in FY83 and another 2-carrier buy on FY88, it did so in each case with the understanding that the second carrier would not start construction until a few years after the first.

Second, authorizing and funding the procurement of four Virginia-class boats in a single year would send a strong signal of resolve and determination to China and Russia, which might be consistent with what I said earlier about the competition with China.

And third, if FY19 turns out to be a high point for defense funding, fully funding the additional two Virginia-class boats now might help preserve funding for other initiatives in a future year when funding is tighter.[1]

A variant of this option would be to authorize the two additional boats in FY19, but partially rather than fully fund them. The additional FY19 funding under this option could be something between the $1 billion in the HASC markup and the roughly $7 billion combined full cost of the two additional boats. The reasons for considering this option would be generally the same as for the option of fully funding both addi-

1 There are also two additional reasons that could be cited: First, authorizing and funding the two additional boats in FY19 would permit the Navy to fully incorporate them into the FY19-FY23 Virginia-class multiyear procurement (MYP) contract as "true" MYP boats, with all the savings that are possible from that. (Thanks to Rear Admiral Michael Jabaley for reminding me of that.) Second, it would send a signal of reassurance to the industrial base that these two boats will, in fact, be procured, which might help add stability to the industrial base, including supplier firms.

tional boats in FY19.

Los Angeles class refuelings

I want to turn now to a third item, which is the effort to refuel and extend the service life of at least one, and possibly as many as five, Los Angeles-class boats, so as to help fill in the projected valley in SSN force levels. For me, this is a case study in how a changed security environment can lead to the consideration of options that in earlier years received less attention.

A number of years ago, when I brought up the projected valley and talked about how it could lead to a period of weakened conventional deterrence, I didn't get a sense that my argument got much traction. A few years later, however, that changed. And when I then brought up the idea of refueling the 688s, I wasn't sure whether it would be feasible or cost effective, and again I didn't sense that the idea was getting much traction. And then, a few years later, that also changed, and the first of those refuelings is now in the budget, with the possibility for another four a few years from now. The Navy's report to Congress on this effort, moreover, says that it might be possible to expand the effort to include 2 more boats, which would make for a total of 7 rather than 5. All this is possible because the Navy has 5 orphaned Los Angeles class fuel cores in storage, plus another 2 that the Navy might be able to reconfigure into suitable cores with more extensive modification or analysis.

Another step would be to examine the potential costs of expanding the refueling effort further, to encompass a total of more than 7 Los Angeles-class boats. That would be much more expensive, because it would require building new Los Angeles-class cores, which would incur extensive production line restart costs. But given the history of this issue, I think it would be helpful if the Navy would run these numbers and show them. Those numbers might not look cost effective today, but given what I said earlier about the recognition lag regarding China's whole-of-society strategy, something that might not look cost effective today might look more cost effective in the future.

Japanese submarines

I'd like to turn now to a fourth item, which is non-nuclear-powered submarines. The question of whether the United States should turn to

non-nuclear-powered submarines as an additional means of mitigating the SSN valley has come up.

There is, in fact, a readily available option for this—an option that wouldn't cost anything for the Navy to implement, because the additional submarines in question are already being built by Japan for use by the JMSDF.

For industrial-base reasons, Japan builds one non-nuclear-powered attack boat per year. Japan had previously planned on maintaining a force of 16 attack boats, so each boat was to be retired at age 16. Under Japan's new defense plan, the goal is to build up to a force of 22 boats, so each boat will now be kept to age 22, and the force is to reach 22 boats by 2021.

Once again, I think you can see where this is going—if Japan were to instead keep its boats to age 30, it could expand its force to 30 boats—without building any more new boats they already plan to build. The additional costs of this option for Japan would be to operate and support the 8 additional boats, which have crews of about 70 sailors each.

These 8 additional Japanese-operated boats could not do what SSNs could do, but they would be capable of performing certain types of missions. In addition, they would be located in the right part of the world for countering China. And perhaps most important of all, the size of Japan's attack boat force under this option would reach 30 in 2029, which is almost precisely when the U.S. Navy's attack boat valley is projected to hit bottom. Years later, as the U.S. SSN force moves beyond the valley and grows toward its 66-boat goal, it would be easy, if desired, to contract the size of the Japanese force by once again retiring its boats at younger ages.

I have scoured the world for Western naval force structure options, and this opportunity to expand the size of the Japanese attack boat force at low additional cost for Japan is the biggest unrealized piece of low-hanging fruit that I have been able to find.

When I was in Tokyo in January for discussions with their Ministry of Defense, their Ministry of Foreign Affairs, and their Cabinet Secretariat, I brought this issue up repeatedly, and I learned two things: First, the option is feasible, and could be incorporated as a change to their defense plan. And second, there was little if any awareness among the Japanese

officials I spoke with about the projected valley in the U.S. SSN force, and consequently of how expanding Japan's attack boat force could help compensate for a temporary decline in the size of the U.S. SSN fleet. Consequently, in my discussions with the Japanese,

I encouraged them to think about their attack boat force-level planning not just in a Japan-only context, but in a joint Japan-U.S. context.

I keep hearing about the need to get serious about countering China. Well, if the United States and its allies and partners are going to get serious about countering China, this is an option to talk about. Why should those eight boats be thrown away with usable life left in them when they could serve at a time when their continued presence in the force would be particularly helpful in terms of Western naval undersea capacity?

I bring all this up here because this option is something that members of the U.S. submarine community can raise in conversations they have with their Japanese counterparts. Japan may not pursue this option unless it hears about it consistently from the United States.

XLUUV

I want to turn now to my next item, which is the XLUUV program. On this program, I have five points to make.

First, when the question arises as to whether the United States should turn to non-nuclear-powered submarines as an additional means of mitigating the SSN valley, this could be another part of the answer, along with the option of expanding the size of the Japanese attack boat force.

Second, this looks like a potentially game-changing platform that the Navy might consider highlighting more.

Third, there is interest in Congress, as shown in the hearings this spring, to learn about how UVs like this one might impact future Navy force-structure planning, so anything the Navy could do to illuminate that issue might be appreciated.

Fourth, this program is not just a technology and force-planning issue—it's also an opportunity for sending signals of resolve and unpredictability to China and Russia. As I've said before in other settings, China and other countries often present the United States with surprises. But that's a game that can be played both ways. As the Navy moves ahead with this effort, it might consider doing so with an eye on how might be

structured so as to present China or Russia with some surprises, so as to throw them back on their heels.

And fifth, if this turns out to be a platform that could be sold to U.S. allies, then its value as a force additive or multiplier could be that much greater—and it might also open up some opportunities for allies to help fund the development of selected technologies for future versions of the platform, in a manner analogous to how the Japanese funded the development of five technologies for the SM-3 Block IIA interceptor.

Submarine weapons

Everything I've talked about so far relates to platforms. I want to turn now to submarine weapons. My concern here is that the current focus on finding ways to build SSNs more quickly is pushing the topic of efforts to develop new submarine weapons into the background, which could create a risk of a loss of momentum for those efforts.

Like the XLUUV, the development of new submarine weapons could not only add capability to the undersea force—it could also create opportunities for surprising and sending signals of resolve to China and Russia. In that regard, Vice Admiral Connor's testimony three years ago to the House Seapower and Projection Forces subcommittee on undersea warfare game changers remains instructive.[2]

In the new security environment, it is now well recognized that in developing new systems, speed of development and fielding has regained importance as a measure of acquisition success, because the United States no longer has the luxury of time and substantial capability overmatch that it did during the post-Cold War era. But speed isn't the only metric that has regained importance—the value of surprise and of sending signals of resolve have as well, and it's not clear to me that this has been fully incorporated into the new acquisition paradigm. The development of submarine weapons is an area where that could happen.

Next-generation SSN

I want to finish this second part of my talk with one more item, and that's the next-generation SSN. The new 30-year shipbuilding plan

2 Testimony of Vice Admiral (retired) Michael J. Connor before the United States House of Representatives Armed Services Committee Sea Power and Projection Forces Committee Hearing [on] Game Changers—Undersea Warfare, October 27, 2015, 5 pp.

shows the lead boat of that next class being procured in FY34, and the plan indicates that the design will focus on speed and stealth.

In my work on the Navy's new frigate program, I raise a potential issue as to whether the Navy's planned growth margin for that ship will be adequate. This is in part because the Perry-class frigates became weight critical, which made it more difficult to keep them mission-effective in their later years. But it's also because I'm concerned that in light of what I've said about the recognition lag regarding China's challenge, there's a risk of shooting behind the rabbit regarding that frigate's required capabilities, in which case incorporating some additional growth margin, above what would be typical for such a ship, might be an option worth considering.

In a similar vein, given what I've said about the totality of China's actions, there is a risk of shooting behind the rabbit in terms of what might be needed in terms of that new SSN's capabilities. Thus, in addition to speed and stealth, the Navy might consider emphasizing payload capacity and growth margin as well.

Many years ago, the best single-sentence description that I heard of the Seawolf submarine, with its big weapon magazine, was that it was designed to go into the Soviets' back yard and do a lot of damage before having to return home for reloading. I'm wondering now whether something like that will be needed in the next-generation SSN.

Three developments

That completes the second part of my talk. In the third and final part, which will be very brief, I want to take a step back and mention three unsettling trends in the greater world surrounding the submarine community, and what they might mean for all of us.

The first concerns the international environment, which features not just a return to great power competition, but a retreat from freedom and liberal democracy, and a resurgence of authoritarianism, autocracy, and illiberal democracy. Freedom House reports that the number of nations experiencing a decline in freedom has outnumbered those experiencing an increase in freedom for the last 12 years in a row. China is now openly arguing that its political system has advantages over the western liberal democratic model. And authoritarianism and illiberal democracy have

now taken root inside the NATO alliance in countries like Turkey, Poland, and Hungary.

The second unsettling development concerns the information and media environment in which the world now operates, and the effect that observers see it having, both here and abroad, in terms of encouraging a retreat from respect for facts, truth, experts and expertise, in favor of opinion, false information, lies, conspiracy theories, raw emotions, and tribal approaches to information and knowledge.

And the third unsettling development concerns what a number of observers view as an erosion of some of the democratic norms that help underpin the operations of our own democratic system.

You are no doubt aware of all three of these unsettling developments—you can hardly expose yourself to the news without becoming aware of them.

The submarine community, as it goes about its work, is largely insulated from these unsettling developments, like a submarine at depth that is insulated from the rough weather and choppy seas above it.

Even so, I believe it would be remiss to stand before you today and not mention these things. As a consequence of these three unsettling developments, these are not comfortable or normal times, and it would be foolish to pretend otherwise. And while it may be true that these trends are unlikely to affect the submarine community directly as a whole, they do have a connection to all of us as individuals.

The submarine community is known for technical excellence and disciplined engineering. But another way of stating that would be to say that the submarine community is rooted in the idea of facts, truth, experts, and expertise.

And when policymakers decide to fund the development of new submarine technologies, or the procurement of new submarines and their payloads, they do so through a process that is not just outlined in the Constitution, but further informed by our democratic norms.

And when Navy submarines and their crews venture abroad to perform their missions, they are doing so as representatives not only of American strength, but of our concepts of freedom and democracy.

Those are all things that you can be proud of—all the time, every day. But they are also things that need protecting, and as individuals, we

each have some connection, however slight it might seem for each of us, to the task of protecting them.

It's something to keep in mind as we go about our daily lives and work. And that's the thought I will leave you with.

Thank you again for the chance to speak to you today, and I'll be happy to respond to your questions.

EVOLUTION OF THE PACIFIC COAST TORPEDO STATION

J. Overton

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Introduction

The Pacific Coast Torpedo Station, a Washington state facility for testing and maintaining torpedoes for the U.S. Navy, was commissioned in 1914. During the following century, the base underwent drastic changes in personnel strength, had additional facilities and subordinate units added and subtracted from its parent Command, changed names five times, and eventually even stopped testing torpedoes in-water at the original base site, thus seemingly negating the reason it was brought into being.

But survive it did, and does, today as the Naval Undersea Warfare Center, Division Keyport. As the technology it supported evolved, so too did the organization which supported that technology. There were times of growth and real estate acquisition that clearly aligned with Keyport's mission, and periods of mutation, where Navy lands and infrastructure were put under Keyport's ownership or control simply because it was closest geographically or was, mission-wise, a close-enough fit.

That evolution –the word evolve is used to imply a frequent lack of consistent intelligent design in the Command's life – which allowed the Command to survive, is, I believe, as worthy of study as are the reasons behind why a ship succeeds in battle or a combat unit wins or avoids annihilation. The following explores this organization's particular evolution, articulates some enduring trends over its 103-year history, and

attempts to define its Center of Gravity, that elusive, nebulous something that provides moral or physical strength, freedom of action, or will to act.[1]

An Ideal Location

Like the commissioning of a ship or any other military unit, bases are not spontaneously generated: they are conceived by some uneven combination of world events, internal politics, technological change, and topographic features. The Pacific Coast Torpedo Station, at Keyport – it will be referred to from here on as just Keyport, to avoid confusion with its numerous name changes - although begun nearly simultaneous to the outbreak of World War I, was established in response to an expanding U.S. Pacific Fleet and an emerging technology, the automobile torpedo. [2]

In the early years of the 20th Century, the U.S. Navy's inventory of, and expertise with, torpedoes was struggling to keep pace with other rising powers. Because the effectiveness of even rudimentary torpedoes is based on complex mechanisms for assuring proper guidance, depth, speed, and range, they need to be tested in the water before being issued for Fleet use. This was especially time consuming and expensive for the U.S. Navy's Pacific Fleet, which had to ship their torpedoes across the country to Newport, Rhode Island, then the Navy's only depot for testing and repairing torpedoes.

To remedy this situation, in 1908 a group of naval officers was sent to search from "San Diego to British Columbia" for a new U.S. Navy torpedo station. The ideal location, they were directed, was to be a "clear water site on the west coast, not over 10 fathoms deep and not under five, with a sandy bottom and virtually no current." It should also "… have little tide and must not be too cold." [3]

The isolated peninsula of Keyport, Washington and its adjacent waterway, a part of the much larger Puget Sound called Port Orchard inlet, was chosen as that perfect place, although other Western Washington cities, and Los Angeles, California, lobbied to be chosen. The 88 acres of land which the Navy wanted was described as a "… peninsula [lying] in the shape of a flask with a narrow neck…almost entirely surrounded by tidewater, which at no point is less than quarter mile wide…it affords an ideal location for secrecy." [4] Much of the needed land was already

occupied by small farms, and when those farm families refused to sell to the Navy, the land was condemned, and the owners given a set amount of money to vacate. They were at least allowed to stay until harvest time in the autumn.[5]

The first Commanding Officer took possession of the land in November 1914, and began hiring a small, local workforce to build basic infrastructure. A minimal Navy contingent also was brought aboard, as was a Marine Corps security detail. The adjacent in-water test range was already being used for torpedo testing by Pacific Fleet ships during their stays at nearby Puget Sound Naval Shipyard. [6] In 1916, the local newspaper reported: "As soon as sufficient trained men are available the new torpedo station will be a busy place as everything is in readiness for operations. The first shipment of 32 torpedoes arrives this week and the testing range has been laid out." [7]

America's entry into World War 1 had no noticeable impact on the station, other than a slight increase in military manning. After the war, construction and infrastructure improvements continued, including building a pier, laying a narrow-gauge railway for transport of torpedoes, clearing land for building, and getting adequate water, electricity and sewage for the growing Station. In 1920, a torpedo school was established at the young base. Sailors were sent from "all over the fleet" for torpedo instruction and trained to qualify as 2nd class divers. [8] That year's [1920] workforce size of 80 civilians, 30 enlisted Sailors, and 18 Marines didn't change significantly for the next 17 years.

No base is an island, even if it is actually an island, but Keyport is a peninsula on a peninsula, and was not easy to reach with the civil infrastructure in the area during the 1920s. Although this isolation was one of the benefits of Keyport's location, it also made workforce retention and travel between the area's other Naval base, Puget Sound Naval shipyard, about 10 miles away, difficult. Water transportation, via private ferries and personal watercraft (including rowboats and canoes) was easier than using the mostly-unpaved roads (which with Western Washington wet weather often became impassible).

The Navy and community, as it was, took measures to make life easier in this near-wilderness. Decades later, a woman who was a young girl in 1920's Keyport recalled the Sailors taking donations to buy Christmas

presents for the local children, and the children reciprocating by performing Christmas plays in the Sailors' barracks.[9] In 1925, Keyport's Commanding Officer successfully lobbied the Secretaries of Navy and Agriculture to fund a State highway to connect his base with the city of Bremerton, about 15 miles to the south, where the Shipyard was located. [10]

In 1928, enough buildings were built and operations in place that the first landscaping was begun, and in 1929, the station's first real estate expansion was brought about when an adjoining 61 acres were bought and used for storing torpedo warheads in igloo-type magazines. The next year, the base's name was changed to Naval Torpedo Station-Keyport. [11]

In 1935, some of the first aerial photos of the Station made clear how the magazine area was noticeably visible from the air, and groundcover was planted. New Deal emergency jobs program's employees spent 15 months on infrastructure projects at Keyport, beginning in 1937, and by 1938, they outnumbered the Station's 125 Navy civilians. As much of Europe and Asia became engulfed in what would be World War II, Keyport's 1939 workforce stood at 170 civilians, 10 officers, 55 enlisted Sailors, one Marine officer, and 42 enlisted Marines.

Growth Spurts and Mutations

In 1940 President Roosevelt ordered a "speed-up in torpedo production, overhaul, proofing and issue…" and Keyport began a rapid increase in personnel, facilities, and operations. [12] By 1941, the civilian workforce was up to 600, and Keyport sponsored 300 Navy housing units to be constructed for these new employees in the nearby city of Poulsbo. The work schedule went to three shifts, seven-day workweeks, with the eighth day off. The next year, following U.S. entrance into World War II, Keyport purchased another adjoining parcel of land, 62 acres, including 10 farmhouses. An army anti-aircraft unit was stationed on base, with anti-aircraft gun emplacements atop two buildings, and other guns and barrage balloons at nearby off-base locations. Civilian employment rose to 1100. The most pressing challenge was hiring enough employees, as area military bases and industrial facilities like Boeing competed for wartime workers. [13]

The initial rush of build up for the war and local defense resulted in

numerous bases and naval facilities being constructed with seemingly little overall direction, such that by the Spring of 1943, the 13th Naval District Commander (which included the Pacific Northwest), pushed for consolidation and efficiency in his subordinate Commands, and had his District Commanding Officers justify their own Command's uniqueness or explore ways in which those Commands could combine with others of similar mission or geographic proximity. A Memorandum from Keyport's Commanding Officer to the 13th Naval District Commandant, dated 15 April 1943, regarding consolidation of Shore Establishments and Units Ashore of the Operating Forces, stated: "The Torpedo Activities of this Station are not related to any other activity in the District. There appears to be no other activity with which they could be consolidated, nor other activity which could be consolidated with this station." [14]

This appears the first time in the Command's short history when it was threatened with being swallowed up by other Commands. There would be others.

In 1943, the workforce was up to 1500 civilians, 200 additional housing units for Keyport personnel were built in Poulsbo, and the work "week" went to 13 days on, one day off. The next year, Keyport reached its peak Wartime employment with 2000 civilians, 44% of whom were female. That year a partnership with the University of Washington Applied Physics Lab formed to work on an acoustic in-water range. [15] This advanced the accuracy and types of in-water testing which the Command could perform and would be one of many partnerships Keyport would have with academic institutions.

After the landing at Normandy on June 6, 1944 (D-Day, or Operation Overlord), and especially after Victory in Japan Day (September 2, 1945), the base newspaper ran notices railing against rumors that spoke of mass layoffs and workload reductions. But then, in December 1945, that newspaper, the Warhead, ceased publication, and Keyport's civilian workforce dropped from nearly 2000 at War's end to 275 people by 1946.[16]

In October 1945, the Chief of the Bureau of Ordnance released the following information about the Station: "Keyport as is generally known here was not established as a torpedo manufacturing plant although during recent war years it did accomplish assembly manufactur-

ing from parts manufactured elsewhere. No torpedo manufacture can be undertaken until research and development offer a torpedo so markedly superior to those now on hand as to warrant a request for funds. When such occasion arises, pure manufacture will probably be concentrated at Naval Ordnance Plants…as the Navy's largest torpedo station, differentiated from ordnance plants…Keyport will continue its former function of overhaul, store and issue for ships on the west coast; also, to proof and test certain torpedoes and to perform ensuing post-range overhaul together with the re-loading of igniters." [17] That awkward description of Keyport's mission and duties helps explain its post-War survival and continued existence: too many torpedoes had been made for the war, and afterwards were simply scrapped, but the drumbeat of maintenance and testing of the existing torpedoes in service continued, if at a very reduced pace for Keyport. [18]

The post-war years would begin one of two periods, following a War's conclusion or more specifically, the perception that US forces were the sole superpower and had established unopposed sea control, of simultaneous downsizing of the workforce and growth, or perhaps mutation, of Keyport's physical footprint and duties. Keyport was given ownership or cognizance over other Navy installations' real estate and began performing functions corresponding to the Navy's post-war efforts to explain or defend its own continued existence. [19]

In 1946, the Naval Radio Station adjacent to Keyport (and in caretaker status during World War II) was decommissioned, and from that decommissioning Keyport received its leftover houses and buildings. That year also ended with Keyport receiving the Bureau of Ordnance Naval Ordnance Development Award, and in conjunction with the Applied Physics Laboratory of the University of Washington, won the Navy "E" Award for developing a new type of torpedo exploding mechanism. [20] Keyport had won several commendations for its War bond drive participation, and the reduced post-War employees continued that tradition, receiving awards for time without accident, for Savings Bond purchases, and for other worker activities like 100% participation in Red Cross drives. [21]

In 1948, with a civilian workforce of 351, Keyport held its first open house, and hosted community and civic leaders for tours. A Mobile Div-

ing Salvage Unit, which grew from a wartime initiative of Keyport's Navy Divers, was established to provide diving support outside of the base (performing what now would be called "mutual assistance" with interagency and community groups). [22]

Within three years of its Wartime employment and production high point, Keyport's energy had largely shifted from the test and repair of a single type of weapon's technology, the torpedo, to something vaguer but more vital for the time. The emphasis on providing value to the U.S.'s contemporary version of sea or national power - in community service and providing a localized answer to what America needed a Navy for - allowed Keyport to maintain itself with a skeleton crew and physical footprint around which to again grow.

In the late 1940's, Keyport's existing adjacent in-water range, which had 30 years earlier been the main reason for establishing the facility there, was deemed too shallow for testing the newer types of torpedoes. A nationwide survey to find suitable replacement waterways ended in Dabob Bay, off of the Hood Canal area, about 15 air and 40 water miles away. [23] Had nearby land not been found, Keyport likely could not have kept functioning. The movement of in-water testing to Dabob, and the simultaneous neglect of the acoustic range equipment in the original range, show that at this point, the original dryland physical footprint was not as vital to Keyport's mission as simply maintaining access to in-water ranges with particular topographic and oceanographic characteristics, and fairly close to Pacific Fleet assets. [24]

The workforce went up to more than 600 civilians, and 100 Sailors and Marines, during the Korean War. In 1950, to save Navy money, Keyport consolidated with the ammunition depot at Bangor, 10 miles to the west on the Hood Canal, with Keyport's Commanding Officer retaining overall Command. The new command, called the U.S. Naval Ordnance Deport (Keyport-Bangor), would last only two years, when the bases would go their separate ways.[25]

During the 1950's, Keyport worked with the University of Washington to develop and install a 3-dimensional tracking range at Dabob Bay, with state of the art in-water equipment and an on-site digital computer making it "... the world's first fully instrumented deep-water tracking range…" which was able to be of far more uses than originally planned.[26]

In 1958, Keyport's mission statement changed to include more emphasis research and development in order to "strengthen the Station's position in Bureau [of Ordnance] thinking and planning." [27] This prompted, or perhaps caught up with, with the Station's workforce becoming more white-collar. It also prompted, or again caught up, with Keyport doing more non-torpedo, but still undersea technology work. In 1959, Keyport began working with the first Fleet Ballistic Missile Submarine, and after tests on the Dabob Bay Range revealed errors in the sonar of several US Navy ships, Keyport developed a program, later adopted Navy-wide, for testing a vessel's total Anti-Submarine Warfare capabilities.[28]

In 1961, Keyport explored other areas in Alaska and the Puget Sound for in-water range suitability, commissioned an undersea tracking range in the Canadian Straits of Georgia, and in 1965 the Canadian Forces Maritime Experimental and Test Ranges (CFMETR), a joint operation range shared between NUWC Keyport and the Canadian military, was established near Nanoose, British Columbia. It grew in size and complexity over the years, and in the 1990's Naval Sea Systems Command's Program Executive Officer for Undersea Warfare said of it: "The single most important core facility is the instrumented underwater test range facility at Nanoose, British Columbia, operated by NUWC Division, Keyport." [29]

In 1964, the base's 50th anniversary, a bi-weekly base newspaper was started, this time with the name "*Keynotes*." That year Keyport's workforce of 1200 civilians and 300 military members performed, amongst other duties, more than 4000 torpedo test runs, and 263 test runs of other undersea vehicles. [30]

The post-Vietnam drawdown did not markedly impact Keyport's workforce or operations, but other Commands, either downsized or orphaned when their parent commands were disestablished; had their facilities, land, and missions transferred to Keyport. In 1970, Keyport took over Indian Island, an ammunition depot in Western Washington, as a caretaker, and several smaller commands at the nearby Bangor base. In 1974 it gained a Hawaii Detachment, when Naval Ammunition Depot Oahu was closed, and its Anti-Submarine Warfare unit was left needing a parent Command. In 1976, detachments in San Diego, Hawthorne, Nevada, and Indian Island, Washington, were established, giving Keyport

cognizance over nearly all undersea warfare-related technical capability support and maintenance infrastructure in the Pacific Area of Operations.

In 1978, Keyport's official name changed from Naval Torpedo Station to Naval Undersea Warfare Engineering Station (NUWES) Keyport, a change which openly and perhaps psychologically showed its shift from a particular technology, torpedoes, to a field of expertise directed towards an entire operational domain. It also returned to performing some tests in its Port Orchard inlet range that year and was testing in ranges off of the Washington coast, by San Clemente Island, in Southern California, and in Hawaii; as well as at temporary ranges using portable equipment. In the next 12 years Keyport, as with most of the U.S. Navy, grew to match an expanding Fleet, expanding budgets, and a revised strategic emphasis on both sea control and power projection against the Soviets. That growth was not linear or consistent: monetary issues still impacted some Keyport programs, and while workload and workforce were reaching all-time highs, Keyport was engaged in (sometimes award-winning) work in fields not strictly related to its mission, such as dining facility quality, environmental remediation programs, and building an auto-hobby shop for base employees.[31] The work of 1988 was described as follows: "Utilizing a comprehensive set of three-dimensional underwater tracking ranges in the Pacific Northwest, Hawaii, and Southern California, the Station [Keyport] continues to perform its original and primary function of underwater weapon proofing and testing." [32]

At its Cold War pinnacle, Keyport had a workforce of more than 3300 civilian and military members at its main base and four detachments, higher than that even during World War II. [33] The 1990 Command History stated, "Fiscal Year 90 was a banner year; perhaps the best business year ever." [34]

Near Extinction, Survival of the Fit

Change came quickly. The end of the Cold War meant a greatly-reduced need for the U.S. Navy's roles and platforms then in existence. Over the next decade, Keyport underwent a managed but drastic reduction in workload and workforce, and myriad threats to its existence. Workforce downsizing and Base Realignment and Closure (BRAC) rounds began shortly after the completion of Operation Desert Storm,

in the spring of 1991, and in 1992, a Naval Strategy whitepaper gave a substantial course correction to the direction Keyport had been tracking for more than 40 years. "*From the Sea…*" begins, "The world has changed dramatically in the last two years, and America's national security policy has also changed. As a result, the priorities of the Navy and Marine Corps have shifted, leading to this broad assessment of the future direction of our maritime forces. Our ability to command the seas in areas where we anticipate future operations allows us to resize our naval forces and to concentrate more on capabilities required in the complex operating environment of the "littoral" or coastlines of the earth. With the demise of the Soviet Union, the free nations of the world claim preeminent control of the seas…" [35]

Keyport's official name was changed in January 1992, to Naval Undersea Warfare Center-Division, Keyport, one of two subordinate Commands under the newly-formed Naval Undersea Warfare Center, headquartered in Newport, Rhode Island. Keyport underwent this name and chain-of-command change while experiencing what the Command histories repeatedly refer to as a "volatile" operating environment. As in the downsizing after World War II, however, there were some gains.[36] The Indian Island Detachment, never really aligned with the core responsibilities, was transferred to another Command, but Keyport then took over the Arctic Submarine Laboratory, as part of a Navy-wide Research, Development, Testing and Evaluation consolidation plan. [37]

Between 1991 and 1994, Keyport's workforce lost 779 people, and by 1997, the torpedo workload had declined by two-thirds. [38] During those years, Keyport's excess energy was again directed towards non-mission critical National and Navy priorities areas like environmental restoration and preservation, workplace improvement, partnerships with non-defense private industries, and efficiency and innovation. [39]

In 1997, the Arctic Submarine Lab Detachment in San Diego was transferred away from Keyport, but Keyport gained responsibility for Pacific Fleet Magnetic Silencing Facilities. The boats used to perform work at the in-water ranges are this year handed over to contracted civilian operators rather than Navy sailors, bringing Keyport's military complement from 180 down to 34.[40]

Regionalization, the Navy-wide effort to transfer and centralize

Navy base real estate and facilities functions, began in the Northwest in 1998. While met with some alarm in *Keynotes*, turning some buildings over to Regional management allowed Keyport's more limited workforce the ability to pour less energy and money into non-mission related activities.[41] And as usual, as some functions and infrastructure died off, others emerged. In 2000, the original torpedo firing pier at Keyport was demolished, the Pacific Fleet's Torpedo Intermediate Maintenance Facility in Hawaii was transferred to Keyport control, the CFMETR range in Canada grew in area, and Keyport's traditional operations were adapting as they could to the changes in naval strategy and operating environments.[42]

The NUWC Keyport Business Plan from the summer 2001 noted that since the end of the Cold War, Keyport's end strength had been reduced by 63%, customer funding reduced by 44%, overhead reduced by 50%, and square foot usage by 30%. [43] Concurrently, a BRAC Emeritus Day was held at Keyport, the purpose of which was described as "To Proactively Plan for, and Win the Next BRAC War" and to "Pursue Defensive, Offensive, and Outreach Strategies to Increase Keyport's Value to the Fleet," a seemingly very aggressive approach to the public information initiatives that had been pursued, with less foresight, in late 1940's and mid-1990's. [44]

The Regionalization trend came to fruition in 2003 with the stand-up of Commander, Navy Installations (CNI), when all Navy real property, including of course that of Keyport's original headquarters base, was turned over to the ownership and cognizance of CNI.[45] The next round of Base Realignment and Closure did impact Keyport, though not in as negative a manner as has had been feared. In 2004, the establishment of Naval Base Kitsap consolidated shore facilities at what had been independent bases of Bremerton, Bangor, and Keyport, in Kitsap County, Washington. With that, and similar Regionalization efforts at Keyport's detachments and sites, Keyport no longer owned most of the ground on which its buildings stood, nor most of its buildings, and was now a tenant on its namesake base. Yet it remained, and actually continued to grow in personnel numbers and in business from its mid-90's slump.

In 2011, another subordinate Command was added; the Naval Sea Systems Logistics Center, in Mechanicsburg, Pennsylvania, which

though not obviously tied to Keyport's raison d'etre, was similar to many evolutionary growths it had undergone in the past.

The most recent, significant evolution as of this writing was the opening of an Unmanned Undersea Vehicle (UUV) homeport maintenance space, Barb Hall, at now Naval Base Kitsap-Keyport, in partnership with Submarine Development Squadron Five and Applied Research Laboratory-Penn State. This facility leverages existing infrastructure, and most importantly, nearness to the Fleet (in the form of submarines at Naval Base Kitsap-Bangor) and the original in-water range by Naval Base Kitsap-Keyport. [46]

The century-old criteria for the base's location, although long unsuitable for torpedo testing, works well for testing modern UUVs, arguably the next evolution in the species that began with torpedoes, and is still close to the necessary supported Fleet assets.

After 103 years, evolving technology, evolving strategy, and an evolving Command continue to reinforce the value of Keyport's original, humble, unique attributes. [47]

Conclusion

Surveying the long evolution, the times of threats and times of thriving, some enduring trends emerge:

- Testing and improvement on existing equipment and technology, rather than manufacturing from scratch or creating completely new technology, has always been dominant in Keyport's corporate culture and mission.

- During reduced conventional workload years, when that mission wasn't as necessary or as obviously valuable, the workforce emphasis shifted to varying degrees towards community and public relations, showing that the people who work at Keyport are responsible stewards of resources and good community partners.

- A certain sticky power is caused by the base's presence – off-base housing, roads, and utilities, and economic contributions in the form of salaries, services, and contracts – that give it a value apart from the specific mission or technology support, or even from the deliberate efforts of the leadership and workforce.

- That localized value and support helped with self-preservation, but

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outside forces – at the highest levels, U.S. national and Naval strategy – ultimately drove the evolution.

-While Command identity still focuses on torpedoes and the community of Keyport, Washington, the Command has been diversified in location and technology supported since 1950, thus for most of its history.

- And lastly, to return to the battle unit analogy, the Command's Center of Gravity doesn't appear to be either torpedoes or the Keyport community, or even the knowledge and skills of the workforce, as significant and necessary as these are. Since its founding, through wars and BRACs and consolidations, Keyport's Center as an organization has been its access and ownership of unique locations and spaces whose use or control is in some way necessary for the sustainment of contemporary U.S. sea power: its in-water ranges and co-location with supported Fleet assets.[48] They have survived when much else was sloughed off, and even in ways that may seem disparate or unrelated to its identity, still facilitate Keyport's growth and evolution, and the growth and evolution of the technology it supports. [49]

Appendix
Timeline of significant events and evolutions, information compiled from Command Histories, Operational Reports, and newsletters

1908 - Navy calls for establishment of torpedo station for the Navy's Pacific Fleet.

1913 – Land selected and purchased (88 acres), through condemnation proceedings, for said base, in the unincorporated community of Keyport, Washington.

1914 -The Pacific Coast Torpedo Station (PCTS) is established for repair and ranging of torpedoes in support of the Pacific Fleet.

1916 – First torpedo tested by PCTS in the adjoining Port Orchard narrows range, the characteristics of which were the main reason for the base's location being chosen.

1919 – Workforce consists of 65 civilians, 31 enlisted sailors, and 18 Marines. A Naval Affairs committee of 12 Congressmen visited and, a local newspaper reported, were impressed by the large area of adjacent water available for torpedo practice.

1920- Torpedo school and 2nd class dive school begin.

1922- First parking lot constructed.

1925 –Keyport Commanding Officer lobbies to get funding for a state highway between Puget Sound Naval Shipyard, in Bremerton, and Keyport/PCTS.

1929 –First real estate expansion: 61 additional acres for warhead storage

1930- PCTS name changed to Naval Torpedo Station Keyport (NTS Keyport)

1935 –Groundcover planted after aerial photos reveal easily-seen warhead storage magazines.

1937 – Civilian Conservation Corps workers help build base infrastructure.

1938 – NTS Keyport's 125 Navy civilians are outnumbered on base by New Deal emergency jobs program employees.

1939 – Workforce is 170 civilians, 10 officers, 55 enlisted Sailors, 1 Marine officer, 42 Marines

1941 – Civilians workforce grows to 600, prompting Navy to spon-

sor 300 housing units to be constructed in nearby Poulsbo. NTS Keyport workforce begins round-the-clock work days, with 7-day workweeks.

1942 – NTS Keyport buys additional adjoining 61 acres, including 10 farm houses. An Army anti-aircraft unit is stationed on base, to protect it from possible air attack. Workforce grows to 1100 civilians. Transmitting equipment for the Naval radio station on a hill next to NTS Keyport is removed.

1943 – Workforce of 1500 civilians work 13 days on, one day off, and spur 200 additional housing units to be built in Poulsbo.

1944 – NTS Keyport's 2000-person civilian workforce is 44% female. NTS Keyport begins work with academic institutions on creating an acoustic range, which can track torpedoes through sound equipment installed on the sea floor.

1945 – A railroad spur is completed at nearby Naval Ammunition Depot Bangor, making Keyport no longer reliant on barges for torpedo deliveries. The Torpedo School is discontinued. Workforce drops from 1800 to 275 by 1946.

1946 – Adjacent Naval Radio Station, in caretaker status during World War II, is decommissioned, with land and buildings transferred to NTS Keyport.

1948 – Workforce is down to 351 civilians. First "open house" held, hosting community and civic leaders for tours. NTS Keyport's divers establish and man the Mobile Diving Salvage Unit, performing what now would be called mutual assistance.

1948-49 -Keyport ranges are deemed too shallow for modern torpedoes. Nationwide Survey to find suitable replacement ends in nearby Dabob Bay/Hood Canal area. Navy already owned some shorefront and facilities in that area (Bangor).

1950-52 – Naval Ammunition Depot Bangor and NTS Keyport are consolidated in Navy initiative to save money. New command is called U.S. Naval Ordnance Deport (Keyport-Bangor), with Keyport maintaining Commanding Officer and oversight of most operations.

1951 – Consolidated Command's workforce is 625 civilians, 50 sailors, and 50 Marines.

1951 – As a public safety measure, U.S. Naval Ordnance Deport (Keyport-Bangor) begins publicizing torpedo test firings.

1952 – U.S. Naval Ordnance Deport (Keyport-Bangor) deconsolidates, again becoming two separate Commands.

1953-54 – Dredged seabed from around NTS Keyport's Pier I added to north lagoon of existing base to create more land.

1955 – Workforce up to 980 civilians and 300 military.

1957 – Idea floated to re-consolidate with Bangor but cancelled. A 3-D tracking range, the first of its kind in the world, is installed at Dabob Bay.

1958 – NTS Keyport's mission statement changed to include more emphasis on research and development.

1959 – First Fleet Ballistic Missile work began. Tests on the Dabob Bay Range reveal errors in the sonar of several U.S. Navy ships, leading Keyport to develop a program, later adopted Navy-wide, for testing a vessel's total Anti-Submarine Warfare capabilities.

1961 – Commissioning of range in the Straits of Georgia adjacent to the Canadian border.

1965 – Establishment of Canadian Forces Maritime Experimental and Test Ranges (CFMETR), a joint US/Canadian operation range near Nanoose, British Columbia.

1970 – Naval Ammunition Depot Bangor disestablished, functions transferred to NTS Keyport. Naval Ammunition Depot, Indian Island (Washington State), in reduced operating status, is also transferred to NTS Keyport. Marine Barracks Bangor, Polaris Missile Facility Pacific (at Bangor), and Naval Ordnance Engineering Facility (at Bangor) all become tenant commands of NTS Keyport.

1973 – Keyport receives special recognition for their work during a nationally-direction torpedo production speed-up in response to the Yom Kippur War.

1974 – Hawaii Detachment (now Pacific Detachment) established.

1975 – Civilian workforce of 2595, 443 military members.

1976 – Southern California (San Diego), Hawthorne (Nevada), and Indian Island detachments established. Keyport has cognizance over nearly all undersea warfare-related shorebased technical capabilities in the Pacific Area of Operations.

1977 – Subase Bangor established. Most real estate at Bangor transferred to Commander in Chief, Pacific Fleet ownership.

1978 – Name changed to Naval Undersea Warfare Engineering Station (NUWES) Keyport.

1979 – Establishment of Naval Museum of Undersea Warfare.

1985 – Separate, off-base building for Naval Museum of Undersea Warfare established.

1990 – Keyport workforce at 3300 military and civilians, highest ever.

1991 – Workforce and workload reductions begin as Cold War ends.

1992 – Stand-up/name change to Naval Undersea Warfare Center Division-Keyport (NUWC Keyport). Indian Island Detachment transferred to Seal Beach, California. Arctic Submarine Laboratory transferred to NUWC Keyport as part of the RDT&E consolidation plan.

1994 – Vice President Al Gore presents NUWC Keyport Commanding Officer with Quality Improvement Prototype Award.

1996 – NUWC Keyport wins two categories of the FY95 Chief of Naval Operations Environmental Awards. Keyport range craft recovered a crashed medevac helicopter that went down in 700ft water in Puget Sound. First Torpedoman "C" school held at NUWC Keyport.

1997 – Arctic Submarine Lab Detachment transferred to Submarine Development Squadron 5.

1998 – Regionalization efforts begin Navy-wide. Some buildings on NUWC Keyport's base not tied specifically to mission, such as barracks, are turned over to the newly-formed Navy Region Northwest. The Keyport Chapel is deconsecrated.

1999- Workforce of 1,264 civilians, 27 military members, and 600 contractors, is down 63% since 1990.

2000 – Pacific Fleet Torpedo Intermediate Maintenance Activity is transferred to NUWC Keyport. Pier 1is demolished.

2002- NUWC Keyport's new Pier 1 (near dive locker) is dedicated.

2003 – Commander, Navy Installations (CNI) stood-up, all Navy real property comes under cognizance and ownership of CNI and local Region (Navy Region Northwest). Naval Undersea Museum transferred from NUWC Keyport to Navy Region Northwest.

2004-05 – Naval Base Kitsap established, consolidating Navy shore facilities at Bremerton, Bangor, Manchester, and Keyport, in Kitsap County, Washington. NUWC Keyport no longer in charge of most shore

installation management functions.

2005 – NUWC Keyport hosts the Autonomous Underwater Vehicle Fest.

2011 - Naval Sea Systems Logistics Center, in Mechanicsburg, Pennsylvania, comes under NUWC Keyport as an Echelon 5 command.

2014 – Keyport commemorates 100 years of existence. Workforce is 1,943 civilians, 27 military, and several hundred contractors.

2017 - NUWC Keyport, in partnership with Submarine Development Squadron Five and ARL-Penn State, begins operating a new Unmanned Undersea Vehicle homeport maintenance space, Barb Hall, located within NUWC Keyport's Vehicle Integration Prototyping Experimentation and Reconfiguration facility. Named after famed World War II submarine USS *Barb*, the facility is the first of its kind in the Navy. NUWC Keyport and Submarine Development Squadron Five Commanding Officers issue intent for NUWC Keyport to become the Navy's UUV Homeport.

Endnotes

1 The most recent and official definition of this oft-cited term is in *Joint Publication 5-0, Joint Planning*, June 2017, xxii, available at http://www.dtic.mil/doctrine/new_pubs/jp5_0_20171606.pdf. See also Military Review Online-Exclusive, "The Center of Gravity; Still Relevant After All These Years?" by Dale C. Eikmeier, May, 2017, available at http://www.armyupress.army.mil/Journals/Military-Review/Online-Exclusive/2017-Online-Exclusive-Articles/The-Center-of-Gravity/.

2 "Plans have been prepared for a torpedo station on the Pacific coast of the United States, and it is hoped that an appropriation to purchase the necessary land will be provided by the next Congress." From the *Annual Report of the Bureau of Ordnance to the Secretary of the Navy for Fiscal Year 1909.* 12

3 Lisa Poole, with Diane Robinson. *Torpedo Town, USA: A History of the Naval Undersea Warfare Engineering Station, 1914-1989*. (Keyport, Washington: Diamond Anniversary Publishing, 1989) 13

4 Ibid, 13.

5 Ibid, 13-17.

6 In 1914, the Bureau of Ordnance debated as to whether Newport, the Washington Navy Yard, or commercial interests would be the Navy's primary manufacturer of torpedoes, but Keyport was from the start meant to test and support, not manufacture. *Annual Report of the Bureau of Ordnance to the Secretary of the Navy for Fiscal Year 19.* 11-12.

7 A. Carpinella. *History: U.S. Naval Torpedo Station, Keyport, Washington.* (1959) 5.

8 Ibid, 12.

9 Evelyn T. Rangvald Kvelstad, Elnora Parfitt, Fredi Perry, Vir-

ginia Stott. *Kitsap County History: A Story of Kitsap County and Its Pioneers.* (Seattle: Kitsap County Historical Society,1977) 167.

10 Carpinella, 17.

11 Ibid, 18.

12 Ibid , 25.

13 Performance issues with U.S. torpedoes during this time period are well-documented. A short description of the problem is in *A Century of Progress: A History of Torpedo System Development* (Published by the Naval Undersea Warfare Center) 74-77.

14 *Commandant, 13th Naval District U.S. Naval Administrative History, World War II, Commandant, 13th Naval District Appendices.*

15 Carpinella, 30.

16 "And Now It's '30'" from the base newspaper Warhead: Naval Torpedo Station, Keyport, December, 1945. 2.

17 Carpinella, 33.

18 *A Century of Progress*, 77.

19 In 1950, Keyport's Commanding Officer was directed by the District Commandant to give speeches to community groups on the importance of the Navy in the development of Kitsap County (in which Keyport, Bangor, and the Puget Sound Naval Shipyard are located). From Carpinella, 38.

A chapter-long explanation of this time period can be found in George W. Baer's *One Hundred Years of Sea Power: The U.S. Navy, 1890-1990* (Stanford University Press, 1996) 275-313.

20 Carpinella, 34.

21 Ibid, 30-39.

22 Ibid, 36.

23 Ibid, 35-38.

24 "At 600 feet, [Dabob] was the nation's deepest protected body of salt water in the continental United States." Charles R. Gundersen, *The History of the Naval Torpedo Tracking Ranges at Keyport* (Prepared for the Naval Undersea Museum, Keyport, 1998) 10-12, 24.

25 In 1957, the idea was-refloated to re-consolidate with Bangor, but cancelled after a visit by Undersecretary of the Navy. Carpinella, 47.

26 Gundersen, 26-29.

27 Carpinella, 49.

28 Poole, 73-74.

29 Gundersen, 43.

30 *History; Naval Torpedo Station, Keyport Washington, 1909 to 1969* (internal publication) 92.

31 *Command History, Calendar Year 1988; Naval Undersea Warfare Engineering Station, Keyport Washington* 10-15

32 *Command History, Calendar Year 1988; Naval Undersea Warfare Engineering Station, Keyport Washington* 2.

33 *1988 Station Overview, Naval Undersea Warfare Engineering Station.* 21.

34 *Naval Undersea Warfare Engineering Station Command Histo-*

ry, Annual Year 1990. 3.

35 Available at http://www.navy.mil/navydata/policy/fromsea/fromsea.txt.

36 "Many operations goals and objectives were achieved despite an extremely volatile work environment" resulting from defense cuts and civilian workforce 'rightsizing.'" *Naval Undersea Warfare Center, Division-Keyport, Command History, 1993,* 1.

37 From the *NUWC Keyport Command History, 31 January 1991 – 31 December 1992*, 2.

38 *Keynotes: A Special Millennium Issue* (published by NUWC Keyport, 2000) 8-28.

39 In 1993, the still-shrinking Keyport was named "Large Employer of the Year" by the Washington State Governor's Committee on Disability Issues and Employment and began its first Command Awards ceremony. In 1994, Keyport won the Quality Improvement Prototype Award, presented by Vice President Gore, and in 1996, won two categories of the Chief of Naval Operations Environmental Awards. Some individual departments also earned ISO standards certification for their processes. From *Keynotes: A Special Millennium Issue* (published by NUWC Keyport, 2000) 13-35.

"With 'defense conversion' a top priority of Congress and President Clinton, and with its workload steadily shrinking, the Keyport installation sees an opportunity to help itself and the community hosting it. Although its primary mission still will be torpedo and undersea warfare work, the defense conversion program will benefit from the high-tech equipment needed to support that mission. All that's needed from the budding entrepreneur is a good idea on how to put the equipment to profitable use…and, as an added benefit, the program will help preserve Keyport's light industrial capabilities in case the nation ever needs to rearm." From Bremerton Sun, July 1993 "Naval Undersea Warfare Center at Keyport – Generator of New Jobs?"

40 *Keynotes: A Special Millennium Issue*, 26-35.

41 "The end of an era," in *Keynotes*, July 24, 1998, 1.

42 The NUWC Keyport Overview of 1997 mentions their focus as "… transitioning from global threat to preparing for regional challenges…" which included work with Chilean diesel submarines on the Dabob Bay range in response to the "From the Sea…" emphasis on littoral, non-peer threats.

43 *The NUWC Keyport Business Plan*, (Summer, 2001) 1.

44 Briefing notes from 23 July 2001, BRAC Emeritus Day "Purpose & Expectations."

45 *Regional Shore Infrastructure Plan, Naval Undersea Warfare Center* (2005) 1, 5.

46 "NUWC Keyport Opens New Home for Unmanned Undersea Vehicles" from CHIPS: The Department of the Navy's Information Technology Magazine , January 31, 2017, available at http://www.doncio.navy.mil/chips/ArticleDetails.aspx?ID=8655.

47 For the use of UUVs and the importance of Keyport's supported technology and the undersea domain, and Navy views on the modern strategic environment, see "A Design for Maintaining Maritime Superiority" available at http://www.navy.mil/cno/docs/cno_stg.pdf . For a deliberation on the US Navy's current ability and need for sea control, see "Surface Force Strategy: Return to Sea Control" available at http://www.navy.mil/strategic/SurfaceForceStrategy-ReturntoSeaControl.pdf.

48 Keyport's senior civilian from 1969 to 1987, Edward Lesinski, had a goal for Keyport to be steward of the "world's best undersea ranges," Keynotes, Aug. 4, 1989, 12. Lesinski also described Keyport … "As a station which is unique in that its waters would allow us to do things that other stations couldn't do…" Poole, 96.

Also, comment in Gundersen, 43, cited above.

49 "Here, and in Keyport's entire complex of undersea support," said [NUWC Keyport Commanding Officer Captain Doug] LaCoste, "we'll help explore and improve the vast capabilities and missions of UUVs. We'll work with their end-users to see how they could be used, and how they could be made better, and we'll work to develop and provide those capabilities. Our workforce and warfighters of the 1940s would be amazed at the technology on display here today. But I believe they would easily understand the basics of what we do, and why we do it." From "NUWC Keyport Opens New Home for Unmanned Undersea Vehicles" in *CHIPS: The Department of the Navy's Information Technology Magazine*, January 31, 2017, available at http://www.doncio.navy.mil/chips/ArticleDetails.aspx?ID=8655

The ranges at Nanoose and Dabob have come under threats in recent years, though not due to a perception that they're obsolete. "And a seemingly unlikely partner, the U.S. Navy, has been proven to be a tremendous ally in Dabob's green quest. The Navy, whose West Coast base for Ohio-class Trident submarines is a short distance to the east, at Bangor in Kitsap County, set aside outer Dabob's deep waters as a non-explosion missile test range long before conservation status came to the inner bay. Sub fleet commanders have an interest that dovetails with conservationists: keeping the area undeveloped, and the submarine test range isolated, for the most part, from people." "On Dabob Bay Man and Nature Nurture Preservation" Seattle Times, November 16, 2012. Available at http://www.seattletimes.com/pacific-nw-magazine/on-dabob-bay-man-and-nature-nurture-preservation/.

For more on issues that impacted the range at Nanoose, Canada (CFMTRE), see "Canadians End Blockade In Salmon-Fishing Dispute" New York Times, July 22, 1997, available at http://www.nytimes.com/1997/07/22/world/canadians-end-blockade-in-salmon-fishing-dispute.html.

And "Stakeholders fly to secretive torpedo testing range" - December 17, 2015, Canadian Forces news page, available at http://www.forces.gc.ca/en/news/article.page?doc=pacific-region-update-december-2015/iietdx13.

PRESIDENT ROOSEVELT'S PLUNGE IN THE *PLUNGER*

Dick Brown

In the late 1890s, some in America's naval hierarchy considered submersibles to be somewhat of a novelty, even a downright nuisance, and worse, a source of unwarranted expenditures of precious funds from Navy appropriations that could instead be applied to surface ships. Others, including a future president, became absolutely fascinated by a ship that could dive beneath the waves and then safely return to the surface.

TR's Fascination with Submarines

In 1897, as Assistant Secretary of the Navy in the McKinley Administration, Theodore "Teddy" Roosevelt's imagination was greatly stirred by submarines while others considered these radical new weapons to be very sneaky, in fact, possessing an unfair advantage in warfare. Some Navy men felt their careers would be threatened by submarines, lest they take precedence over surface ships. Just prior to the 1898 Spanish-American War, the cocky Irish immigrant and self-educated inventor, John Phillip Holland offered to sell his boats to the U.S. Navy. Secretary Roosevelt advocated the purchase, but the Navy dragged its feet and eventually declined. Holland's reaction was rather indignant, "The Navy doesn't like submarines because there's no deck to strut on."

Teddy Roosevelt resigned his position as Assistant Navy Secretary in order to lead his Rough Riders in battle in Cuba during the 100-day Spanish-American War. He returned as a war hero and signed on as William McKinley's running mate in the incumbent's successful 1900 reelection campaign. Meanwhile, the Navy finally decided to purchase USS *Holland* (SS-1) from John Holland's Torpedo Boat Company for $160,000 on April 11, 1900. And with that, the U.S. Naval Submarine Force was born. *Holland* primarily served as an experimental submarine for purposes of demonstration and training.

Tragically, President McKinley was assassinated in September 1901. Vice President Roosevelt became our 26th and youngest President. The Navy began to accept delivery of its first series of gasoline engine-powered submarines, one of which was USS *Plunger* (SS-2).

In 1902, President Roosevelt encouraged the establishment of the

Navy League of the United States, a civilian organization dedicated to promoting and supporting strong sea services. He recognized that a maritime nation needed highly capable naval forces. That same year, the President, while visiting the graduating class at Annapolis, observed our very first submarine skipper, Lieutenant Harry H. Caldwell, putting the 53-foot *Holland* through her paces without accidental sinking or incurring any casualties.

Plunger was commissioned in September 1903 at John Holland's leased shipyard in New Suffolk at the east end of Long Island, about 30 miles, as the single-minded seagull flies, from New London, Connecticut, site of the future naval submarine base. *Plunger's* Commanding Officer was Lieutenant Charles Preston Nelson who had served aboard a light cruiser during the Spanish-American War.

After a two-week upkeep period in August 1905, the 64-foot *Plunger* was towed by the 140-foot ocean tugboat USS *Apache* to Long Island's Oyster Bay. The Navy's earliest submarines, designed for coastal patrols, were often repositioned by towing due to their limited cruising range. Upon arrival in Oyster Bay, *Plunger* conducted sea trials near Sagamore Hill, the "Summer White House" and home of President Teddy Roosevelt on the north shore of Long Island, about 25 miles from downtown New York City. Roosevelt, who by then had been elected in his own right to a full term as president, had been sworn in six months earlier. Using *Apache* as a floating platform for mooring and a base of operation, *Plunger* spent several days conducting test dives.

Presidential Plunge

On the morning of August 25th, the undersea torpedo boat charged her batteries and made five more test dives, then pulled alongside *Apache* to recharge. That afternoon, at the invitation of Lieutenant Nelson, and under the cover of a raging nor'easter, the adventurous president slipped away from Sagamore Hill unseen and arrived at his private landing. There a launch waited to ferry the captain and his honored guest out to *Apache*. It was mid-afternoon when the President surprised the crew by stepping onto the only flat portion of the submarine's slippery deck. By then, sheets of rain pelted those standing topside. Everyone kept a wary eye on the heavy swells rolling into Oyster Bay. Although securely

moored alongside the tug, *Plunger* bobbed like a wayward cork. The captain guided his Commander-in-Chief through the 24-inch hatch in the access trunk and prepared to get underway. A series of thick glass portholes in the trunk's fairwater and in the hatch cover, allowed some daylight into the submarine's gloomy interior.

With the President safely aboard and standing next to the captain in cramped quarters, the boat cast off its lines and cruised out of the harbor on the surface, propelled by a single 4-cylinder, noisy, fuming gasoline combustion engine. Once in the clear, the hatch was closed and with the tugboat standing aside, *Plunger* slipped beneath the choppy sea.

While the President marveled at *Plunger's* marine ingenuity, the captain allowed his distinguished guest some hands-on experience. He manned the helm, started the electric motor, and activated the submerging apparatus. The initial demonstration dive carried *Plunger* to a depth of 40 feet where she settled motionless on the bottom of Long Island Sound for about 30 minutes, as if lying in wait for an enemy warship to happen along. In this case, the rest on the sea floor gave the President time to inspect the battery amidships and to venture aft where he observed the shutdown gasoline engine, the whirring electric motor, the air compressor, the steering gear, and the propeller shaft with its attendant flywheel. When escorted forward, he inspected the boat's torpedo tube. *Plunger* carried but a single Whitehead torpedo so there was no reloading for a second shot. The president had the honor of firing a blank torpedo.

Despite wind-whipped waves on the surface, the Commanding Officer decided to demonstrate what he called "porpoising" which involved the generous use of the diving planes. This operation called for a high-speed run — about seven knots — with alternating broaches on the surface, where the boat remained for about five seconds — long enough for the captain in time of war to sight an enemy warship through the access trunk portholes, to plan his torpedo attack, and to then plunge back down at a 45-degree angle to a safe depth, all in the manner of a surging porpoise. By design, Mr. Holland, who spent most of his life developing submarines, had perfected a hydrodynamic hull in the shape of a porpoise or dolphin. Although the boat had a periscope with a 15-degree field of view, the captain preferred the porpoising approach.

In another demonstration of her maneuverability, within the span of one minute, *Plunger* was able to stop, reverse course and scoot back to the surface. As another test of the crew's ability to manipulate its boat under duress, all lights were turned off to simulate the loss of electrical power, happily with no impact on submerged operations. For the first time in history, the President of the United States was in total darkness at the bottom of a raging sea!

Through all these trials, *Apache*, serving as an early version of a submarine tender, stood guard in the shelter of a cove. Many things could have gone awry. If *Plunger* failed to surface, as experimental British and French submarines had a tendency of doing, in fact becoming death traps for their ill-fated crews, any chance of getting the Commander-in-Chief to the surface depended entirely on the trusty tugboat.

Plunger surfaced for a final time that day, restarted her gasoline engine and safely returned to *Apache's* anchorage below Sagamore Hill in the early evening. As the President disembarked, he congratulated Lieutenant Nelson and his crew of nine on their outstanding performance and a most successful demonstration. On a personal note, President Roosevelt announced in his characteristic high-pitched voice, "Never in my life have I had such a diverting day, nor can I recall having so much enjoyment in so few hours as today." Back in his mansion, Teddy went on to instruct his staff: "Here's a little story for the newspaper boys. I went out on the *Plunger* this afternoon, went down in her, and was immensely impressed with the boat and with the way in which she was handled."

Later that evening, several *Plunger* sailors visited the village of Oyster Bay. One reported that the President ran the boat most of the time that he was onboard. Another said "The President pulled the lever that controls the whole machinery. He was tickled to death with everything and seemed to catch on in a jiffy. He worked the levers that let water in fore and aft, guided her, started her, stopped her, pressed the button that put out the lights and then lighted them again."

The next day, news of President Roosevelt's escapades aboard a torpedo boat greatly excited the adoring American people. The President spending three hours at sea during a nasty storm, including nearly an hour submerged, buoyed the enthusiasm of naval officers and submarine promoters. It also attracted worldwide attention, including light-heart-

ed commentary telegraphed from various heads of state. The reaction of world leaders to Teddy's presidential plunge was both amazing and amusing, and quite typical of the sarcastic humor of the early 1900s.

Worldwide Reaction

From Berlin came word that Kaiser Wilhelm was incensed that Roosevelt had outstripped him in a daring feat. He had long contemplated taking a voyage in a submarine but had been deterred by uncertainty as to what to wear. Instead he planned to swim the English Channel.

Britain's King Edward characterized Roosevelt's submarine exploit as a "lowdown" adventure. In fact, the King was amazed that *Plunger* came back up at all as submarines of the Royal Navy invariably remained on the bottom. His Majesty added, "but I have always understood that President Roosevelt was of a buoyant nature."

In Paris, President Emile Loubet explained that he could not duplicate Roosevelt's submarine voyage because his whiskers would endanger the boat's machinery. But for the honor of France, he planned a greater feat of daring-do. He would leap from the Eiffel Tower and at the halfway mark he would retrace his way to the top.

The President's undersea voyage had a profound effect on King Alfonso of Spain. His message from Madrid said that if Spain had any submarines, he would duplicate the trick. Instead, he touted his automobiles, saying that until President Roosevelt runs a motor car at a speed of 60 mph, the honor of Spain remains safe.

Cuba's first president, Tomas Palma, was aghast at Roosevelt, having already seen the President's heroics in the Spanish-American War which led to Cuba's recent independence from Spain. To vindicate Cuba's bravery, President Palma was supposedly goaded into eating an explosive huckleberry pie, perhaps in reference to the battleship USS *Maine* that blew up in Havana harbor.

In St. Petersburg, Russia, Czar Nicholas showed little interest in President Roosevelt's death-defying voyage aboard a submarine. After all, under rather dubious circumstances, he had purchased one of Holland's early prototypes the previous year. It was not necessary for the grouchy Czar to go looking for excitement as it always seemed to find him. At the time, discontent among Russians was spiraling towards a

revolutionary movement.

The Japanese Imperial Navy had bought five Holland submersibles intended for use in the Russo-Japanese War but hostilities were ending so they were not used. In fact, as mediator, President Roosevelt had just completed negotiations to end the conflict. A dispatch to the Emperor of Japan brought the news of Roosevelt's exploration of the sea floor. From Tokyo came the Emperor's unflattering response, "I suppose it's all in a day's work."

In Stockholm, when King Oscar heard of the reckless bravery of President Roosevelt, he asked if there were any Norwegians on *Plunger's* crew. Norway had just won its independence from Sweden. The King was assured that there were none, so he was happy the boat made it back to the surface.

In Constantinople, the Sultan of Turkey, Abdul Hamid, announced that no ordinary president of a republic will be able to say he is a coward. Spurred on by the submarine stunt of the President of the United States, he would take his own terrifying plunge; he would take a bath, no doubt a Turkish bath.

On the more serious side, President Roosevelt regarded submariners as highly trained professionals performing a dangerous and difficult job. In fact, having spent several hours at sea aboard *Plunger*, Roosevelt realized that submariners "have to be trained to the highest possible point as well as to show iron nerve in order to be of any use in their positions." As Commander-in-Chief of the Armed Forces, he directed that officer duty in submarines be equated with officer duty on surface ships, indeed that submarine officers be given generous consideration for promotion.

Enlisted men qualified in submarines were paid $5 per month over the base pay of their rating but the President issued an Executive Order immediately directing that submariners be paid an additional $1 per day if their submarine spent any part of a day submerged. No doubt, this increased the frequency of diving practices! However, this undersea pay bonus was limited to $15 per month.

The President continued to have his mind on the Navy in 1905: "It seems to me that all good Americans interested in the growth of their country and sensitive to its honor should give hearty support to the policies which the Navy League is founded to further. For the building

and maintaining in proper shape of the American Navy, we must rely on nothing but the broad and farsighted patriotism of our people as a whole."

In May 1909, a 24-year old Lieutenant, Chester William Nimitz, assumed command of the First Submarine Flotilla and became *Plunger's* third commanding officer. Nimitz once said that submarines of that time were "a cross between a Jules Verne fantasy and a humpbacked whale." Subsequently, Lieutenant Nimitz commanded *Snapper* (SS-16), *Narwhal* (SS-17) and then *Skipjack* (SS-24). He would win our nation's undying gratitude in World War II as Fleet Admiral Nimitz, Commander of the U.S. Pacific Fleet. *Plunger* was renamed *A-1* and *Apache* was renamed *Aspinet* (YF-176). The Holland Torpedo Boat Company became a subsidiary of the Electric Boat Company.

Epilogue

The pioneer submariner Charles P. Nelson would attain the rank of Rear Admiral by the end of his naval career. Besides his work with torpedo boats, he served aboard two battleships, commanded 12 submarine chasers in World War I, and held various assignments in the 3rd and 4th Naval Districts.

President Roosevelt went on to expand the Navy and sent the *Great White Fleet* on a goodwill tour to project America's naval power to the world during the period December 1907 to February 1909. When it came to international affairs, Teddy liked to quote an old African proverb: "speak softly and carry a big stick." *Plunger* was stricken from the naval vessel register in 1913. Six years later, at the family home in Oyster Bay, the venerable Theodore Roosevelt died in his sleep on January 6, 1919 at the age of 60. The following year, Commander Nimitz received orders to build a submarine base at Pearl Harbor. He arrived in Hawaii with a map, four CPOs, and equipment scavenged from East Coast shipyards.

Teddy Roosevelt left his mark on so many aspects of American life. In 1922, the Navy League recognized his importance to the Navy by establishing Navy Day on his birthday, October 27th — the original day that naval tradition called for celebrating our Navy's beginning.

As for the name *Plunger*, it has been used for two additional U.S.

submarines. USS *Plunger* (SS-179) was operating off Diamond Head when the Japanese attacked Pearl Harbor and was one of the first submarines to take the fight to the enemy. She conducted 12 war patrols and sank 16 enemy ships. Fleet Admiral Nimitz praised our WWII submariners when he said, "It was to the Submarine Force that I looked to carry the load until our great industrial activity could produce the weapons we so sorely needed to carry the war to the enemy. It is to the everlasting honor and glory of our submarine personnel that they never failed us in our days of peril." Continuing the legacy of high performance in our Submarine Force, USS *Plunger* (SSN-595), a Thresher-class nuclear submarine, had a most fitting motto: "The Past is Prologue."

Teddy Roosevelt exemplified the bold character of American submariners. He himself was a plunger — a person who enjoys taking risks. His Oyster Bay demonstration paved the way for the design and construction of more advanced submarines. Like the Naval Submarine League, he was committed to building a community of submarine advocates. Today, he would be extremely proud of NSL's support for our undersea warriors and our mission to raise awareness of the importance of submarines in keeping America safe and secure.

References for this article include the New York newspapers *The Evening World* and *The New York Tribune,* plus *The Washington Times*, *The Hartford Courant magazine* and Naval Submarine League's Submarine Centennial book *United States Submarines.*

Dick Brown is a member of the Naval Submarine League, USSVI's Holland Club, a life member of the Navy League, and former chairman of the USS *New Mexico* (SSN-779) Commissioning Committee.

WORLD WAR II SUBMARINE HISTORY – JOHNNY LIPES AND USS *SEADRAGON* (SS-194)

Jan Herman was the historian for the Navy's Bureau of Medicine when he met and interviewed Johnny Lipes. He wrote a book, Battleship Sick Bay, which includes Lipes' story about doing the first appendectomy on a submerged submarine during World War II. In recent years, Mrs. Audrey Lipes attended several Capitol Chapter meetings of the Naval Submarine League, as the guest of her friends, Lorie and Jeanine Allen. Lorie was the Secretary of the chapter at the time. Subsequently, Mrs. Lipes joined the NSL and is a member of the Naval Submarine League Legacy Society. She introduced Mr. Herman to Tim Oliver, who then asked for an interview.

Following is a slightly edited transcript of the interview with Jan Herman about Johnny Lipes, which was conducted on 16 July 2014. Some explanatory notes have been provided by the editor in brackets [].

Interviewer – CAPT Tim Oliver, USN, (Ret)

Wheeler B. "Johnny" Lipes dropped out of high school to enlist in the Navy in 1936. He trained as a corpsman and was a pharmacist's mate first class when he transferred from hospital duty to submarines. After the war, he got his high school diploma, graduated from George Washington University, and retired from the Navy after 26 years of service, as a Lieutenant Commander. He continued to work as a hospital administrator for 30 more years. Shortly before he died in 2005, he was awarded the Navy Commendation Medal for the successful appendectomy he performed 120 feet down in the South China Sea on 9/11/1942.

The USS Seadragon *(SS-194) was a Sargo class submarine. Keel laid 4/18/38 in Groton, CT; commissioned 10/23/39 with LT John G. Johns in command; arrived Cavite, Philippines on 11/30/39.*

Jan Herman: The first thing you want to know is: "What prepared him to join the Navy?" Well, his mother, as I recall, was a nurse or an attendant at a hospital down in the Roanoke, Virginia area. He was from a place called New Castle, Virginia, which is right near Roanoke. He

used to spend a lot of time with his mother at the hospital, and he would do things. They would give little Johnny chores to do in the hospital. He would run around and do them, and he got into that hospital culture. It was during the Depression era, and when it came time for him to find some way of supporting himself, he thought about the Navy. He thought the Navy might be a good place to start. They'll train you and they'll give you a place to stay. They'll give you a job and they'll feed you. And, of course, the lore was that the Navy chow was the best around, so he ended up joining the Navy.

Johnny wasn't in submarines to begin with. He trained as a Corpsman. He went to the Corpsman School at the time. I think it was in Portsmouth, Virginia, if I'm not mistaken. He went through the training, which was probably 8 weeks long. Then after boot camp there was an additional length of time where he learned the basics: first aid, how to give shots, and how to perform first aid types of things.

I recall as a junior Corpsman, his first or second assignment was the Naval Hospital in Philadelphia. He always looked younger than he was. He looked like a kid even into his early adulthood. I remember him telling a story about his very first day at Philadelphia; he had an encounter with a Navy nurse who became legendary later on. Her name was Ann Bernatitus. At the time she was a Lieutenant. She had a reputation as a go-by-the-book kind of nurse, was a bit brusque, and not well liked in the nursing community and certainly the patients were not eager to have her as their nurse. I say this because I knew Ann Bernatitus much later on in her retirement and did her oral history too. She ended up at Corregidor during the war and was one of the few nurses who were evacuated from the Philippines. There were Army nurses there, but she was the only Navy nurse. They were taken out by submarine to Australia.

Anyway, Johnny is walking down the passageway in the hospital and this very starchy nurse comes up and doesn't recognize him; he looks new. She looks at him and says, "I have not seen you around here, young man. What is your name?" He might have been a third class at the time but he said "My name is Lipes." She said, "How do you spell that?" He said, "L-I-P-E-S". "Well, it sounds like Lippys to me. Lippys, that's the way it should be pronounced." He said, "Well, Ma'am it's pronounced Lipes." He said, "Lieutenant, what is your name?" "My name is Lieu-

tenant Ann Bernatitus." And he said, "Is that your name or a condition?" She was so taken aback that she didn't punish him. She didn't have him up on charges or whatever. She could have charged him with insubordination or being smart or whatever. I remember him telling me that story, and I knew her, so it was very true to form.

He became an OR Tech, and you learned on the job. It was OJT (on the job training) at that time. You didn't go to school necessarily. You went and trained in the operating room, and you saw how they did things. He was very fortunate. He was in the Philippines at the time. It was on the eve of our entry into World War II, so I want to say it was probably 1940, somewhere in there. He was a very quick learner, a very sharp guy. He could learn anything. He was very, very good. He noticed details; he was very observant, and he worked for a Navy surgeon. Carey Smith was his name. He was a Navy surgeon, and he taught this young, eager Corpsman everything he knew. He said, "You never know when this knowledge might come in handy." He did many appendectomies, and, of course, Johnny was right there. Later on people [would] say, "Oh, he had never seen one. He was going by feel. He was reading a book." He was doing whatever he needed. He knew how to do it because he'd assisted many, many times in the OR with Dr. Smith. At one point Dr. Smith was demonstrating how you do a closure, once you amputate the infected appendix. Once you amputate it, how best to tie it off, what kind of suture to use, and he always said, "Never use a purse string suture. Never, ever use a purse string suture because it'll get infected and you'll run into complications." So, he knew that in the back of his head.

How did he get into submarines? I don't actually recall. He volunteered for the duty, and he was sent for the appropriate training that you had to have. Once you got aboard a submarine, in order to earn your dolphins, you had to know everything about the boat – everything. You had to know, as any other crew member. You may be the Corpsman, but you have to know how to start the diesels. You had to know the plumbing. You had to know the electrical system. You had to know how to run that boat, even though you were just a Corpsman. After this on the job training, you would get the appropriate examination, and if you passed, then you were a full-fledged submariner. That was something he wanted quickly. He wanted to be a true submariner because he was on a

submarine.

As I recall, he was originally on the *Sealion*. The *Sealion* and *Seadragon* were sister boats, and they were in Cavite [Philippines] for overhaul, for maintenance of some sort. I don't remember exactly, but they were moored beside each other at the pier, and that's when the Japanese attacked on December 10, 1941. After Pearl Harbor they attacked the Cavite Navy Yard, and they essentially destroyed the Navy yard. The *Sealion* was hit, fatally as it turned out. It sank at the pier. The *Seadragon* took a hit on the conning tower, and the very first fatalities in the war, as far as the submarine service, took place on the *Seadragon*. An officer was killed on the deck, and one of the sailors was heading down the ladder at the time. In fact, I just spoke with his son yesterday because he's ill now. He ended up falling down the ladder. He landed on a bolt on his back and was very badly injured. Many years later Johnny helped me get that man a Purple Heart that he had never gotten during the war. Johnny was that kind of a guy.

Anyway, Johnny got into submarines and he ended up on the *Seadragon*. Earlier in the war he had been in Australia for a period and was looking for another boat. He didn't like the one he was on. *Sealion* wasn't his first boat, there was some other one. He could tell the kind of boat he wanted to be on. He'd interview the people. He saw these submarines rafted up, and he went from one to another. There were a couple of boats he didn't like the looks of. They just didn't look right to him. They weren't clean, like the crew didn't really care. He didn't want to be on a boat like that. He was a straight arrow, and he wanted his boat to look right. Turns out, and I can't remember the name of the boat that he decided not to go aboard, but that boat was lost in the war. It went on patrol and never came back. He always mentioned that. He said, "I could have been on that boat, but it didn't look right to me, and I didn't want to be on it." But he ended up on the *Seadragon* and that was to his liking; he liked that boat. That was a good one. He liked the commander, he liked the crew, the rest of the story I think you know.

It's been told many, many times so I don't need to go back with it except the fact that one of the things that he pointed out to me-- and he only told me this later in his life. He didn't tell me this at the beginning when we got to know each other, because he was always very conscious

of people's reputations and their feelings. The story about [NAME EDITED] who came to the *Seadragon*. He was not trained in submarines. He had come out of college, and he had gotten a reserve commission as a JG or he may have been an Ensign but he may have gone straight to JG, I don't remember exactly, but [NAME] ended up on the *Seadragon*, and the captain asked him what his background was, was he an academy guy? "No. I went to the University of Washington, and I majored in Physical Education. I wanted to be a coach." The captain said, "Well how did you end up out here? You've never been on a submarine before? You know we don't have a lot of time to be training you guys. We're in a war." [NAME] said he'd learn as quickly as he could, to be a submariner.

Anyway, [NAME] was aboard the *Seadragon* when this operation took place and of course, Johnny Lipes was given the offer of picking anyone in the crew he would like to have as his operating room crew once it was decided that he was going to do the operation. He went around and picked the guys he knew would do a good job. He didn't know [NAME] that well but he needed an anesthetist, someone to administer the contraband ether, which was not even supposed to be on board the submarine. But Johnny had thought ahead and said, "You know, you never know, it would be good to have a couple of cans of this stuff on board just in case." He didn't tell me this in the original story. It's not in my book, and you'll see why he didn't tell me.

It turns out that [NAME] was given the job of dripping. They used the drip method where Lipes had taken a tea strainer and put gauze over it with a rubber band around it inverted. That was going to be the mask, the anesthesia mask, and he instructed [NAME]. He said, "When I give you the signal, I want a drop at a time to drip into the mask, a drop at a time." Johnny pointed out to me that it was very critical. He said [that] normally, in an operating room, you have an anesthetist, or an anesthesiologist who is monitoring the state of the patient, as far as, where are we in this process? You give them a little bit of ether, and you have to feel the muscles in the abdomen to feel when they start to relax and you go just a little bit beyond that. It's very critical. Of course nowadays we have all the monitoring equipment that tells you this stuff but [then] you had to go by feel. He said if you went beyond that, too far, you'd kill the

patient. There would be too much ether and he would die. He said, "So not only am I doing my first operation, but I have to be conscious of the level of anesthesia that the patient is getting. So I very carefully instructed [NAME] to drip it when I told him to. Well we're in the middle of this thing, and I can smell ether. He's pouring ether into the mask. I quickly stopped everything. The blowers were going in the boat so everybody in the boat was being anesthetized, essentially, because you could smell the ether all throughout. It's very volatile, so a little spark will set it off." So everybody is nervous about this and they're 100 feet down so if they blow the circuits there is not a lot of fresh air. So he got rather irritated with [NAME]. He said, "You can't follow my instructions. Get out. I want you out of here. I need somebody else. Send somebody else in here. You're not doing this anymore." He threw [NAME] out and got somebody else.

He never told me that story until after NAME had died. I interviewed NAME also. I did his oral history, and he was a pretty remarkable guy because after the war, he went to medical school and became a doctor. He was one of the very few reserve officers, non-academy graduates, who got his own boat. He became the CO of a submarine before the war was over. It was late in the war, probably somewhere around May or June of '45, so the war was almost over. But he got his own boat. But Johnny would not tell me that story until after NAME had died. Then he felt free to tell me. Anyway, he never wanted to say anything. That's the kind of guy he was.

He was a very sweet man, very giving, would never brag. Humility is the word I always think of when I think about him. He was treated so badly by the Medical Department, not the Navy, but the Medical Department treated him so poorly for the fact that he had done this operation. He had stepped over the line. He had gone into an area that only physicians were supposed to tread. He had gone on their ground, and they would never forgive him for that. It didn't matter. This is the part I could never understand. It didn't matter that he saved a human life. Because you'd think that would be what physicians would be most concerned about. But in that case, in those days, and even today, I've seen it today also, it was this idea that we are in a special club and nobody else is allowed in. If you come in without the appropriate credentials, you're

terrible, you're awful, and that's how they treated him in the Medical Department.

He retired from the Navy in '69 as a Lieutenant Commander, but his running mates were Captains. There was this black mark next to his name all through his career. He was very hurt by that. He was very hurt. He wasn't bitter. There's a fine line between bitterness and being hurt. I never got the feeling that he was bitter, but he was hurt that the Navy had treated him that way.

Interviewer: When did he leave submarines, as far as service on submarines?

Jan Herman: Right after the war. I want to say maybe '46. He was out of submarines. I think the *Seadragon* was his last assignment. Then he made chief. He heard about the new Medical Service Corps that was being created, which was really an outgrowth of the Hospital Corps. The Hospital Corps not only included Corpsmen at that time, it also included administrators and they were officers. They had commissions. So being as bright as he was, he decided to try out. He was commissioned, and that would have been '46 so he was in on the ground floor of the Medical Service Corps. Then he had a lot of other assignments, mostly administrative assignments after that, hospital administration kinds of things.

He had this reputation, and he used to tell me all these stories about how he would go to a new base and then someone would say, "Did you hear that story about the Corpsman who did the appendectomy? Well he didn't really take out the appendix. He was faking it. He didn't really take it out." Johnny would say, "Oh, that's interesting." He told me a story later on: He was on an airplane in his later life, and the man sitting next to him was reading a magazine and it had "Ripley's Believe it or Not." Remember that thing they used to have, "Ripley's Believe it or Not," in the magazine? It was a story of the Corpsman in World War II who took out someone's appendix on a submarine. This guy is reading this and he turns to Johnny and he says, "Read this. Can you believe this?" Johnny said, "I wouldn't believe a word of it." His grandson was in school one day and I guess they were doing show and tell and his grandson was telling the teacher, "My grandfather did an appendectomy and took out

someone's appendix on a submarine during the war." The teacher said, "Don't tell such stories." He had to go to the school because the little kid was humiliated in front of his classmates. Johnny had to go and set the teacher straight that yeah, this really did happen. Here's the documents.

Interviewer: [What] other stories would talk about his character and the kind of things that you were most impressed by?

Jan Herman: I don't think there was anything about the man that didn't impress me. He was what we used to call a self-made man. He was in every sense. He used his intelligence, his personality. He used them as benefits in moving up. He could have been, without any doubt in my mind, he could have been a surgeon. The knowledge he had of medicine, he could have gone to medical school and done very, very well in medical school. I think we talked about it at one time. He decided he didn't want to do that. His talents he felt were best in medical administration. He was a good leader. He was an excellent leader. He engendered the kind of loyalty that a good leader does. People wanted to work for him. He was the kind of guy you just wanted to be around. You wanted to just absorb his wisdom and his knowledge.

Interviewer: Two other things I wanted to cover in particular just because I remember you talking about it before. One was how he and Audrey got together over the years. And the other is his experience in Memphis.

Jan Herman: We never really covered much of his experience in Memphis. There were a lot of things going on in Memphis at the time. It was during the Civil Rights Era, and in the hospital there were a lot of racial issues going on at the time. I think he was there when Martin Luther King was assassinated. So it was a highly charged place to be and there were a lot of employees who were black who were upset with the way they were being treated by the management. He had to walk a fine line between how do I keep the hospital running? How do I address the issues here? And how do I keep this place from blowing up? I think he did a pretty good job from what I understand because he's that kind of

a person. He knows how to bring people into a room and listen to what they have to say and then at some point render a judgment, as any good leader has to do. So there was the garbage strike; there were all these things that were going on at that time. I think at some point he got tired of that. He wanted to see a hospital practicing medicine, not be involved in all these other issues. I think it got to the point where he just decided it was time to move on. He ended up going to Corpus Christi and when I met him he was President of Memorial Medical Center.

I think I told you the story [that] when I finally got a name, I realized that Wheeler B. Lipes was the guy who did this [appendectomy] and I wanted to interview him. I was able, through the National Personal Records Center in St. Louis, to find out where he was living because he was collecting a pension and so there was an address and since it was official business they gave me his phone number. I called the number, and a woman answers and I identify myself. Again I think she must have thought I was from the IRS, because she wouldn't even tell me that her husband was Wheeler Lipes until I convinced her that no, I'm not from the IRS. I'm from the Navy Surgeon General's Office and I'm trying to find your husband. So she gave me his number at his office at the hospital and I called him and his secretary put me right on and that was it. It was love at first sight.

We chatted for probably half an hour on the phone and I told him I was interested in doing an interview with him and I couldn't come to Corpus right then but could we do it on the phone? "Oh, absolutely." He was as nice and accommodating as he could be. Then our friendship developed. I would go down to see him, and on one of those visits, Dr. Bob Bornmann [MC, USN, (Ret)] asked if it would be okay if he went with me, because he had heard about him all these years, he had never actually met him and he, being a submariner himself, would just love to meet this legend. In the submarine community he was a legend, if he wasn't in the medical department. They [the medical department] had treated him shabbily. It wasn't the submariners who treated him bad. They thought he was a hero for what he did and so did the rest of the Navy. The rest of the Navy recognizes a hero for who he is.

So we went down and visited with him. As I recall, Johnny's wife had already passed away. She had a rare blood disease where she was

constantly making red cells. She had been bedridden for years, and he took care of her. Besides his work at the hospital, he would go home a couple of times a day and take care of her.

We got into this conversation with Bornmann asking all kinds of questions like, "When were you at the Bureau, in the early 60's?" and he said, "Yeah, they decided to send me to college. I needed more training so they sent me to GW [George Washington University] right up the street and I had to take a medical legal course because that's what I was working on at the time. You had to know all the legalities of medicine and how we practice it." Bob says, "Well, you know, my family lawyer, she took that course." He said, "What was her name?" Bornmann said, "Her name was Audrey." Johnny just said, "Audrey. I think I know who you're talking about. We were in the same study group together. I would tutor her, and we would study with a bunch of other folks and that's how we got through the course. Where is she now?" Bob said, "Well, she lives in Delaware." He said, "She was such a wonderful lady, I remember her. We studied; she was a wonderful person." So, Bob said, "Well, would you like her phone number?" Johnny hesitated, and he says, "No, I don't think so. That's another time, that's okay." So, Bob said, "I'll leave it with you anyway. You want to follow up with it that's fine." And that was it. That was the end of the conversation.

Then, it was about a year later, Bob was in my office at the Bureau. We're sitting there and I said, "Why don't we call Johnny. You're here, and you can talk with him. I'll put it on speaker." So I dial the number and a woman answers. I'm thinking maybe it's the housekeeper or something. So we said, "We want to speak to Johnny Lipes. Is he home?" "Yeah, just a moment. Johnny, Johnny..." He comes to the phone. Bob says, "Is that your housekeeper?" He says, "No, that's my wife. That's Audrey." Oh my God. We're just going crazy after that. Bob was Mr. Cupid. You start thinking about how one thing leads to another and if this didn't happen that wouldn't happen. If Bob hadn't asked me if he could go with me on that trip, we wouldn't be here today, sitting in this room. It wouldn't have happened. Just those connections that you make, that you never understand where they're going to go, and you make them and life becomes real interesting.

WORLD WAR II SUBMARINE HISTORY – GM1 (SS) HANK KUDZIK AND USS *NAUTILUS* (SS-168)

Following is a slightly edited transcript of an interview with Gunner's Mate First Class Hank Kudzik, a World War II member of the crew of the USS Nautilus *(SS-168). The interview was conducted on 4 June 2015. Some explanatory notes have been provided by the editor in brackets.*

Interviewer – CAPT Tim Oliver, USN, (Ret)

Hank Kudzik enlisted in the Navy at the age of 16, just weeks after the Japanese attack on Pearl Harbor. He left the Navy at the end of the war and stayed in the Reserves for 12 years. He married his sweetheart, a friend of his sister's whom he met during the war while home on leave. They had two daughters and he had a career as a draftsman and salesman of pneumatic conveyors and industrial equipment. He is 93 and lives in Pennsylvania.

The USS Nautilus *(SS-168) was a Narwhal class submarine. Keel laid 5/10/27 in Vallejo, CA; commissioned 7/1/30 with LCDR Thomas J. Doyle in command; departed Pearl Harbor on first war patrol, to Midway Island, on 5/24/42 with LCDR William H. Brockman in command.*

The WWII Battle of Midway on 4 June 1942 is considered by many to be one of the greatest victories in the history of the United States Navy. In preparation for the battle, submarines patrolled on radials out from Midway Island to detect and announce the approach of Japanese forces. One of the submarines was the USS Nautilus*, which encountered Japanese forces.*

Interviewer: What got you into Submarines?

Hank Kudzik: The year was 1941, and you know the date was December 7th. I still had one more year of schooling left. But I always had it in my mind that when I was through with high school, I would enter the Navy. Only what happened on December 7th kind of pushed things along. I spent Christmas that month home. Two days after Christmas I went to the recruiting station. I was only 16. But the recruiting officer

was nice. I didn't lie. I had it in mind to lie but he was so nice to me. I told him flat out, "My birthday is less than two weeks from now." He said, "We'll get rid of all the preliminaries and physicals and everything. All you have to do is wait for our call and put up your hand and you'll be in the Navy." And that's exactly what happened.

Interviewer: That's the last time a recruiter ever told the truth, right? (laughter)

Hank Kudzik: When I started to fill out there was a question about stuttering. I said, "Yes, I stuttered" and he said, "We can't take you." I said, "Come on, come on." So he gave me things to read, with all R's and S's and everything, and I passed. As a matter of fact, a naval officer just happened to come in at the same time. He [the recruiter] motioned to him [the naval officer] and said, "I'm ready to tear his application up." He, [the naval officer], looked at it and he asked me a few questions and said, "This man's all right. This man's all right." I never stuttered, not once in the Navy.

Interviewer: So then, you went on to boot-camp?

Hank Kudzik: I found myself at Great Lakes. And after that (it was a brief stay), I wound up at Treasure Island, and from Treasure Island I wound up in Pearl Harbor. Five inches of cooking oil all over the place. Because while they don't really know what to do with you, when they're figuring out, they put you on work details. And my first work detail was to help to remove the body of the souls who died on the Oklahoma and the Ogallala, a mine layer. Not a very pleasant task. For my next detail they put me on the XXXX which was sitting in the yard, and I found myself in a fresh water tank wire-brushing the inside of the fresh water tank. I knew I was being groomed to be part of the crew on the Saratoga and I had no desire for that. So the next day, I went back into the fresh water tank to finish wire-brushing and they took the Saratoga out for a little run down. And guess what? There was an explosion. I was in the tank. It was quite loud. Then I got out of the tank and I said, "What was that?" And they said, "We don't know. Something, something hit the side of the

carrier. We don't know. Maybe it was a drifting mine." "At least, did we think it was another submarine?" I said. I looked, and people with a little boat were going inside this hole at the waterline of the Saratoga. From the carrier deck, I could see the submarine base at Pearl and I said to the Chief who was in charge of the work detail that I was on, "That was too close. I want out." "No, you're not getting out. You're going to get back into that tank." He said, "We're going to patch you up." And I remember somebody said, that if you want something done, go see the Chaplain. That's exactly what I did. I went to see the Chaplain on the *Saratoga* and he said, "Son what's on your mind?" And I said, "I'd rather be on the end firing the torpedoes than taking them." He said, "Do you know what you're asking? They have a very critical examination, mental health, and if you could pass that…" I said, "I'd like to try." He was trying to talk me out of it. He said, "I'll tell you what to do, son. You go over there, and you have them sign a chit, about what you want to do, and if they'll accept you, you bring that back to me and I'll release you." And that's exactly what happened. I was waiting for a submarine.

We had an old submarine there called the Dolphin, the D1. They used it for a school boat. She wasn't battle ready, so I made a few school-run dives on her, went through the big tank and all that, and waited for about the middle of May and along came a submarine called the *Nautilus*. I got assigned to the *Nautilus.* Now this is completely new to me. When I signed the application to go into the Navy there was a questionnaire that said, "Do you want to see combat, or do you want to be ship's company?" I said, "I want combat. I don't want to get stuck on the shore." He said, "Well you know what you're saying. You can pick the kind of ship you want to be on." I didn't say a submarine. I said a destroyer. I never got on a destroyer.

I took a look at the *Nautilus* and compared her to the other submarine that was there. She was 375 feet long, as long as a tin can [slang for a destroyer}. In those days they built three large submarines, the Argonaut, the Narwhal and the *Nautilus*. The *Nautilus* was built in 1930. And they didn't know what to do with them. They were half inch pressure hull and riveted. My pappy said, "Don't go to sea on a submarine that's riveted." I know what he meant; it was like you're sailing in the shower. I hadn't experienced any depth charges yet. But the ship wasn't that bad even

though.

What could they possibly do with us on a submarine? When I got accustomed to it, we received the orders. We were going to leave very shortly on a patrol, our first war patrol. That happened to be northwest of Midway. What's Midway? Why does somebody want Midway? It's nothing but a sand bar. Goony birds all over the place; those were the natives. And it was an atoll. It was a coral growth. We went on that patrol, and it wasn't long, we were in our station and a flotilla of the Imperial Japanese Navy going somewhere. The name of my skipper was William Brockman, we called him 'Bull'. The Executive Officer was Ozzy Lynch. Everybody gets something to do on a submarine, stand a watch, or do something. You don't go for a free ride. All my watches were right in the middle of the submarine, the control room. Above that was the conning tower and above that was the bridge. I was privy to any officer who had the duty. You didn't fire from the control room; you fired from the conning tower. You steered the ship from the conning tower. That was one of my duties, steering. When we submerge, you do a 360 on the scope every 20 to 30 minutes to see when you come up there are no surprises. Manifolds have to be manned. The trim manifold, that was one of my specialties. The planes, the forward planes and the stern planes, have to be manned. Other air valves and the hydraulic system have to be manned. Everything that is in that area.

It happened to be my turn on the scope. Now we had a few guys, I think six, and we alternated these positions. You're four on and eight off, four on and eight off. I was on a scope and to the officer on duty I said, "I think I see smoke on the horizon." He looks and says, "It appears to be smoke, but no vessel, just smoke." He confirmed that it was smoke, so he called up the Captain. The Captain came running up! He took a look too and he said, "The only way we're going to find out is if we get on the surface." Now this is broad daylight. We get on the surface and head for that smoke.

I'm getting a little ahead of schedule; back up another day and a half. A flotilla came right over us. It was heading for us, a cluster of the Japanese fleet. We didn't even have to plot any torpedo routes to hit these ships. The skipper picked out two. Like I say, I was privy to the conversations. The skipper always talked with Ozzy to confirm what he was

going to do and Ozzy either agreed or didn't agree. He said, "We don't have to use the torpedo computer to shoot. We're so close." Here again, nobody would tell us what the proper distance is to shoot. But we were so close. 1500 is the prime distance they want you to be from a target. A torpedo travels 35 miles an hour underwater. So he would get pretty close and he would make tubes one, two, three and four. The Nautilus was built with six tubes when she was commissioned in 1930. After she came to Pearl Harbor, when I got on her, they had added four [external] tubes forward. On the gun deck she had two big six-inch guns. Of course, once you have fired those torpedoes [in the external tubes] you can't reload them. You can only reload what's in there [in the Torpedo Rooms]. But anyway, he fired one, two, three and four at these two ships. It was a piece of cake. They all hit, but not one exploded. What a disaster. This is what we're going to face? Our first encounter and we get four hits. We took some [depth] charges: if I remember, somebody counted 39. But they were impatient. They wanted to go. They couldn't find us, so they proceeded on their way.

So, I think it was a day, a day and a half after, I spotted the smoke. The Captain agreed to surface and get us close until he finally saw the silhouette. We didn't know what the score was there. At that time, three of the Japanese carriers were already sunk by our aircraft carrier. This was the Soryu. We determined this was the Soryu and she was repairing her deck so the airplanes that she had could land somewhere and that's where the smoke was coming from. But they were doing a pretty good job. We dove and proceeded, and we got pretty close again too, and then the skipper was talking with Ozzy. He said, "I wonder if any of these torpedoes are going to explode at all. What do you think Ozzy? We can get close." It's unheard of to get that close, 750 yards. You're asking for trouble. Between the skipper and the Executive Officer, they agreed that if they got close, the carrier wasn't moving very fast and the destroyer was right alongside, and there was another escort to rear of the carrier just there. He said, "Ozzy, I'm going to try to get him in the position I like. I want him to turn. How are we going to do that? So, I have a bigger target." He wanted that tin can out of there, but the tin can just kept staying there. One of the torpedoes might accidentally hit the tin can, which he didn't want. He wanted to hit the one [carrier Soryu]…so he did. We

were getting ready tubes number one, two and three. Like I said, we were pretty, pretty close, between 750 and 800 yards. He fired one, two, three. One hit, two hit, three hit the carrier - the Soryu. The first two exploded. The third one did not. But the war[head] had broke off. In later, years, when we were comparing notes with the Imperial Japanese Navy, a survivor off of that carrier confirmed that it was a submarine that sank him, and the way he survived was, he clung to the torpedo that didn't explode.

So, our carrier fleet said they sank the whole four [carriers]. They did not. The *Nautilus* had something to say about that. We got credit for sinking it.

But now there were two tin cans to contend with, though, like I say, the skipper and Ozzy talked amongst themselves and he wanted that tin can to turn. Well I'll tell you what happened, when he pumped that scope up, the tin can did turn. At that time, at 750 yards, he fired. The tin can could not get out of the way in that short time. A torpedo travels 35 miles per hour underwater. It cut him right in half. Cut him in half!

Though we still had the other one to deal with, but that wasn't until the next day. He knew we were in that area and he was determined to find us. Skipper again said, "Ozzy, do you think it will work the second time?" Ozzy was a camera nut. He was trying to adapt his camera to the eye piece on the periscope. So they agreed that they would get in the same position. Let him see the scope. That's suicide because if it doesn't work…you, you bought it. Anyway, he got him in the position he wanted and fired. It was more of a bow shot but he blew them to bits. He was so elated! Brockman was a little stocky guy, so he kept jumping up and down. The deck plates were flying back and forth. He said, "Ozzy! Did you see it? Did you see it? Did you see it?" Ozzy said, "I didn't see a thing, Captain." Of course, he did not. His camera happened to adapt to what he put it on and he took the thing. When Ozzy developed the film, there it was. And in *Life* magazine in 1942, there was the picture of this ship, going to eat the meatball you can see on one of the turrets. They sent Bill back to the United States to help sell bonds with that picture in *Life* magazine.

We thought we were done with our patrol after Midway. Lockwood was the submarine skipper. He said," Not so fast *Nautilus*. You've still got 21 torpedoes left and we're going to send you to Honshu." Where's

Honshu? Well that's the Bay of Japan. Believe it or not, we created such a confusion, that helped us get away [from Honshu]. We sank five more, good-sized vessels before we managed to get out of there by the skin of our teeth. Only because they were so eager to get us, that in their eagerness, that affected how they were trying to find us and we got lost, and we managed to get in there and survive and come back. So we came back to Pearl, our first run.

There was a man there, a naval officer to greet us when we came back, Chester W. Nimitz himself. He was so elated by what we did at Midway. He presented us with not the qualification dolphins, but the combat pin. What do you say to an admiral, especially if he's a prime admiral in the Pacific. He said," Good work, son." I said," Aye, aye." Number 1 run was in the books.

At Midway I said, "I'm not going to make patrol run two. A man could get killed." I said that to myself. When came time for two, guess who threw the bow line off to make run number two? You're looking at him. I threw the bow line off and I was hooked. I was going to be a submariner.

Interviewer: How many more runs did you do?

Hank Kudzik: Thirteen more. Thirteen more patrols. Well when you make a run, when you come in, they send you to the Royal Hawaiian, so you can drink beer and sleep as long as you want. And the big band is playing and girls are coming to dance with you, so it's your time. All right, our two weeks were up, a relief crew comes on and does all the work that the depth charges created. We had a beer garden on sub base, so you could quench your thirst very easily by going up there and I did. I drank a beer and decided to come back.

I came back to the boat and it was loaded with marines with gear and standing on a dock. I said, "You guys are blocking our way. What did you do, lose your way? The beer garden is up there you know?" They said, "No. We're going on that." They were pointing at the *Nautilus*. I said, "What? You're going on the *Nautilus*?" They said, "Some of us are. And over there is the Argonaut, some 220 on each submarine." I said, "You got to be kidding. What are we going to do with 220 marines with

all their gear on her?" But, sure enough, these were the Marines that were going to go to Mackin Island, Carlson's Raiders. Hallelujah, now we've got to feed them and give them a place to sleep. We didn't have enough places to sleep ourselves, but they were welcome to what we had. They made a special place to put rubber boats and we fashioned up a manifold, so we could, as soon as the ship came up, we could put air in these rubber boats. The Captain made it so that when he got up so far, it floated and all they had to do was paddle off. They had little motors and some of them didn't even work but away they went to Mackin Island. Carlson had 220 on our boat and the Argonaut had James Roosevelt with 220 Raiders also.

Speaker 1: When you said James Roosevelt, was that the President's son?

Hank Kudzik: Yes, it was. Yes, James Roosevelt. He survived the conflict, and they did one heck of a job. And the reason it was so important to get rid of Mackin, because this was the Japanese staging point for Guadalcanal. We were having a bad time. Our troops, we were getting beat because they were so close, and they were controlling that. So the Marines had to go there and wipe it out, and they did a tremendous job. Now remember I told you we had two big six-inch guns. So did the Argonaut. …ammunition potential… but that's OK; these were not new submarines. So with their [the marines'] assistance (they were on shore), they advised us what we could take out with our big guns. When we arrived there at night, there were two big vessels tied up at Mackin. One of them still had troops on and the other one did not. Us and the Argonaut, we destroyed them with our guns.

Now the enemy knew there was a submarine there. And of course during the day, when we were shooting at what the Marines were telling us to, they had a seaplane there who was giving us fits. He would fly over and drop a bomb on us or machine gun us pretty bad. They were setting up on the water where we were shooting at and the skipper said, "He's going to get us before we get him. That airplane, he's a pain in the butt." They just had put 20 millimeters on a topside before we left for Midway and I remember shooting. We caught him. We caught him on top of the

water, setting. He was ready to get up in the air again and we opened fire on him with the two 20's and the 50. We filled him full of holes and when the wing fell off we figured he's not going to fly and bother us anymore.

The sad part about it, we lost thirty Marines, thirty souls we didn't get back. We picked them [the surviving marines] up to take them back. The surf gave them a lot of problems. They had difficulty getting off of the island, getting over the surf and getting back to the submarine, but they managed to. But another sad thing happened was, out of the ones that were missing, I think it was nineteen of them, they were captured. They managed to stray away from the main force. We found out later they were executed. They were beheaded on Kwajalein. After the war, they managed to bring these souls back and bury them at Arlington.

[Interviewer: How did the war end for you?]

Hank Kudzik: The skipper said, "Get your bags together Hank. You're going over to Hickam and you're going back." I said, "I don't want to go home." He said, "I don't care where you go, but you're not going to be here. You're going to be in the States." So they flew us in one of these big, four engine Army planes and we flew over Diamond Head and one of the engines caught fire. In my mind I saw the headlines in the paper, "Submarine Sailor Amongst the Ones Who Died in the Air at Diamond Head in the Big Airplane Crash." But no, we survived that, and they sent us over to Ford Island to get on a PBY [a seaplane] and got on that thing and started to fly to Alameda. I'm sitting right below the pilot, and he said, "You're the submariner?" I said, "Yes I am." He said, "Come on up here. How long have you been away from home?" I said, "Three years. Maybe three and a half." He said, "Come on up here. What do you see ahead of you?" I said, "Clouds." There were lots of clouds and he said, "Keep looking." I said, "Well there's a little dark stuff there," He said, "That's Mount Rainier. This is what you're fighting for. Good old USA, Welcome home."

WORLD WAR II SUBMARINE HISTORY – LT JACK WEINSTEIN AND THE USS *JALLAO* (SS-368)

In 1997, Judge Jack Weinstein was asked by William Stegman to write down his "recollections" of his time on the Jallao *in World War II. Mr. Stegman was writing a memoir of the* Jallao*. Judge Weinstein provided the following information in a letter to him. The Naval Submarine League requested and received Judge Weinstein's permission to reprint his letter. The majority of the text is provided here with a few edits to correct typographical errors.*

Jack Weinstein was a civilian, who joined the Navy after the war started. He got out of the Navy after the war and became a lawyer and a judge. He has served as a federal judge in the Eastern District of New York and, although on "retired" status, continues to still hears cases. He recently celebrated his 97th birthday.

The USS Jallao *(SS-368) was a Balao class submarine. Keel laid 9/29/43 in Manitowoc, WI; commissioned 7/8/44 with LCDR Joseph B. Icenhower in command; arrived Pearl Harbor, Hawaii on 9/22/44.*

November 13, 1997

Dear Bill:

The numbered paragraphs are not in chronological order.

There have been a number of references to the *Jallao* in books describing submarine warfare in the Pacific. I am sure your librarian can get them. I believe one of them was a rather comprehensive summary, by the Navy, itself. Here are a few "incidents:"

1. After the war started, I tried to enlist in the Naval air force, but was turned down because of my allergies. I went to Columbia's 90 day midshipmen's school, then studied electronics for nine months at Harvard and MIT. The night I came aboard the *Jallao* after a short stint on a submarine tender at Midway, the *Jallao* was conducting final night maneuvers and training off-shore near Pearl Harbor.

The boat had come, as you know, from the boatyard in Manitowac, Wisconsin, through Chicago, down the Mississippi and through the Panama Canal. The original crew and officers were working together well,

but were, except for a handful, without combat experience.

The submarine forces had had little success with either the "SJ Radar," which was designed to pick up ships and other objects at sea level, or the "SD Radar," which was intended to find aircraft, but had a funnel-like "catch basin" that made it difficult to see low-flying planes.

The captain welcomed me as one of the first of the trained radar officers. Fortunately, there was an electronics mate aboard named Grieve, with whom I got along quite well. He had a good understanding of the circuits.

Shortly after we arrived on station that first night, the SJ Radar blanked-out completely. Since we were at close quarters with our "target" vessels in the dark, this was rather embarrassing, and somewhat dangerous.

Grieve and I went over the system using a technique which doctors use as a kind of differential, clinical analysis. We agreed that the central pulsar had completely broken down. Neither of us had ever heard of that happening before. Fortunately, there was a spare aboard. We replaced it in short order and the radar was quickly in full operation. This cemented my relationship with the captain and Grieve's relationship with me. From then on I had little trouble as a technical consultant. Whatever I said about any electronic equipment was accepted as accurate.

2. On our first patrol we were involved with other submarine pickets blocking the retreating Japanese forces after their unsuccessful approach to Leyte Gulf in their navy's attempt to attack MacArthur's forces landing in the Philippines.

Our radar was working better than it ever had before. We picked up a vessel coming up from Leyte Gulf, heading back towards Japan at over 32,000 yards. This was at or above the maximum for the SJ at the time. Our vessel was the first to pick up this signal and it notified the rest of the Pack. The other pickets also closed in on the nearby enemy. They agreed, however, that the *Jallao* should have the first crack at whatever this was.

The signal was extremely strong and had two peaks, which is something I had never seen before in connection with a vessel at that distance. The captain asked me what I thought it was and, without any knowledge on the subject, I said, "It looks to me like a very large destroyer or a small cruiser." It turned out, much to my surprise, to be a small cruiser. I was

aware of a personal heightened memory capacity as we came in. I could remember each range and bearing I reported and, contrary to my normal ability, was able to simultaneously estimate relative speeds and courses of their target.

We tracked the target during dusk. When it got dark, we were close enough for the final approach.

The captain came in semi-submerged so that he could continue to use the SJ radar as we approached. We sunk the vessel with the first spread of torpedoes.

It turned out that this cruiser had been somewhat crippled by our air-force. But it was proceeding, as I recall, at about 15 knots, which meant that if we had missed it, it might have just escaped destruction.

3. During one of our missions off the China Sea, east of Taiwan, we became involved in a terrible typhoon. During the storm, a whole flotilla of destroyers near us was blown over and sunk when they persisted in following the Admiral's directions to pursue what we were all then following – one of the last remaining Japanese battleships heading towards Japan.

The waves were enormous. I estimated they were at least as high as a 5 story building. When we were in the trough, we were surrounded by black water to an enormous height. At one point in the storm, one of the lookouts flashed by my eyes. I was the duty officer on deck with the conn. He started to go overboard. I turned and caught him by his ankles, hanging on while I shouted for the other lookouts to come down and help drag him back aboard.

The force of the waves when they hit the bridge was so enormous that if you didn't duck under the counter, it was like being hit with a sledge hammer on your chest and face, forcing you back against the steel bulkheads of the conning tower.

When I informed the captain of the danger, he secured all the lookouts and submerged. We went down over 300 feet. At that level the boat was still rolling to a considerable angle. Our captain had had the wisdom not to follow Com Pac's directions to pursue this battleship. Unlike the skipper of those destroyers, he had saved his crew and his ship.

Sometime after the captain died, I was in touch with his son, who was a major in the army stationed in Germany. I told him that the captain

had saved our lives. I had not only this event, but many other incidents in mind.

Captain Joe Icenhower was a fine sailor. Although, he was quite an aggressive skipper, he never put his crew and boat at unnecessary risk.

4. We were leaving Pearl Harbor after a very pleasant interlude near Diamond Head and quarters in the Royal Hawaiian. The captain had taken us over the mountain into the then lovely and underdeveloped side of Oahu. After he stewed the steaks in liquor and the crew stewed themselves, we had a wonderful carefree outing on the lovely, white, palm fringed beach.

At this time, as I recall, he implied that we would be going to Australia. This pleased me greatly, but I was puzzled why, as winter was approaching in the north Pacific and summer below the equator, we were loading on board heavy felt boots and the heaviest of outdoor clothing. Sure enough, when we left port, instead of turning south towards Australia, we turned north towards the Bering Sea for some of the coldest weather and nights that I can remember. I chided the captain on this and he pleaded "Secret Orders."

5. Despite the cold, the north had a beauty of its own. Sometimes the fog was so thick that you could see neither the bow nor stern. The water was, at times, flat calm and in the surrounding deep purple fog even the diesels sounded muffled and respectful of the silence and loneliness. At times, due to electricity in the air, every point on the hull had a light purple halo so we proceeded lighted up like a Christmas tree with foot-wide bulbs invisible to the world at large.

While we were in Southern latitudes, the minute diatoms and other microscopic flora and fauna, brightened our path with luminous flux so it appeared as if the ship was ploughing a lighted highway through the sea. My pleasure at the sight was always somewhat alloyed by the fear that Japanese planes could spot us from afar.

One night I was startled by a huge black glistening body suddenly rearing up about 100 feet off the port bow. I took quick evasive action before I realized it was a whale. During the war, while humans were killing each other, whales had some respite. I've seen many whales since, blowing and diving with their huge flukes exposed in the waters of Alaska and Baja, California. None ever made as much of an impression as

that first one.

I now seem to recollect hearing whales communicating with each other through the steel of the hull, as I lay in a bunk. But that memory is not reliable since I have read about, and heard recordings of, these sounds since then.

6. On one of our patrols which should have been very successful in destroying Japanese vessels, we scored no sinkings at all. This was strange. At one point while the ship was submerged, I was in the conning tower as duty officer. (Since I did not play bridge, I was often sent up on duty since the captain, who loved bridge, needed the officer on duty as a "fourth.") I had picked up on the periscope five freighters in a convoy. We made a perfect approach. All five of them should have been sunk since we were close enough and had a perfect set-up.

Unfortunately, however, we had loaded the new electric torpedoes. My recollection is that I was very skeptical of these torpedoes when they came aboard. I vaguely remember mentioning that to the captain, but the Navy did not want a mixed load of electric and steam torpedoes.

As you know, during the first year or so of the war our submarine forces had had terrible problems with the original steam torpedoes. They ran too deep. Their exploding devices did not work when they hit head on. They sometimes porpoised. It was only after these problems were corrected that the submarine forces began seriously to attenuate the Japanese war effort.

The captain assured me that the Naval Bureau had thoroughly tested these torpedoes. They had a great advantage in running more quietly and not leaving a wake. It turned out, however, that we fired every one of them and none of them exploded.

In addition to making for a useless patrol, this was extremely dangerous. At one point, after firing these torpedoes at a convoy, we were picked up by a Japanese destroyer. A shot down the throat of the destroyer would have been useless in view of the bad experience we had with these torpedoes, so we went down. Before we could get down sufficiently, the destroyer hit one of our periscopes and bent it over. It had also started to drop depth charges which shook up the submarine.

The Japanese destroyer must have felt the hit of the periscope, because it didn't stay around very long. Apparently it was under the im-

pression it had been hit by a torpedo which failed to explode. By that time enough attacks on Japanese destroyers and escorts had been successful, and there had been sufficient attrition of the Japanese navy, so that even their destroyers had become less aggressive.

When we got back to port, I was on deck while most of the crew and officers were on shore. Down the dock walked Admiral Lockwood. He looked up at the bent periscope and asked, "Son, was that done by one of theirs or one of ours?" I replied, "It was one of theirs, sir. A destroyer nicked us, before we could get down." He grinned and with a friendly wave said, "That's good, because if it had been one of ours, I would have been faced with an enormous amount of paper work." We both chuckled as he walked back down the dock.

7. During our passage through the Japanese mine fields into the Sea of Japan, I watched the proceeding on our new sonar. It was scary.

You could see the round mines a few feet in diameter as we went by. They were quite close.

This new sound equipment operated much like radar so that you could visualize the mines. It was not possible, however, to tell the depth of the mine. You never knew whether the mine was above, below or at just your level.

At one point we scraped one of the mine cables. We could hear it running down the hull as we passed. Had it been snagged on any part of the hull, it would have undoubtedly drawn the mine down to us creating an extremely hazardous condition. All the bulkhead doors were sealed and we were rigged for "collision" in case of an explosion.

8. When we got into the Sea of Japan, Guy Graham, our radio officer, and I were on deck. He came from the Northwest and I am told died rather early. He was a charming, lovely, dark skinned young man.

We got word from our radio that the first atomic bomb had been dropped. Both of us had taken some atomic physics. We speculated on whether the world would go up with the bomb since we weren't sure that you could control the "combustion." I jocularly indicated that if they hadn't controlled it, the whole world would have gone up almost instantaneously. Since we were able to discuss it, the bomb must have been a success. We both laughed, little realizing what horrors had been unleashed.

9. On the return from our first patrol, Gieseking, our engineering officer, was on deck facing aft. (Gieseking had a serious heart condition rather early in life and the captain mentioned to me on a number of occasions that he worried about him.)

In charge of the boat was an officer, whose name escapes me, who came from Eagle Pass, Texas. He too, I am told, died shortly after the war ended.

Gieseking turned forward and noticed a large air bubble and then the wake of a torpedo going down the side of the ship.

We had been fired on by a Japanese submarine. The officer in charge was completely unaware of the event. When Gieseking reported the sighting, the vessel, of course, went up to full speed to escape the area. We all recognized that this was a close call.

The officer was never thereafter a happy person. When we arrived for refitting in Midway, he drank more than he should, and was left ashore.

I rather liked him, even though we had a few run-ins. For one thing in cribbage games, where he considered himself a great expert, I invariably won, purely out of luck, and I kept making remarks, such as, "Is this the right move? What do you think I should do now?" Finally, he got so infuriated, he threw a metal ashtray at me. Fortunately, it landed flat on my ribs, or I would have been out of commission.

He did help me, talking about possible careers, and suggesting that the law would be good. He made some recommendations about schools. According to him, after he graduated from Pennsylvania University Law School, he had been selected to go to the Supreme Court of the United States as a clerk to one of the justices but he couldn't take the job because he had to go into the Navy.

I did send for some law books including the Common Law by Holmes. Those conversations, I think, helped me to decide to go to law school rather than to medical school or to study advanced economics or physics – all of which, I suppose, would have been open to me since I had a fairly good college record.

Another run-in with this officer was also somewhat amusing. When I came aboard all the officers' bunks were occupied. We had extra officers because of the need for somebody like me familiar with radar. So I had no assigned bunk. I used to have to sleep in free bunks while the officer

whose bunk I used was on deck. I would come down exhausted from my own watch and throw myself into whatever bunk was empty. This officer, on one occasion, apparently had gotten up for a few minutes to go to the head to relieve himself. When he got back he saw me in his bunk. He tossed me onto the floor and got in himself.

This lack of a bunk was a particularly difficult thing to live with. When we picked up wounded aviators, I did all my sleeping under the wardroom table, or on the deck without blankets, and without undressing.

10. At one point when we were on station to pick up downed aviators, a number of them were in the sea off a small island controlled by the Japanese. Our charts and "intelligence" indicated that the Japanese garrison had a gun with a maximum range of 15,000 yards. I was in the conning tower watching the radar since the captain was picking up the aviators who were in a small raft 18,000 feet from shore. He wanted me to make sure we stayed outside of the 15,000 yard range.

Suddenly there was great excitement on deck and everyone, including the wounded airmen, came tumbling down as we dove. The Japanese had straddled us with two shells that splashed water on the deck. Another shell could well have been a direct hit.

The aviators had wounds that were putrefying. The smell was sickening. Newly developed sulphur and penicillin soon had them on the mend. In earlier wars they probably would have died or had limbs amputated.

11. We were in the Sea of Japan. We drew back from the Manchurian coast earlier than our original orders required because the Russians came into the war a few days before they and President Truman had agreed they would. The Bombs had just been dropped and the Russians feared that Japan would surrender before they could invade Manchuria and the Japanese Northern Islands. As it turned out, we didn't need their help, but they put themselves in a position to assist the Chinese Communists in their struggle with Chiang Kai-Shek and his Nationalist armies.

After the dropping of the two atomic Bombs, we picked up on our radar a vessel traveling from the mainland towards Japan. It could have been a freighter or passenger vessel. My recollection was that it carried passengers, or, at least, was equipped to do so. The captain started a

submerged attack.

I approached him and said, "Captain, the war is almost over. That ship is probably carrying refugees from Manchuria back to Japan, including women and children – do we really have to sink it?"

He replied, rather sadly, "I'm sorry, Jack, but those are my orders. I have no alternative."

I suppose it was pretty nervy of me to do this. Had I not done so, however, this would have been a burden on my mind even more than it has been.

(Since that time, I have been to Japan and to that entire area. I was on a cruise ship, the Marco Polo, that covered the same area as two of our patrols – including Korea, Vladivostok, Tokyo, and other Japanese cities and Shanghai and Beijing. The Chinese and Koreans still hate the Japanese for what they did. I have also just returned from a series of lectures I gave in China. As a result of these trips those events became much more vivid in my mind.)

Shortly after we sank that vessel, we were very close to the Japanese coast when we were informed by radio of the end of hostilities. Again, I approached the captain and said, "Look, captain, you're probably the closest United States vessel to Japan. They have given up. They certainly will obey the Emperor – why don't we just land?" We could see the docks of the Inland Sea just a few miles away. "We could take over the whole Japanese empire," I went on.

The captain laughed. "I'm sorry Jack. I have no such orders. In any event, it might be dangerous." So, instead of taking over the Japanese Empire, we escaped from the Sea of Japan and turned towards the long voyage home.

That long trip back, where we sailed day and night for many days came back to me when we began to become heavily involved in the Vietnam War. I had three sons all of whom were available for the draft. I just couldn't see getting involved in such a faraway place in what I considered an unnecessary and losing war that would serve no purpose from our point of view. Some of my colleagues on the Columbia Law faculty, didn't see it my way. They had not had the advantage of understanding the huge distance between our country and Vietnam – both in terms of geography and background.

12. On our last patrol we had aboard a young African-American "messboy" to serve the officers. At that time, the armed forces were segregated and an African-American or Filipino servant could never aspire to higher rank. This young man was trying to study mathematics from texts that were available through a mail program. I also had a number of paper-back texts from Wisconsin University on Sociology, as I recall. I tried to teach him trigonometry.

The rest of the crew and officers were not helpful. (I, however, remembered the strong black longshoremen who were abused, but took no guff on the New York docks where I once worked while I went to college at night.)

Since then, of course, things have changed radically. Truman bravely risked losing the 1948 election (but picked up Northern black votes sufficient to beat Dewey) by desegregating the armed forces. (I detested Dewey because he had held up absentee ballots, I believed, and I could not vote in the 1944 election for Roosevelt.) I was on a tender in Midway when Roosevelt's death was announced. I wept, but some cheered.

John Higham has an article on "America's Three Reconstructions," in the New York Review, November 6, 1997, p. 52, pointing out that there was a great resurgence of aid for African Americans after the Revolutionary War, the Civil War, and World War II, followed by back-tracking. I observed and confirmed the truth of his thesis. During my early days of teaching at Columbia, I assisted the NAACP and Thurgood Marshall in the Brown case (being listed on the brief in the Supreme Court) and in other matters. I also helped as a judge in prison, school, and mental health institutional reforms and in discrimination cases. Now there is, as Higham points out, a shift back, but most "gains" have been retained even though there is a negative reaction to minority assistance. When I look back to what I observed in New York in the twenties and thirties, and what I saw through that messboy's eyes in the forties, I marvel at the change. I wonder if he was still alive to see the armed forces headed by an African-American.

13. I was astonished – and I think you may have also have remarked on it – that among the officers in the wardroom, even though we came from such diverse backgrounds and parts of the country, we had a common fund of knowledge from schooling and absorbed attitudes

toward life. We had read the same books in school and had the same general world outlook. You and I had roots in Kansas (I was born in Wichita) so that was probably predictable, but it was true of all the officers. Although there was a slight anti-semitism in the crew, I never felt it among the officers.

Of course, that was wartime, so we all had a common cause. Now, since the Reagan years particularly, we seem to have become somewhat more selfish and are beginning to fall apart.

14. I, personally, never had much animus towards the Japanese. As a boy, I had walked many times across the Williamsburg Bridge and watched the beautiful white Japanese Marus steaming up and down the East river to pick up scrap metal (some of which may have been in those depth charges dropped at us). I never dreamed that one day I would be helping to try to sink these lovely ships.

Despite Pearl Harbor, the Japanese Navy was often admirable, taking its cue from the British, American and its own warrior traditions. Their equipment and morale was excellent. During the early part of the war, they tried to pick up survivors of ships they had sunk. As the war wound on, these niceties were forgotten. The army was always cruel, of course. We were just too big and powerful for them.

I have had one of my books translated into Japanese and I respect their academics. We even own a Toyota Camry, designed in Japan, but made in Tennessee. They are now our allies, possibly against a resurgent China. It's going to be an interesting twenty-first century.

15. As you will recall, we used to say, "The Golden Gate by Forty Eight," under the assumption that there was not a great chance that we would ever actually return to the States alive. We did return in '45. What a thrill it was to sail in under the Golden Gate Bridge.

I went home to marry Evelyn. Four of the officers from the *Jallao* travelled together East by coach train. Captain Joe and I slept with our feet in each other's belly on that rattle-trap four-day train trip across the country.

I was very fond of Captain Joe. I spoke to him on the telephone from time to time and corresponded after he moved to Pennsylvania. His wife died after a lingering illness. He wrote a number of books for children, including one on submarines and a trip to Antarctica. I read a few of

them and they were fairly good.

Much to my regret, I never did get to see him face-to-face. I still remember the very fine letter that he gave me to help me get into law school and the silver platter that he gave to Evelyn and me on behalf of the officers and crew of the *Jallao* when we returned to San Francisco after our marriage.

In a speech at dinner greeting Evelyn, he said we were made for each other, which was very romantic. It turned out he was right in this, as in many other matters.

16. The analytical techniques I had learned in connection with radar also were useful in connection with the torpedo control equipment. I think it was called the TDC.

On one occasion it broke down and Guy Graham and I went over it, analyzing the blueprints. We discovered that one of the rods was broken. We got an electric drill and put a brace in, reconnecting the rod. This was kind of a courageous for us since that equipment was rather sensitive. But it worked. The captain encouraged us. He remarked, "When I heard that drill going I knew you guys had solved the problem – go to it." We did, getting a kind of joy in joint accomplishment.

On another occasion, Bobby Bown and his torpedomen had been checking over that TDC. It wouldn't work. They could not discover the problem. After a day or so, he asked me to take a look at it. I examined the diagrams and went up and looked at the equipment. It was immediately obvious what the difficulty was. One of the wheels, instead of slowing down when an electric signal was sent to it, speeded up. That meant that the wires were crossed. I told them to switch those wires and the problem would be solved. He thought I had to be wrong, since the crew had thoroughly checked the wiring. But he switched terminals and that did solve the problem. (He paid me back in San Francisco by lending me his golf putter, which I lost by putting it into a collection bin at the golf course.)

This was not great tribute to my reasoning. It was just an application of the analysis that I used in servicing electronic equipment. The approach has proven useful in the law: (1) find out what the problem is, (2) reflect on the theory, (3) develop a hypothesis, (4) check hypotheses against the facts, (5) adjust the hypothesis as needed to accord with real-

ity, (6) correct the problem.

17. When we landed for a refit after a patrol, the officers were allowed a certain number of bottles of wine and of whiskey each week. The men would have paid an enormous amount for them, but they were available only to officers at the officers' clubs.

Since I did not drink, I utilized my own store of liquor for the boat's benefit. At one point, changes were being made in the deck in order to install the sonar that would get us through the Japanese mine fields. I took the discarded teak wood from the deck along with a couple of bottles down to one of the shops. They made cribbage boards for each of the officers. I don't know what happened to mine or even if anybody kept them – but it did seem to me like a good use of my liquor.

I also had a piece of the hull – about 2-1/2 inches thick – cut out at that time. For years I used as a paper weight. During one of the many moves that we made after the war we lost it.

18. Another use of the liquor was on Saipan. Shortly after this island was taken in a terrible battle, we landed. While this island and the nearby Tinian Island were being readied for the B29 bombers to bomb Japan before the invasion, I took one bottle over to one of the army motor pools. The bottle got me a huge army truck for the day which I used to explore Saipan.

I'd learned how to use a large truck and its gear shifts while I was working while going to night school. Even so, I pretty much stripped the gears of that truck going up and down the hills and newly bulldozed roads. I returned the truck before the end of the day because I couldn't stand the smell of the bodies and of death that permeated that island.

I used some of my liquor at a B29 compound. There had been developed for the Air Force a series of monitoring devices that enabled the operator to tell us what type of radar was being used by the Japanese and whether it had "locked-on" to you. For a few bottles of whiskey, I got all the equipment and manuals from a B29 and brought them back to the boat, installing it with the aid of the electronics shop suitably plied with drink.

The device proved effective. We could pick up all of the radars as we went along the Japanese coast and the Philippine coast. The only trouble was that it scared everybody out of their wits as I would announce from

time to time that such and such radar at such and such location was not picking us up.

The captain wisely discontinued use of this B29 equipment. We went on without it. Ignorance was bliss.

There was once one Japanese plane that did pick us up, however. We were bombed, according to the pilot, although we dove before it arrived overhead. Tokyo announced our sinking. This proved to be a bit premature, fortunately. Pearl Harbor expressed relief when we denied by radio that we were dead.

19. Probably the most dangerous moment for me personally on the *Jallao* occurred one night while we were at Hawaii being refitted. I was the only officer on board. There were seven crew members on watch.

Before retiring, I came up on deck to check the lines. Sitting in a circle on the aft deck were all the men on board. In the center was a half-empty bottle of whiskey. I picked up the bottle and asked, "Whose is this?" No one answered. "As long as it doesn't belong to anyone, no one will mind if I dispose of it," I said, flinging it in a wide arc into the water. I then continued to walk aft to check the stern lines. Returning forward, and past the group which hadn't moved, I bid them, "Good night gentlemen." Silence.

Later I was told that the sailor carrying a 45, who was guarding the boat had reached for his gun to shoot me in the back, but was restrained by two of his companions.

I never mentioned the incident. The captain would have had to punish the men for drinking aboard. A bottle of whiskey probably cost a seaman about $35.00 at the time.

20. On one of our missions we were with a group of other submarines in a "Wolf Pack." One of our companion subs was sunk not far from us.

I lost a number of friends in the Submarine Service. The last night in San Francisco before I flew out to Pearl Harbor and Midway, was spent with two vivacious young officers. Both of them were lost in submarine operations.

21. Occasionally, I will hear from one of the men by New Year's card. I was in touch with the baker, Stanard, who, I think, opened a bakery in Buffalo. He and I got on well because I admired his baking skills.

After getting off the watch at 4:00 AM, he always had fresh bread and butter and coffee for me. That, pickles, ice cream, and canned grapefruit was about all I ate after a few months on patrol. The captain raised his eyebrows at my preference for pickle sandwiches instead of steak, but probably thought it another New York idiosyncrasy and never remarked on it.

After the war, the Petty Officer in charge of our dispensary opened a pharmacy on Amsterdam Avenue. Once in a while I would drop in to see him when I was teaching at Columbia. I don't know what happened to him after he sold that pharmacy.

I would like to be in touch with some of the officers and men. It will not be very long before we are all gone. I therefor applaud your attempt to write the memoirs of the *Jallao*.

With all best wishes to you and your family, I remain,
Sincerely yours,
Jack B. Weinstein
Senior United States District Judge
Senior Lieutenant, U.S.N.R., (Ret)

WORLD WAR II SUBMARINE HISTORY – CAPT MAX DUNCAN AND THE USS *BARB* (SS-220)

Following is a slightly edited transcript of an interview with CAPT Max Duncan, USN, (Ret) The interview was conducted in Savannah, GA in May of 2014 as an oral history for the Naval Submarine League. Some explanatory notes have been provided by the editor in brackets.

Interviewers – RADM Tom Robertson, USN, (Ret) and CAPT Jack Mead, USN, (Ret)

Max Duncan was a member of the crew of the USS Barb *for four war patrols, under Commander Gene Fluckey who received of the Medal of Honor and four Navy Crosses. Max served 23 years in the Navy, had three major commands, and received a Silver Star. In 2015, Max attended the Naval Submarine League's Annual Symposium and participated as a Living History Exhibit, regaling attendees with his sea stories. In January 2017, Max passed away. He was a member of the Naval Submarine League Legacy Society (people who have made a bequest to the NSL in their estates), so the NSL has planted a tree in his honor at the US Naval Academy.*

The USS Barb *(SS-220) was a Gato class submarine. Keel laid 6/7/41 in Groton, CT; commissioned 7/8/42 with LCDR John R. Waterman in command. She had 12 war patrols, with Rear Admiral Gene Fluckey, then a Commander, in command for her last five. On the last patrol, the crew blew up a train, which was the only combat action conducted by Americans on Japanese soil during World War II.*

Interviewer: So, Max, for starters, could you please talk about the circumstances of your interest in the Navy and in becoming a submariner?

Duncan: Yes. I was born and raised in Western North Carolina, a small town, Forest City. And I wanted to go to the Naval Academy when I got out of high school. I wasn't old enough. I had to wait a year. So I went to The Citadel for a year and I ended up with two plebe years,

going to the Naval Academy in the summer of 1938, Class of '42. And my interest in submarines really started at the end of my first year at the Academy, plebe year. During June week (with my future wife and my fiancé since we were in kindergarten together), they had an O-boat [a class of submarine] at the Naval Academy. And we went down on board, and they were cooking navy bean soup, and that navy bean soup and submarines sold me. I wanted to go into submarines. When I graduated, at that stage of the game, the rules were that you could not go into the submarines or go flying until you had two years at sea on a ship and qualified officer-of-the-deck, and the engineering, and all the requirements of ensign in the 1930s. And therefore, I had to go to a surface ship. Also, in those days, the assignments you got from the Naval Academy when you graduated were determined by lot. And you drew a number. In my case, 1 to 564, and I was fortunate enough to draw number 20, which meant I could've had any duty station that had an ensign requirement in the Navy. At that stage of the game, the war was going to be in Europe in the Atlantic, and therefore I wanted a new light cruiser, east coast. And they gave me such a new light cruiser, it hadn't even been built yet!

So they sent me to an old cruiser, and I went to the *Milwaukee*. We patrolled in the South Atlantic in the 4th fleet. I kept trying to get off and go to submarine school, because all the rules were lifted on April 1, 1942, including the requirement that you couldn't get married. So I have a lot of classmates that were married shortly after 1 April of 1942. Finally, we got an exec on board this cruiser, that had been a submarine skipper in Manila during the beginning of the war, but he was one of the submarine skippers that didn't quite cut it during the earlier part of the war, so they sent him back to surface craft, and he was the exec of the cruiser. But he was very understanding when Gene Barnhardt, my classmate, and I wanted to go to submarines. He got me to go into submarines in late '43. Of course, when I went to sub school, I was a full lieutenant and therefore had time at sea. Most of the class were very junior officers that had just come into the Navy. Upon graduation from sub school, I went out to Midway to get in a relief crew, because I was a so-called senior officer at that time and entering the submarine force, and most of them were billets for ensigns. But I was fortunate because Gene Fluckey came in and a classmate of mine was going back to new construction. Captain Fluckey

agreed to take me, and that's when I fell in the briar patch.

Interviewer: So, Max, please describe your path to qualifications in submarines.

Duncan: Well, as I said, I had been qualified as officer-of-the-deck on the cruiser and had all the sea-going stuff. One of the things that I always appreciated very much is both Captain Fluckey and the exec Bob McKnitt were very generous to me, in the sense that I was standing top watch officer-of-the-deck before we got to the South China Sea on my first patrol. [Later in this interview, Max will refer to his first underway, which preceded his first patrol.] I had only been aboard probably about a month, because it's a long way from Pearl to the South China Sea. In those days, we had to do it at slow speed. So the first patrol, I was qualifying in the various places on the boat and all the systems in those days. Why? The boats were such that you had to be able to operate everything on board and know everything. And today, why that's very difficult in some of the large, particularly the Trident, boats. And even in the SSNs, why if you're not qualified nuclear, you have a handicap and not being able to cut it in the Engineering Department. But in those days, why you had to be able to do everything. And of course, one of the fancy questions in those days is how to blow fuel oil out the whistle. And if you knew all of the piping line-up, you could do that. But it in any case, my first patrol was an unusual occurrence because we had an officer that was out of the class of '39 that had been a PT boat skipper in Manila and was a double Silver Star winner when he came aboard. He didn't quite fit into the submarine. He was supposed to be Exec, the next one, but he didn't quite make it. And Gene didn't qualify him. Therefore I didn't get qualified until my next patrol, when I got qualified in like what, November '44 or September or October - somewhere along in there. I got qualified because I had gotten examined by two division commanders in Midway. That included, of course, in those days, going out and doing a practice approach of firing a torpedo, which I always enjoyed. I was fortunate enough after the war to be exec of a boat where the skipper had been a wartime skipper, and he didn't want to shoot torpedoes. I got to fire all the practice torpedoes.

Interviewer: Well, talk about your shipboard assignments.

Duncan: When I first went aboard, I was a first lieutenant and assistant torpedo gunnery officer. My job in battle stations was to operate the right hand edge of the TDC [Torpedo Data Computer] doing the firing and setting of the spreads and so forth. And from there and for the next three patrols, I was a TDC operator, and my battle station was TDC operator. And of course, one of the big things in my case, torpedo and gunnery, when we came into the Navy yard after the 11th patrol, we swapped our 4-inch gun that was mounted forward for a 5-inch gun, a wet gun, in the aft part. And of course, we also installed our missile firing.

Interviewer: What is the most memorable thing that you remember about your initial reporting to the *Barb*?

Duncan: Probably the degree to which I was welcomed into the *Barb* by all the shipmates, officer and enlisted. When we came aboard, you were immediately assumed to be part of the family, so to speak, and they wanted to help you in any way they could for you to learn in a hurry, so you could hold up your end of the bargain, I guess you'd call it that. And what it was, it kind of validated what I saw in that old O-boat back at the Naval Academy, in that this was a tough, small, family group that were very serious about their jobs, but were also very helpful as shipmates.

Interviewer: Well, let's pin down the time accurately here for when you reported to the ship and *Barb* is preparing to go on, I believe, patrol number nine.

Duncan: That's correct, I came aboard in Midway when the boat was scheduled to go back to Pearl Harbor for upkeep. So my first underway, was from Midway back to Pearl, and then I had that very tough assignment of an upkeep at the Royal Hawaiian Hotel. And never having made a patrol, I got in on the good part of it to begin with. From there, we left on the 9th patrol, stopped in Midway for fuel, and then proceeded to the South China Sea.

Interviewer: Now Max, most authors that we have read have described the atmosphere onboard, particularly onboard successful submarines in World War II, as sort of free of discipline problems. Was that really your experience?

Duncan: Oh, very much so. As a matter of fact, there are stories of Gene Fluckey having one of his men brought back to the ship by shore patrol in Pearl for wearing his hat on the back of his head, and his responding to the people when they asked him with, "Oh, I'll get him a summary court martial." This was passed up to Admiral Lockwood in SubPac. He called Gene up and said, "Gene, you're getting too tough. We've got to relieve you." Gene laughed and told him the story that he didn't do that. He says, "As a matter of fact, we don't have a mast book anymore on the *Barb*." If you really think about it, everyone was so interested in continuing the success of the *Barb* that any problems we had in the men, why our Chief of the Boat probably handled those. I had never really ever heard of any significant disciplinary problems.

Interviewer: Well, your first patrol on *Barb* would be patrol number 9, and that must've really had an impact on you. Could you walk us through that?

Duncan: One of the things that I have used to describe Admiral Fluckey is decisive, and I'll talk about those [things] later. But right now, we went to the South China Sea as part of a Wolf Pack. As an officer-of-the-deck, one of the things that I saw was, the *Tunny* get bombed, and her forward torpedo tubes all screwed up, and she was sent back. I think they decommissioned her. That made an impression upon me and all the lookouts there, that you better stay awake or you may not be able to be here. But we got a message to proceed at best speed to the western part of the South China Sea to pick up POWs that had been sunk on a ship. We're not supposed to have POWs aboard and try to pick up them up at sea. We started across there and one night we ran into a [Japanese] Navy task force. As we, on our way, approached her, why it soon became obvious that the center was a large ship and two other large ships. And so we went in on a night surface approach. Just before we were ready to

fire, we saw that it was a carrier and overlapping oiler with, at that stage of the game, a destroyer bearing down on us. And when it got to about 900 yards, we fired six torpedo tubes forward and ended up hitting the *Unyo* with two or three, and the overlapping carrier with one or two. And therefore, we sunk both of them with one six torpedo salvo, probably one of the heavier salvos of the war for six. And by then we pulled the plug, and the destroyer went overhead and didn't even drop [depth charges]. And why I say that, is because the skipper made decisions on a very short leash and convinced me he was one very decisive guy.

Then we got up and went over [to rescue the POWs]. Because our navigator, the exec, Bob McKnitt had seen an article in the Naval Institute about how to [measure the effect of] the currents, and because these guys had been on the water for some five days, he had to predict where they would be after five days with the wind and the currents. We went up there, and by golly we found them! And we rescued 14 of them and brought them back. That was towards the end of the patrol, and we brought them back and offloaded them at Guam. The night before [we arrived], they stayed up all night eating because they didn't know whether the next people would feed them or not. It tells you something. This was a group that had been doing the bridge on the river Kwai. Ten of them were Australian, and four British, I think. And a couple of those guys came back to a reunion of the *Barb* some 30 years later. Those were the two instances of the night patrol that really bear on me.

Interviewer: Now at some stage of the game, you became the officer responsible for ultimately making the torpedoes ready.

Duncan: That's correct. Yeah, I did that - yeah, even though I was only the assistant, even during the 9th patrol.

One of the things that is really important is the recognition of success. If you were a successful skipper in World War II, you could get anything you wanted. If you weren't a successful skipper in World War II, you got what was left over in the way of areas and everything. As a result, on the *Barb*, I never fired a Mark 14 in anger; we got all Mark 18 torpedoes. We even had that happen on one load. Why, they only had about 35 of them on Midway and we took 24 of them. What I'm demon-

strating is that the successful skippers were recognized as such and given opportunities to do even better.

Interviewer: The performance of the Mark 18 was much improved.

Duncan: Well, the Mark 18 is, as you know, an electric fish and it's only a 30-knot [34.5 miles per hour] fish. But the depth control and the other problems did not exist. However, as we found out in the last patrol, the 12th patrol, they were affected by the sea temperature, and we did not have as good a success with the firings on the 12th patrol as we did the other patrols.

Interviewer: Because of cold water?

Duncan: Because of cold water, apparently. That's kind of the end of the war. And we also fired some acoustic torpedoes on the 12th boat, but we'll get to that later.

Interviewer: Max, I'd like to ask you now, to what do you attribute the remarkable success of *Barb* in avoiding trouble?

Duncan: I can attribute that to, primarily, the decisions and the leadership of the skipper. But I also must attribute that to the far-sightedness of everybody on board, the crew. By that I mean that we had very few significant maintenance failures on patrol. Even though the equipment in those days was not the reliable thing that it is today or the amount of it [that there is today], our people were extremely good in making sure that the equipment didn't fail at the wrong time. I guess, you get into a comparison between the General Motors and the Fairbanks engines. The General Motors engines would have more failures, but were easier to fix. The Fairbanks engines had far fewer failures, but were much harder to fix. In the future, of course, I had command of both types. But specifically, the *Barb* was able to avoid - well, we didn't avoid trouble, because we got a damn near record of depth charges dropped on us - but how we were able to get around it, I take most of that credit. The actual combat goes to the capability of our skipper.

Interviewer: But I don't recall the *Barb* having suffered any significant damage from those depth charges, which meant that somehow you played defense well.

Duncan: That is correct. But of course, what's interesting is that after they left the patrol, we were in the yard. They installed a new machine in the conning tower called the Depth Charge Direction Indicator. It will tell you whether the depth charge, with microphones around, will tell you whether it's up above or down below or right or left. The only thing I can remember is when we got in that fight with the damn destroyer on the 25th of June 1945. And that number is buried in my head because I thought we bought the farm that day. Well, the depth charges go off and every light in the damn machine would go off. But we had antennas blown off and stuff like that. I mean, the ceramic parts of the holders. But basically, the choice of depth and course and speed to avoid attacks, those, in all cases of course, were decisions of the commanding officer.

Interviewer: Well, maybe you can lead us then into the following patrols.

Duncan: Patrol number 10 was in the East China Sea, that is the northern part, up from the southern part of the entrance of the Sea of Japan and around the peninsulas and so forth. And on that patrol, one of the big things is that there was a rough weather patrol. We had pretty rough weather practically the whole time on the patrol. That's when Gene started approaching convoys differently. Rather than trying to go in on the bow and go through the escorts and get a shot and go out, why he wanted to come in on the quarter, and then go out on the beam, and then circle around and come in on a quarter. And that way, you'd have a much faster turnaround to shoot again.

The other thing was, then we were in rough weather, making a submerged approach at radar depth, to be able to get an accurate picture of the range for the ships. The only other thing is that on that same patrol, we also found another Navy task force. And this carrier, we picked up at a very long range for our radar. Our radar was superb because of our radar officer and our radar techs. We got a lot of long ranges with our

radar. Again, that's because of the expertise of the people on board that make the equipment the best they could. We picked [the carrier] up, and we had this thing tracking it like 28 or 29 knots. Of course, we couldn't do that if we couldn't close. We finally fired at about 3,000 yards, and we maybe got a hit because he slowed down for about 20 or 30 minutes after the torpedo should've gotten there. Then he was back up to speed and he was gone. We were waving goodbye.

The other thing was is in the port of Sasebo. There is a lighthouse out of the entrance to the channel, and we observed that that lighthouse's light was turned on when they expected ships to come in. So we saw the light on, and we went up there. Sure enough, here comes a ship that was called an auxiliary cruiser because it was a merchant ship that was converted with more guns and one thing or another. We made an approach on that ship in the early morning hours and got a hit, but only one hit out of three. That slowed him down. Then we went back in on another approach and went in rather close and fired a couple of more and did him in. That was an auxiliary cruiser that we got; that was the best bag on that particular cruise. That was the 10th patrol. We did end up firing all of our torpedoes and sinking three or four other ships, but the things that I remember are: the bad weather the whole cruise, the chase for the carrier, and the sinking of an auxiliary cruiser going into Sasebo.

Interviewer: Well Max, you've talked several times about the quality of people you had, the radar techs being able to keep your radar peaked and that. In World War II, was it possible for qualified submariners to try and sort of angle for transfers to the more successful ships like *Barb*?

Duncan: The kind of reverse. It was hard as hell to get everybody to leave the *Barb*. You have to understand that we were having new construction, and therefore, they needed at least some crew to go back to man it for the new construction. And therefore the normal rule was that you went back to new construction after four patrols, which meant that we would have to turn over maybe 20 to 25% of our people. We had an awful hard time getting any volunteers to do that. The Chief of the Boat at the end of the war made all 12 patrols on the *Barb*. There was a torpedoman onboard that made all 12 patrols on the *Barb*. There were quite

a few people that made patrols 7 through 12. By the same token, it was certainly true that we had people when we were in Midway or in upkeep that came over and wanted to join the *Barb*. But I'm sure that happened to a lot of successful boats. People like to go with a winner.

Interviewer: Well, this may be too hard a question to deal with, but aside from Captain Fluckey and obviously yourself, is it possible for you to sort of name some of the people you think were the real key leaders in making *Barb* so successful over a long period of time?

Duncan: Yes. One of the guys is a guy by the name of Tuck Weaver. Tuck - this was his third submarine he was on - was a reserve officer. He graduated from the University of Illinois in 1940. Came into the naval base, a couple of patrols on S-boats and another patrol, and came to the *Barb*. And Tuck was the officer-of-the-deck for battle stations on the surface attacks at night. Tuck is another cool customer. And while the skipper always stayed on the bridge and had the exec in the conning tower for surface patrols, surface attacks, why, Tuck Weaver is the one that kept the bearings coming and kept the information coming. Tuck made patrols through 11, I believe.

Another guy that we mentioned earlier is Dave Teeters. Dave came aboard and he made all five patrols with Gene Fluckey, he's the only officer to do that. He was a communication and radar officer. Dave was an extremely intelligent guy that knew how in the hell that radar worked. He was working with the ETs [Electronic Technicians], or we called them RTs, radar technicians, in those days. He would work with them and keep our radars peaked up. And that's extremely important because at night to be able to get long ranges allows you to make good approaches. After the war, Dave went to UC Berkeley, got a PhD in physics and worked for Bell Labs in Red Bank, New Jersey for many years. Dave was an extremely intelligent guy. Sometimes I think Dave would have trouble with bus schedules, but he is another sharp dude.

The other guy, several patrols before, of course, was our Exec, Bob McKnitt, on the 9th and 10th patrols. And above all else, Bob was a navigator. I think I've told you how he predicted where the people are going to be after five days on rafts and turned out to be correct. Bob was an

extreme guy. He's the only guy I know that's smart enough to turn down a wartime command to go to post-graduate school and still make flag.

There's another guy that was with me and was chief engineer, a guy by the name of Paul Monroe. Paul and I turned out to be very close on board. And Paul was the engineer. And Paul was from California, went to, I think UC Berkeley. And Paul got out of the Navy after the war and died at a very young age. Those are the three.

And of course, we had, one of the guys I have to mention is our Chief of the Boat, Switch Saunders. He's the guy that made all 12 patrols of the thing. Gene Fluckey wanted him to be Chief of the Boat and he says, he didn't want to be Chief of the Boat. And the Captain says, "You'll make a good Chief of the Boat." And he was a superb Chief of the Boat. He's probably one of the more decorated, enlisted submariners of World War II, having two Silver Stars, a Bronze Star and a Navy Commendation medal, as well as a medal for helping pull people out of the water for POWs. Those are some of the individuals that I know of.

I will say, coupled with Dave Teeters was a guy by the name of John Lehman who was an RT, radar technician. He also is a guy that kept the log of the radar contacts that showed our attack in the 11th patrol. And that radar log is in the Navy Museum in Annapolis today.

Interviewer: Well, I know that the 11th patrol is the one that most people know most about.

Duncan: Yes, 11th patrol. But I will say that in my view, the 12th patrol is more historic, but we'll get to that when we get to it. The 11th patrol, we were again part of a Wolf Pack. And we were in the East China Sea, but down near the entrance to the Formosa Straits between Formosa and the northern part of the East China Sea. And that time we had a Wolf Pack of *Picuda*, *Barb*, and *Queenfish*, with Elliot Loughlin under *Queenfish*, being the senior skipper and the Wolf Pack Commander. And those days, that's when we started getting ultras [messages from having broken the Japanese code], which told us when the ship convoys were coming through and what their routes were and so forth. And we got an ultra which said that they're coming by. And by the way, that was also the time that we were there to bottleneck the ships going down to the

Philippines, because the Philippines campaign was going on. And the Japanese were trying to replenish their troops there, of course. We were there and each of us was assigned a position. And our position was to the west on a three boat limit. And the time came and we went to look for the convoy. And nothing; we didn't find them. And we knew that that information had been good. Therefore, they had to do something different. And the skipper went to the ward room and broke out the charts and kept looking. And he says, "You know, the only thing that they could've done was to come up the inland coast of China. But in order to do that, Hainan Straits had to be dredged." So he sent a message to the coast watchers in China and asked them, "Has Hainan Channel been dredged?" Two days later, they came back and said, "Yes." Therefore, it's possible for this to happen. He says, "That's where they got to be going." So we went up and got about 20 miles off the beach and head north, and sometime in the afternoon, sure enough, saw smoke close to the beach. So he says, "Okay, we'll go down there and there's a hole in the island chain and we'll wait for them and get them down there." We waited for them down there and they didn't come. Therefore they had to have stopped some place. So we moved in closer to the beach and started up. And when we rounded Incog Island, the radar operator says, "I've got 30 ships in the harbor in three lanes." And now they're in there. Well, now that poses a problem because there's only 30 feet of water in there or about five or six fathoms of water. And you got minefields some place and you add an island in there. And so what do we do? Well, he looks over there and there's a bunch of Chinese fishing boats. One of the nice things, where the fishing boats are, the mines aren't. So we go into Namkwan Harbor and sure enough, there is that golden target in front of us, and we only had four torpedoes forward. So we fired the four forward, turned around and fired the four aft.

And then we pulled that well-known maneuver of getting the hell out of there. And in order to do that, by that stage of the game, why, we had been suspected, and there was a couple of destroyers firing all over the place. And we thought one of them had found us and was heading for us. And we went out through there. And Gene sent everybody down below, and he took the conn up on the bridge. And we went out through a rather junk fleet, kind of like broken field running right and left. And we

got out of there and that's how the story goes. And it's true that he told the engine room to give us all they got. And he sent a man down on the lower flats [lower levels] of the maneuvering room and put his hand on the bearing and it was too hot to hold. Well, back off two turns. And the story is, and I've told this many times, we recorded 23.5 knots in a Gato-class boat. Now in the meantime, of course, we had the low pressure blower all the time to keep the water out of tanks to get us the speed. But we went out 20 fathoms and dove and had a nice rest.

And that particular patrol is not important for the number of ships sunk, because, as a matter of fact, JANAC [Joint Army Navy Assessment Committee] only gave us credit for one ship sunk there. And the reason for it, of course, is that the system was such that once the ship's convoys went into harbor, why they took them off the listing. But the real important thing was, we interrupted the whole chain that they had for replenishing the Philippines. And we suspected, they were really scratching their heads and went back out to sea. And probably the other boats were able to pick them off when they got out there. And from there, of course, we went to the Navy yard for a two month overhaul, I guess.

But that was the 11th patrol. And for that patrol, why the skipper was the recipient of the Medal of Honor. The *Barb* had been already recommended for the Presidential Unit Citation [PUC] for patrols 8, 9 and 10. But a classmate and friend of Gene Fluckey's, Dusty Dornan, was Admiral King's EA. And Dusty told Gene he did him a favor and included the 11th in there. Even though, the 11th, of course, would've been a PUC all by itself. So that's one of the short changes. The other short change, of course, is that Gene Fluckey went back to Namkwan Harbor in the early '90s and talked to old men that were young boys when that attack took place. They said there were six masts out there in the harbor. So supposedly we sank more than the one ship we got credit for. But okay, he still ended up as the top tonnage sinker in World War II.

Interviewer: Max, you've talked a lot about how much you relied on your radar, and we've, of course, read that from other sources. How undetectable did you feel or think that your radar was in use against the Japanese?

Duncan: Not too much because they really weren't very good at their business. We did have some trouble being able to, well, first of all, we later had an air search radar, you know. And I'm talking about an SD we had, which is a single-prong lobe. I don't remember the technical details, but that was one that just told you there's an aircraft at an approximate range, and you didn't know the direction or anything. As far as I guess normal surface ships and convoys, we never felt that they contacted us because of our radar usage. I do think that we did see some indication of the homing in on our radars by some of the aircraft; but not much. Gene Fluckey's idea was, if you see an aircraft and you dive for it, don't stay down more than 20 minutes because if he didn't detect you, he's gone in 20 minutes. And therefore that's why the *Barb* spent most of their time on the surface. And of course, as you also appreciate, when you're on the surface your visibility to detect targets is increased by many-fold, because of the difference in the height.

Interviewer: So, you go back to Pearl for re-fit and R&R?

Duncan: We went all the way to Mare Island. We were there for two months, and half the crew got 30 days and the other half got 30 days. I was in the first half with the skipper, and the exec and the 4th officer were in the second half. I had gotten married. In December '43 we went back to Florida and got my wife's father and family, mother and father, and drove back up to North Carolina, our home. And then, Trilby and I bought our first car, drove cross-country in 1945, stopped and went down into the Grand Canyon on mules and so forth.

When we arrived in Mare Island, they had taken off the 4-inch gun and put the 5-inch gun aft, and installed a radar periscope and put in larger stills so we can make more fresh water. Those are the three things I remember. Also, I think they replaced our air compressors that were a major piece of problem equipment up until then. Then we came back to Pearl.

When we got back to Pearl is when Gene had been talking with the first gunnery officer and wanted to get some missiles. He saw the missiles that were used for the pre-strikes for amphibious landings where the LCMRs [medium range rocket ships] gave these big things. And he says,

"That's what I want." So we finally got a launcher that we mounted on the platform of the old 4-inch gun forward, and floated down and bolted it in place so that it goes right over and across the bow. We also put telescopic sights on our 40-millimeter up forward, so we could use that as a gun against small trawlers. We didn't get all our missiles. We asked for 144 missiles, but we only got 72. There's a 5-inch spin stabilized rocket that comes in two parts, the missile and the rotor. The reason that that's true is that we didn't have enough space in our magazine to put the whole thing in there, so we had to put the aft end down on the magazine, then we put the forward end in skids in the forward torpedo room.

Interviewer: So as weapons officer, I guess you were in charge of all of this stuff.

Duncan: You got it. And of course, I have to tell you about the famous story on the firing. This is the way that the 5-inch spin stabilized rockets are fired in a bank of 12: six on the side with an open gate. That is, when this side goes, the gate opens and the other side goes. They fall down and hit a bronze firing key pin that goes into a firing band on the stern, on the rear end of the rocket. That's an electrical firing pin, and therefore you have to have electricity for that. Well, on the *Barb*, where do we find electricity? So I asked the guys, I said, "Okay, we can use the water-tight and sound-powered telephone jack top side for the firing-pin lead in. When it gets into the conning tower, what do we plug it into?" He says, "Well, it uses 12 volts." I said, "Well, we don't have 12 volts. We got 24. Can we use 24 volts?" "Yeah, I guess you can." I says, "Well, we have 110 up there. Can we use 110?" And he thought and he said, "Yes, I guess you could." So rather than 12 volts, we fired our rockets with 110 volts, which if you appreciate, gives it a better goose, if you will. So then, we put in that circuit. The gyro-setter firing pin that goes into the forward torpedo room has a trigger on it. We had a spare one of those, and we put that in the firing circuit from the conning tower to the missile launcher. My job was on the periscope, holding the firing pin. When the skipper hollered "rockets away," I'd pull the trigger. About five seconds later, 12 rockets would be on their way. Now, how do you aim the rockets? Well, you aim the rockets with the boat, because of course, they're

spin stabilized, and therefore, they process 3 degrees to the right. So you aim the boat 3 degrees from where you want the missiles to go. If you set them at maximum range, they go 5,250 yards. They have a CEP [Circular Error Probability] of about 100-150 yards for 12 missiles.

We fired the first missiles against a little town on the northern coast of Hokkaido called Shari. That was a waterfront with a lot of warehouses and stuff. We did that at about 2:00 or 3:00 in the morning. After we fired them, we turned around and got the hell out of there. Turns out that they thought it was an air raid, and they moved a whole anti-aircraft battalion up there to protect against those air raids that had come up. But the main story of that is how do you take something that isn't part of your basic structure and fit it in so that you're able to use it effectively. Now, that's what we did. I'm telling you what we ended up with, and I'm not sure that I thought of all those things myself. Don't get that impression at all. But at any rate, that was how we fired the first ones. As I mentioned earlier, we do have a tape of that, and the Naval Submarine League has a video of it.

Then we got on up there. This is toward the end of the war. And most of the Japanese were moving their stuff by small boats, not big ships. So the big thing is to stop their traffic, you had to really knock off all these spitkits [little boats]. So that's what we used the 5-inch gun for and the 40 millimeter, and we sank about 40 of them. But in the process of doing this, we also found a place where they were building these trawlers, a shipyard. So, I can't recall where in the patrol we did that, but we fired the remaining 5-inch shells we had into that shipyard, and some 40 millimeter. We started a fire and burned the whole damn shipyard down. When we left the shipyard after the firing, we fired three more attacks of rockets on various other buildings in two other places. One of the places was obviously a large factory because of the size of the smoke stack and everything. For that one, we sat there and unloaded three loads of rockets, all we had. Well, we had to cut short because we used four of them to test the firing on the way to Midway. So where we really only had 68 rockets to fire at the enemy. And we fired three there, and that darned place burned for two days. Because these would start fires; that's what they do. They weren't that big of a thing.

In the process, we were watching Patience Bay and its mountains in

the back. Along the coast there was a railroad track. We'd see that and we were in there trying to intercept the ships that would come around the coast and so forth, submerged. And we'd see the trains, and the skipper got a thing with trains. You know we've got to figure out, how are we going to get that train. Part of Gene Fluckey's thing is what I call inclusiveness. He was inclusive. He wanted everybody's ideas. So he put out the word, how do we sink a train? Well, Billy Hatfield was an electrician, and had worked on railroads. He was one of the Hatfields of the Hatfield and McCoy clans. He said he used to crack walnuts on the railroads. He does it because when the train goes over the tracks, the cross ties sink into the ground. Therefore, if you want to do a train, rather than to put a walnut under there, you put a switch under there and let the train blow itself up. That's exactly what they did. We took one of the 55 pound demolition charges that we carried to blow up the boat in case we lose it. We had a party of eight guys and Gene picked them out. Only single guys were allowed, and therefore, I was ineligible because I was married. I felt bad; I would've loved this job. But anyway, Bill Walker, our chief engineer, led the party ashore. He had the Chief of the Boat, and then we had a torpedoman. We had a motor machinist, we had a cook, and we had Neil Sever, the youngest aboard. He was a signalman. I aided them going to shore. They had lookouts up and down the track and lookouts up and down the beach. They had Neil Sever to stay there, and three people to dig the hole and put it in there. On their way back, the lookout said, "There's another train coming up the track." The train arrived at the spot when the party was maybe 200-300 yards from us. I was standing up topside and I said, "Oh, hell, it didn't work." Well, I was about five seconds too slow, because about five seconds later that damn thing blew up, and it was one hell of a blast. That probably disrupted the stuff up there for quite a while until they got that fixed. What was important, of course, is that by moving things out from the main islands of Japan, they were trying to disperse their manufacturing and everything to other places. That's why that damn train track was so busy all the time.

Interviewer: So Max, this is patrol number 5 for Commander Fluckey. How much aware were the troops that their skipper had been in sort of a wrestling match with Admiral Lockwood to get special permission

[to go on a fifth patrol]?

Duncan: We didn't know that. You know, and I've thought about that myself, if we did know that before? And I think we had a hint of it, but it wasn't known. We knew the skippers normally were four-patrol skippers. And we also knew that, well, I didn't really think of it, that Medal of Honor recipients, they don't send them in harm's way again. That's kind of the normal rule all over. It's like they don't send brothers together on certain ships and everything. But in any case, I don't think we were aware of it. We wanted him to make the 5th patrol too. But all of us enjoyed that part, because Fluckey took us to sea. We had a great time. We had good success. And he brought us home.

Interviewer: You have talked several times about the inclusiveness of discussions in the crew, and that there would've been such a thing at this point. What sort of thoughts were there, say in your mind, about risks versus rewards in this particular evolution, that is the risks to not getting the people back, to the tactical rewards?

Duncan: Gene Fluckey, one of the things he says, "Do the unusual, but never do the unusual twice." He says, "The second time, they'll be ready for you." So an awful lot of the things that we did were unusual. Why, they were things that were just so far out that they didn't suspect that anyone would be thinking about. Well, just like when they fired that [missile], why they brought in the anti-aircraft crews. Nobody thought that the submarines would do that. It did turn out by the way, that the *Barb* was credited in the San Francisco paper with a chart that showed the U.S. Pacific Northern Fleet coming down and bombarding the people in northern Hokkaido and the Karafuto, when it was of course, the *Barb*'s missile fires that did that. Sending a party ashore and the planning involved and the thing, no one ever really thought we were taking as much risk as we probably were. For the attack in Namkwan Harbor, no one thought about the fact that, hey, there's just a lot of things that could go wrong when you go into 30 feet of water and start firing torpedoes and have to come out through a minefield. I would agree there. But, I don't know; everyone had the confidence that either they or the skipper had figured out this was a reasonable risk. Of course, you know, since

it was successful, it was a reasonable risk. Whether or not that would be considered in another context, I don't know. Yeah, I understand your point, and it's well taken, and I'm sure that no skipper would be censured for not doing it, because there was a risk involved in these things.

Interviewer: Well, so we've talked about Commander Fluckey plenty. So is it possible for you to maybe give a summary description of Commander Fluckey as your wartime skipper?

Duncan: Yes, I can do that because I've thought about that. Four things stand out. First of all, he was a decisive skipper. He soaked up information. He's not the most intelligent man that I ever seen, but he's the smartest man I've ever known. He could take up information and soak it all up and come out with an opinion and everything that made a lot of sense.

He was an inclusive skipper. He was interested in everybody doing their share to make the *Barb* the best that they could be. He demonstrated it with Billy Hatfield's suggestion on the firing. The minute they said that, bang, that's the thing that makes sense, and we do it. Billy's gotten credit for that ever since.

He was a very compassionate guy. Every day, he went through the boat from bow to stern talking to the people, finding out about them, what are they doing, where's their family or their girlfriends, whatever he wanted to know. He wanted to know his people. He also conducted a significant amount of correspondence with the families. They would write him, and he would write him back. He really was interested in people. There's a famous story, of course, one of the families that wanted him to play a happy birthday tune sung by their daughter for their son who was on board, and he played it over the 1MC [the onboard announcing system]. He's just a compatible guy. He really and truly is interested in his people.

Finally, I think he was a guy with a tremendous amount of imagination. He was an inspiring leader. He really inspired the people to do their best. Without saying what the best was, he gave them a lot of rein. I think I told you in my case. I was really very surprised that I'm standing at the top watch, and I hadn't been aboard that boat more than a month. I mean,

you know, that was most unusual. Of course that gave me confidence in him. Whether I related it or not, it's beside the point. He did it, and he got away with it, because I didn't sink the boat. But those four things, I think is what I attribute his leadership and his success [to]: decisive, compassionate, inclusive and inspirational.

Interviewer: Well now, let's talk about you for a second. Can you talk about the sort of satisfaction that you have about being part of a crew that set a professional standard that's helped sustain the submarine force?

Duncan: It's kind of my impression people are realizing that World War II was different. There was a bringing together of the country like it had never been done before, and possibly hasn't been done since, in terms of unity of purpose and everything, which is what allows all the great things that we've accomplished. Yes, I'm very proud of the fact that I served. I probably, I don't know, have told more sea stories in the last 10 years than I did the 30 years before. I know that losing shipmates and so forth, I think, gee, we're getting smaller. I was very pleased with Gene's funeral. We were able to put on a real nice send away. I was very proud of myself. That's not the right word. I felt very good about being able to get so much support for a proper going away for him.

Then of course, I was very fortunate to stay in submarines. I had basically 23 years of submarine and submarine related things, command opportunities, but also shipmate opportunities. I served with Dave Bell in the *Dogfish* as his exec. I forget the boat he had during World War II. Joe Icenhower was just a very fine guy, very pleasant man, and a good tactician. He taught me a lot about attacks with torpedoes, torpedo attacks. I had Bill Post, Wild Bill Post, as my squadron commander when I had the *Cavalla*, and he rode me. We went up to Greenland in the winter time on an exercise and he rode me. We were up there in that crow's nest and we put on a party. Bill Post was one more wild man that night. But he always got me; he was the one that got me. I pulled a stupid stunt while he was aboard. Ice would gather on the lip of the main induction. We'd dive, and the ice would gather there. There'd be a little leakage that'd come in. On one dive, the forward engine room said, "Flooding

in the forward engine room." Stupidly, I turned around and said, "Is it flooding badly?" Well, that's a pretty stupid stunt for a skipper to pull. Bill Post is standing there, and he went away or something like that. Later he says, "You know, you're a damn cool customer." So he gave me credit for being a cool customer when it was really a stupid question. But being associated with those people and everything, was a joy in my life, particularly the families and everything. I'm not a beer drinker, but I used to love going to a beer bust with my crew and having my two beers. That was the big thing I guess I get out of my experience with submarines.

Interviewer: Well, Max, you've had as varied a career as anybody could've had with four major commands and lots of other experiences. But some of the experiences that you took away from your service in *Barb* must have been important for your success in later assignments.

Duncan: Very much so. One of the examples I give is the boss man of any organization has got to show confidence and decisiveness. Those two, I got there. I know that when I put *Cavalla* in commission, by that stage of the game there was a big play on saving fuel. They told you never have any SOA [speed of advance] more than 15 knots and so forth. We were doing school drills up in New London, and we'd get way on out to as far as Block Island at the edge of the ocean out there. Then that would be at the end of the day, and I would get up on the bridge, and I'd say, "Maneuvering, answer bells on four engines." And of course, everybody's smiling, the old man's going to take us home in a hurry. Of course, about five minutes later, I'd call down there and I'd tell them to cut 80-90 on two. But that sort of thing is a little grandiose. But that's important for a boss man to be in the organization, not just a commanding officer, but a boss man of any organization to show confidence and decisiveness in his work.

I tried to do that all the way through. I went on board the *Torsk*. She had just come out of the yard and had the snorkel. She was a 1-A or something like that, I forget, a GUPPY. I found that they had been a rather conservative operator. I wasn't used to being a conservative operator. I remember that I would just go up there and pull the plug and don't

tell them. I'd just say, when I get down the conning tower, "Dive". And I wasn't giving anybody anything. They'd dive. People get used to really doing their job in a hurry. Before that, they damn near wanted to close up the boat with a green board before they pulled the plug. Which you must do in a Trident; I realize that. I remember when Ned Beach [was] doing 15 degree dives. You know, that was new. I never got a 15 degree, but I got 10-12 degree dives, and for a fleet boat that's most unusual. But we never had any trouble doing it. I did it in increments to where I felt comfortable with it. But that's the sort of thing that I took away from my experience on *Barb*. For instance, operating on the surface rather than being submerged during the day. That's a decision that you made based on what you've gained versus what you've risked. We gained a tremendous area of visibility of targets by being on the surface with the high periscope. You can see one hell of a long way out there. But if you're submerged, you cut that by a factor of 10 probably. You do that in terms of what I call your results rather than risk. I learned to do a lot of that in the *Barb*.

Interviewer: Well, from what you see of today's submarine force, do you detect in the heart of our submarine force, the qualities that could lead us to victory again?

Duncan: I do indeed. That reminds me, I have noticed that the current SUBLANT, sub commander, Connor, said that the skippers have got to practice more independent operations. What he's saying is that with the cyber warfare today, all of our fancy communication systems can be possibly jeopardized. If that occurs, you've got people out there with orders and everything, and they've got to figure out what in the hell they're going to do, without their boss telling them right over their shoulder. I applaud that because that's exactly how we operated in World War II. You see you had some communications occasionally, but you didn't have, so-called, instant communication. Today, for goodness sakes, they can tell them to turn right and left practically with communications. But the current commander of submarines is saying we've got to go back and make sure that we learn to do that. I applaud that.

Interviewer: Well, it looks like our submarines are well equipped to provide that sort of a platform to the skippers if they're given that leash.

Duncan: That's correct. Our submarines today, and particularly things like the Virginia Class have such capabilities that it blows my mind with what they can do. I hadn't been aboard a boat in quite a few years. We went out to Hawaii, and I went down to sub base and saw some old offices. You know, the office of the commanding officer of the submarine base, is the same office that Admiral Kimmel was in, in Pearl Harbor, looking over the waterfront down there. At any rate, I went aboard the *San Francisco*, I believe it was, and I'm just always amazed at the capability of the boats. Now with the non-piercing periscopes and all this stuff today.

Particularly, I was in the Office of Naval Research, and I remember that we were trying to figure out how to do ranging by, what the hell do they call it, differential frequencies, giving you a range because you could get certain frequencies and not other frequencies. Of course, that was in the very early days of the sonar world. Today, the sonar world is a whole different thing.

I was also involved in Project Caesar, the SOSUS system [SOund SUrveillance System]. My job was to go around when the SOSUS system went into effect, and brief type commanders on what the hell is this super-secret system we got that'll track submarines. That was an interesting thing, particularly the reception I got from some of the people. They didn't believe a damn word of it. But at any rate, that was an interesting part.

Interviewer: Well now, you mentioned Admiral Kimmel, which leads me to ask you as a wartime lieutenant, what sort of impressions would you have had during those days of major figures like Nimitz and Lockwood and MacArthur and King.

Duncan: I guess the big picture was not available to us then like it is 40 years later.

Interviewer: Well, I suppose you were pretty busy doing the work you were doing.

Duncan: Yeah, yeah, yeah, yes we were, yes we were. And as a matter of fact, of course I'm being honest, you see most of the people lost weight on patrol, I gained weight. I love peanut butter sandwiches and coffee. And I drank a lot of coffee and had a lot of peanut butter sandwiches. But Gene Fluckey used to lose 10-15 pounds on a patrol. And he was not a robust guy.

Interviewer: Well, Max, you obviously lost many friends and comrades on other ships during war time which certainly must have had some effect. Do you hold any bitterness towards the Japanese at this point in your life?

Duncan: No. From where I sat, why, our opponents were professional military people doing a professional military job. As far as national decisions are concerned, I thought it was completely far out for the attack on Pearl Harbor, you know, without notice and so forth. But I never felt that the people that did the attacking weren't carrying out national policy. I never felt any animosity toward any of the enemy that I was associated with. Now that is not true of some of the people. I was in New London on the staff when the boss man up there would not greet Japanese submarine people that came to New London. He was one of our real heroes in submarines too. But he would have nothing to do with them. I think he had a brother that was lost or something. But he was a bitter man towards the Japanese. I never felt that way.

Interviewer: Well, the impact of World War II on your professional life is fairly obvious, but could you talk a bit about the impact of World War II of your private life, both during the war and directly thereafter?

Duncan: I was married to my kindergarten fiancée in 1943, and we lost her 68 years later. I was fortunate in that our long times away from home occurred earlier in our marriage. In my latter part of my Navy career, I had three years and so forth in the same place. Therefore, we did not have the uprooting of the family at a time that a lot of families are uprooted. We have the one daughter, and she spent six years in private schools and six years in public schools. She graduated from Punahou in

Hawaii, a very fine school. We had three years in Annapolis and three years in New London. We were fortunate in our family moves, and I was not at sea for long periods of time except the longest, of course, was my one year in Vietnam, and I did have R&R during that period.

CORPORATE MEMBER SPOTLIGHT
William A. Mildon
Hydro Group Systems, Inc.

Recently, the Executive Director of the NSL had a conversation with Bill Mildon, President of Hydro Group Systems, Inc., a 2 star Corporate Member new to the NSL this year. Following is a transcript of their discussion. If other NSL Corporate Members would be interested in a similar conversation, please contact execdirector@navalsubleague.org.

How did your company get started and how have you been associated with it?

Hydro Group Systems, Inc. was started when a colleague and owner of Hydro Group Plc. of Aberdeen Scotland, who noticed I had retired a couple of years earlier and was spending too much time at the beach in Florida, decided he would like to have a company in the USA. With one of the world's largest undersea markets, his company was only scratching the surface of the potential for Hydro Group products to be introduced. Some market research and numerous phone calls to both Navy and commercial customers found the need for a small business to be in the mix. As I put together a business plan framework I found even more reason to start the business for undersea project in Renewable Energy of which is growing in the US. Following a week-long visit to Aberdeen, Owner of Hydro Group Doug Whyte and I agreed to a plan of action for the new subsidiary in Largo, Florida.

As President of Hydro Group Systems, Inc., it is my task to set up a sales and manufacturing facility to operate in the US for both Hydro Group products and design and manufacture products for the US Submarine Force as well as oil and gas and renewable energy markets.

Hydro Group supplies submarine hull penetrations and cabling systems to the UK NAVY and is contracted to supply the Dreadnaught Submarine Program in the UK. Hydro Group Systems, Inc. is working to be a US supplier to US Submarine programs. We look to support both Navies with new technologies and possibly share across the pond these advancements.

How did you get started as a submarine supplier?

That is too long of a story, truthfully. So, the short version is that I ended up at a company who manufactured submarine cables, penetrations, and various other products in Rhode Island. After many years dealing with submarine installs of various components including the cables and penetrations I was working in the UK to introduce the UK NAVY and BAE Systems to the US NAVY way of cabling and plug-n-play penetrations. Having designed the penetrations and cabling systems for the ASTUTE Class submarine, we won the contract to manufacture the entire class of submarines penetrations and cables and put us in the position to design and manufacture more complex systems for the US NAVY submarine programs. I was able to repeat this type of effort with Navantia on the S80 Program and South Korea with their submarine program.

What percentage of your business would you say is submarine-related?

Currently we are experiencing about 60 percent worldwide in submarine products.

Do you have information that you need to grow your business and to support the growing demand on the supplier base?

We have a great deal of the information to grow the business it's just a bit more time consuming to get the manufacturing part set up and obtain the contracts to get qualified to supply the products.

Do you have any ideas about any actions that could be taken that would enable you and other suppliers to be better able to respond to the growing market demands?

In my opinion, everyone would benefit from more frequent Supplier Days or Industry Days bringing in the businesses that design and manufacture the products required for any project. In the case of our products many times cables and connectors are an after thought and now its crunch time to design and build increasing the cost.

In addition, we attend many conferences and shows where we can meet many of our customers and potentially new customers in one trip allowing communication about upcoming projects, new developments and working together. We must be aggressive in this process to develop relationships, utilize best practices to keep cost down, deliver on time and your reputation grows as a solid supplier.

We must be in step with technology refresh at a minimum as it is much faster than just a few years ago. To keep up we must be proactive in finding ways for our products to be smaller, have faster availability and be less expensive.

As a Corporate Member of the NSL, what have been the most important features of membership to you?

As a Submariner myself and having been on many other countries submarines it is great feeling being a part of NSL in promoting community awareness of the US Naval Submarine Force. I enjoy seeing friends, colleagues and shipmates at NSL functions and in working relationships. As a corporate member we believe that our commitment will help better the submarine force. And we feel that we are connected to the real customers —Submarine Sailors— through the briefs and interaction with fellow members.

How else could the NSL help you and your company?

Spread the word about Hydro Group Systems being a Small Business with a great deal of history in supporting submarines in the US and worldwide. Our goal is to be the best at what we do, no different than the US Submarine Force. Thank you for this opportunity to address the NSL forum. Spread the word about Hydro Group Systems being a Small Business with a great deal of history in supporting submarines in the US and worldwide. Our goal is to be the best at what we do, no different than the US Submarine Force. Thank you for this opportunity to address the NSL forum.

THE ROPE WENT SLACK: A DEPTH TRIAL OF THE O-13 GOES AWRY

Theodore E. Hammond

April 1918

(My grandfather, Theodore (Dode) Hammond, was a Los Angeles boy who was admitted to the Naval Academy at the age of 16 and who graduated in 1911. In 1914, he went to work for the California Shipbuilding Company in Long Beach as they started to build submarines during the early years of World War I. In 1917, he was transferred to the Lake Torpedo Boat Company in Bridgeport, CT to serve as a trial captain for new submarines. The attached excerpt about an O Class submarine trial in 1918 is from an unpublished memoir. I am certain my grandfather would love knowing that exactly one hundred years later his story would be of interest to today's submarine officers and crew. – Richard Andrews)

"An exciting experience today on the submarine O-13. One of the tests for all new subs is to submerge to a depth of 200 feet and remain there under control for 10 minutes. The naval officer, representing the Trial Board, stays on the surface in a row boat and measures the depth by marks on a thin rope which is attached to the sub. He is also connected to the sub with a telephone so that we can set the depth gauges as he telephones down the depth readings.

There was only one deep place in Long Island Sound near the east entrance where we could make these tests satisfactorily. We started very early, on a perfect day, calm and smooth, and by 9AM were prepared to submerge.

All submarines are more or less alike — cigar shaped with a horizontal deck lengthwise through the middle — under this deck are the ballast tanks and above it are the working and living spaces. When water is let into the ballast tanks, the submarine sinks. When water is blown out of the tanks, the sub rises.

So we closed the conning tower hatch and started down, smoothly and slowly. The officer in the row boat was supposed to watch for the depth marks on the thin rope, and then to telephone to us at 50 feet, 100 ft., 150 ft., and 200 feet. In some unaccountable manner he missed the

first mark and at the second mark he reported our depth at 50 feet when actually we were at 100 feet. We set our gauges as he reported and thus from then on were always 50 ft. deeper than we thought we were. When we got to 200 ft. (our gauge read 150) he discovered his error, but the telephone would not work.

The sub was leaking in two places rather freely but we continued to sink and in spite of the leaks we decided to complete the test. The leaks worsened and as we neared the 200 mark on the gauge (actually 250 feet) and started to check our descent by blowing water out of the ballast tanks, suddenly the 2" steel deck on which we were standing popped like the end of a tin can, and below us in the ballast tank it sounded like a revolver going off as the rivets in the struts sheared off due to the pressure. One leak in the engine room was squirting a stream like a fire hose. And we continued to sink slowly.

The challenge was to let enough air into the ballast tank at a high enough pressure to blow the water out, but if too high, it would blow the deck in, weakened as it was. There was no time to think. No one had been in this fix before. Barnett, in charge, gave the order "More pressure" and then "More pressure," and at last, by the Grace of God, at 285 feet the sinking stopped and in a moment more the gauge showed we had started rising. My duties, in inspecting the leaks, had brought me into the Control Compartment during this tense period. The one thought now was to get to the surface quickly and safely which we did with a rush. Some say that we popped clear out of the water, just as a tennis ball would do if released below the surface. But at least we popped up with a great splash.

While submerged, due to the water leaks and to the compressed air leaks, the pressure inside the sub had risen very considerably. It was not uncomfortable until the moment the escape hatch was opened, and then with a great *whoosh* the air rushed out taking with it everything that was loose and in the vicinity of the hatch. Hats, glasses and papers went whirling up and overboard, including mine. For a long time this 285 ft. dive was the deepest any submarine had ever gone and come back safely to the surface.

In the meantime, on the surface, the officer in the row boat discovered too late his error. The telephone was waterlogged and useless. And the sub was still going down. When it came to the end of the thin rope,

the officer tied on a heaving line of about 40 feet length. And the sub still kept sinking. Soon it came to the end of the heaving line and the officer next tied on the row boat's painter (this is the row boat's mooring and bow line which is spliced to a ring bolt in the bow). And the sub kept going down. The officer got out his knife ready to cut loose if all the painter was used, and just at the last minute as the bow of the row boat was about to be pulled under he felt a little slack. He felt again and got more slack. Quickly he cut the line and shouted, "Row for all you are worth, she's coming up." And well it was for them that they got clear away.

This test showed up structural weaknesses which required 6 months to correct."

FBM DOCTORS
FTCS(SS) Joe Phoenix, USN, (Ret)

I started my submarine career on the WWII diesel boats. I was much later that the war periods. I was fortunate to be walking in the shadows of gods. How I wish I could meet them again and thank them for trying to make a sailor out of this snotty-nosed kid. But enough about me, I mention this only to set the period of when submarines carried doctors, instead of the independent duty corpsmen of the rest of history.

The Cold War resulted in nuclear submarines carrying nuclear weapons (Polaris Missiles initially). In early years we had just a few boats with this capability. Not to get into the classified details of the missions, they were few and critical in their employment. Critical enough that they were not to come off patrol! Significantly important that a sailor injured, or sick was not justification to abort a patrol even in critical condition!

For that reason, each crew (gold and blue) carried a doctor aboard to give treatment and comfort for sailors, sick or injured, even critical, to the extent possible without abandoning the mission.

There are many stories of the doctors we had aboard submarines – many of them true. We had the best doctor who came with the best story of all.

We were working out of Charleston, South Carolina. We took over the boat, completed our upkeep, and we were starting our patrol with sea trials the next day.

A few of the chiefs with the duty were sitting around the Chiefs' Quarters (goat locker), finishing up final chores, when the phone rang. The duty chief answered it, as the call was probably for him. The caller, the topside watch, advised the chief, "You got to come up here and see this."

The message was enough to pique the chief's interest. Going aft alongside the sail, he noticed an officer (or at least a male in an officer's uniform) standing alongside the topside watch. The thing that caught his eye first was that the gent was in blues. That is to say, he was in a blue coat, trousers, and a white shirt. The notable items were the white shoes and white belt. The topside watch introduced the duty chief to him. He was the new ship's doctor.

The chief directed the topside watch to call the wardroom and have the steward fetch the doctor's luggage. He invited the doctor to join him in the goat locker, so they could get acquainted.

When they settled in the goat locker, the chief provided a cup of coffee, explained the imminent deployment, and tried to get familiar with the new doctor.

The doctor was one of twelve doctors from Puerto Rico who were just finishing their training in Spain. When they returned home, each had a draft notice. The rest were drafted into the U.S. Army.

Was he married?

Yes

Where is his wife?

In the hotel.

We need to fix this.

Oh yes, by the way: she does not speak English.

The chief saw the water getting deeper by the minute. He requested another chief take the duty, as he would be busy for a while.

The chief and the doctor went to the captain's stateroom. When received, the chief introduced the doctor to the skipper who graciously did not comment on the uniform, though he did notice.

The chief explained the problems to be resolved. The skipper asked if he could handle it. The chief said he might need to use the captain's horsepower at times. They both agreed that the captain would back them up.

First, they went to the hotel and met with the doctor's wife. Another noteworthy thing: she was nine months pregnant.

The three of them went to the base housing office where the housing duty petty officer informed them that the subject would be settled in the morning. The chief explained that was unacceptable. He called his commanding officer (CO) who called the base CO and explained the situation. The base CO contacted the base housing officer who came to the office with his staff and issued housing to the doctor. Next, he addressed the need for quartermaster (military) furniture, which was delivered that afternoon.

The pregnancy necessitated medical access. The trio went to the hospital and after doing similar dances to the prior requests; they developed

a medical chart in her name. The medical staff readily scheduled exams for the next week.

A visit to the military ID pass office was a waltz with similar steps to the earlier dances.

Afterward, the group returned to the hotel to check out and move the couple's belongings to their new quarters. The chief agreed to return later with his wife, so they could go to dinner.

The last major item was a distaff watch bill – actually, two watch bills. The first was a listing assigning each wife of the crew a day to provide the doctor's wife with transportation, companionship, and services. The second listing scheduled days for the four bilingual wives to be available by phone to translate for the doctor's wife.

This doctor was and still is a great man as well as a wonderful doctor. He and his wife graced a few of our reunions and their popularity has not faltered in the least.

THE "HORRORS" OF SUBMARINE COMBAT – GRENADA 1983

Jack W. Kasiski

During the Cold War, the submarine force was active, engaged, and underway. As a junior officer I was fortunate to have been assigned to USS *Silversides* (SSN 679) and we participated in many interesting underway activities. In 1983, we were tasked to escort one of our SSBNs executing their post availability deep dive – not considered interesting or exciting by the fast attack tough crew. Nevertheless, as we prepared for a Monday underway, we received the news that the shipyard had completed the availability early, and we now got to get underway Friday (and sacrifice yet another weekend). Dutifully, the now grumpy crew got the ship underway in a professional manner and we executed escort services without incident.

As we entered the channel returning to Norfolk on Monday morning, we received an urgent message directing us to "make best speed" towards a location in the Caribbean. Our Navigator plotted the position, noted it was near the island of Grenada. As we scratched our collective heads, the AP newswire noted some unrest on the island, which ultimately led to the overthrow of the government. The military action became known as Operation Urgent Fury, and was featured in the Clint Eastwood movie, *Heartbreak Ridge*.

As we neared Grenada, we received our orders – much to our excitement, we were in the area in the event the hostilities escalated. Knowing there was a squadron of Cuban Foxtrot Class diesel submarines nearby, those of us preparing for Command Qualifications fantasized at the opportunity to sink a real enemy submarine! Fortunately, the situation did not escalate, and *Silversides* patrolled the area, checking in with the Task Force Commander as required. As the Communications Officer, I made a visit to Radio only to find all the radiomen in radio on the secure circuit. As normally the off duty gang would be in the rack or on the mess decks, I assumed the worse; however, they were all excited to be able to listen in on what was happening real time in Urgent Fury. One asked me, "Hey LT, who is this guy Shultz?" That happened to be our then Secretary of State, the Honorable George Shultz!

As Urgent Fury wrapped up, time for *Silversides* to go home, right? Not so fast. We were kept on station, "just in case." Now we started to experience the ravages of combat, as *Silversides* smokers, which were numerous, began to exhaust their caches of cigarettes. Among the smokers – both the CO and XO. Simple requests for "wake ups" from the Chiefs of the Watch (all of whom smoked) were met with conditions – "It will cost you a cigarette." The crew began emptying the butt kits (mounted ash trays), and recycling any available tobacco, rolling the residue in chart paper.

After about two weeks of "milling about," the Captain drafted a logistics requisition, in which he would attempt to replenish the supply of nicotine. This request was met with disdain and denied, as all fast attacks are supposed to be able to deploy for 30 days on short notice. Thus tempers continued to flare, as no one could determine how long we would remain on station. Except for our chief cook, who told me he knew when we would return to port. Being the "all-knowing" Operations Officer I scoffed at and pretty much discounted the chief's input.

Finally we received new orders, not to return to port, but to head to the Guantanamo Operations area where we would provide targeting support for the surface ships in the area. This tasking is considered even more distasteful than escort services. It involves operating at periscope depth allowing curious surface ships to steam closer and closer until they observe the scope or other exposed mast. As this tasking was to occur on Saturday and Sunday, we expected that we would be lucky if only one of the two surface ships would appear for training, and we were not disappointed. The Sunday participant experienced a "materiel casualty" preventing them from getting underway. Thus we steamed about until the Submarine Operating Authority unknowingly failed to provide us submerged water rights, requiring us to surface. The nicotine deprived heroes of Grenada – angrily wallowing about on the surface on a Sunday afternoon – will we ever return to port?

Finally we received permission to return to port, and much to my surprise, the return date was the date predicted by our chief cook! In asking to reveal the secret of his clairvoyance, he replied matter-of-factly, "Simple LT. We are returning exactly 30 days from our underway date. One day more and the Navy has to pay us the family separation

allowance (at that time $1 per day for married sailors).”

Morals of the story – War is Hell (without cigarettes), and always trust your chief – especially the chief cook!

TRAINING AND THE CPT PROCESS
CAPT Jim Patton, USN, (Ret)

Post-command menopause is a very real thing. After 3-4 years of having nearly total control of thousands of tons of warship and the many dozens of outstanding officers and crew that operated it in response to your wishes and directions, it is humbling, to say the least, to find oneself at a significantly lower position on somebody else's totem pole.

However, there are many different kinds of post-command jobs and a broad range of new "bosses" for whom to work. I was very fortunate on both counts when I left *Pargo* in early '79. Jerry Holland, then LT Holland in the Fall of '61, had been my "Sea Daddy" on *Scorpion* when Ensign Patton rolled aboard as one of the first group of "direct inputs." Now as a CAPT and CO SubSchool, he was willing to let me relieve as his head of Tactical Training and Special Equipment Program.

Within the Submarine Force, and probably throughout the military, everyone becomes a "trainer" shortly after joining the group. In fact, when, in those times I was honored to be asked to talk to Basic Enlisted students at their graduation ceremonies, I often pointed out that within a few months of reporting to their first boat, they might be entrusted in training and certifying others to perform what might be the most inherently dangerous event routinely conducted at sea - operating the Trash Disposal Unit.

On *Pargo* there was only one Wardroom and Fire Control Party to train - now there were almost a hundred. Again, I was fortunate to have wonderful LCDRs to handle all the day-to-day routine stuff at both buildings under my charter, and I was free to spend nearly all of my time in the Attack Center trainers. CAPT Holland didn't choose to provide any guidelines or advice on how the job was to be done, so I certainly didn't ask. One of the many powerful pieces of advice that LT Holland had provided early on was "Never ask the question you don't want to hear the answer to!" It was all great fun, and during the course of the tour, a mental construct was formed that helped shape the manner in which training was conducted and is probably worthy of passing on to those still involved in that universally critical and important task. It involves CPT - Concepts, Procedures and Techniques - the essential elements of

any human skill.

CPT sounds a little mundane, but it's a little more complex that it seems at first glance. For starters, it is critical when "teaching" a skill, that the following be understood:

- Concepts must be taught, $E=MC^2$ is not intuitive.
- Procedures are *not* taught, they are studied - but must be solidly based on good concepts.
- Technique is practiced.
- These three elements must be presented to the student in that sequence - first teach the concepts, then have them study the procedures, then help them practice the techniques.

As previously stated, all human skills are comprised of these three components, but not in the same proportions. For example, the skill set possessed by the late Stephen Hawking probably had some level of Procedures or Techniques, but they were miniscule when compared to the 99.99% of Concepts employed when imagining the existence and nature of "black holes." On the other hand, the skill set of David Ortiz did involve Concepts (hit the ball so it lands in fair territory where no one can catch it) and Procedures (swing three times and miss, and someone else gets to try), but his paycheck was earned by the 90% + of Technique he had developed. Most skills, however, like shooting torpedoes, are not so heavily biased towards just one of the three components.

In a practical sense, any trainer must carefully analyze the skill he is trying to groom in his student(s), to include a very careful analysis of just what proportions of CPT that particular skill breaks down into, and what method is best suited to convey each part of the mix. For example, when a Fire Control Party came to the Attack Centers, it was not to be taught concepts or to study procedures, but to practice their techniques as a team. The concepts previously taught them had been conceived by DevRon 12 or others, and the procedures they'd already studied were based on these concepts and published by organizations such as the DevRon. Any misunderstanding of basic concepts or demonstrated ignorance of procedures was discussed by instructors in the "hot washup" which followed each trainer exercise.

When it comes to the evaluation of a technique-associated skill, or that part of a total skill set that is technique-associated, it must be re-

membered that this cannot be done in an *objective* manner but must be done *subjectively* by an "expert" in that skill. Consider as an example, the judges of Olympic gymnastics or figure skating. In the last analysis, the "goodness" of a Fire Control party was judged by how hard it was (target shooting back, weapons failing) to get them to the edge of making mistakes. In some cases, even generating an unusual situation where "following established procedures" would be the *wrong* thing to do. It is valuable to note that the optimum point for technique-associated training is at the edge of making mistakes - no benefit is obtained if the exercise is too easy, and also none if it is too hard.

In summary, for all you trainers of a particular skill, evaluate how the skill breaks down into its CPT components; prepare to convey the essential concepts; assure procedures to be studied are properly based on these concepts; and provide for the appropriate areas or devices that allow techniques to be practiced. Students should also be aware of this CPT process, and focus on the salient points and goals during each step in the process.

THE NORTHERN RUN
CAPT Jack O'Connell, USN, (Ret)

('The Trade' updated – with deep apologies to Rudyard Kipling)[1]

When our submarine rescue buoys have been rendered mute,
With a welders' strap or two to boot,
You know the fun has just begun,
You are scheduled for a Northern Run.

In Pearl or San Diego skies are usually clear,
But off Vlad or Petro the weather always will be drear.
Loading for 60 days or more,
Wondering how many of the flics will be a bore.

Top off diesel fuel and lube,
Put finals on the fish,
Check the area for depth of water,
It does not pay to have mud so shallow
That when you need to deal with inquisitive escort,
The tin fish, a close bottom will swallow.

Mask the DRAI windows with tape[2],
Lest the newbies gape,
To learn far North they have come,
Off (***censored***) on a Northern Run.

The crew is sworn to secrecy,
Weighted garbage stripped of readable names,
Lest bottom fishing trawlers dredge up,
A clue to what lies neath the main.

The riders load in dead of night,
Their security is very tight.
They take over the shack,
Forcing radiomen to move.

But they will be back due time,
When things return to a normal hum,
Once we finish the Northern Run.

So, Vlad or Petro – which will it be?
Neither, oh goodie, it's the Bering Sea.
The Northern Sea Route Convoy comes just once a year,
And after a long run North our boat will be here.

Over the hill they come,
Their formation is proud, almost all in a neat line,
But the Soviet flotilla commander issues a reprove,
Tovarich Captain – get back into line.

Here comes a 'Juliett' cruise missile sub – next to last,
But just in time.
At a thousand yards off their track we lurk,
She is the newest cruise missile boat to join their fleet.
Won't CincPacFlt be happy to learn?
That his treasured aircraft carriers are attracting Soviet cruise missiles to burn?

Up scope, mark, range twelve hundred,
Quartermaster note that one of the subs has made a blunder,
It's still out of line.
Soon comes another rebuke from the flotilla commander,
Tovarich, I repeat - get back into line.

A six second look, attach Minolta camera to periscope mount,
Aren't we happy that finally they came?
Enter the Juliet, stage right,
Can a Romeo be far behind?[3]
Click-click, snap-snap, diving officer mind your depth,
It's flat calm up there.

We can't afford to broach and give them a clue
That they are not alone.

Over the hill they go
To a well-earned stop at Providenya,
Then on to Petro
Their new home at last.
Hasn't this Northern Run been a blast?

Endnotes

1 *The Trade* was published during World War One about the British Submarine Service.

2 DRAI is a dead reckoning analyzer indicator, a relatively crude navigation instrument

3 Juliett is a guided missile submarine (SSG), while a Romeo is an attack diesel submarine (SS)

SUBMARINE BALL BLESSING
WASHINGTON DC
28 April 2018

Gracious and eternal God, as we pause this night in the revelry of the anniversary of our accomplishments, to give you thanks for the watch you have stood these past 118 years, guiding and protecting the Navy's Submarine Force. As we reflect on the submariners' history, we are keenly aware, Lord God, that you, like they, are everywhere, always working behind the scenes and below the surface. Hear our gratitude for your steadfast protection and for your loving Spirit which traversed the great waters and plunged their depths long before the USS *Holland* submerged. Your boundless presence and steadfast involvement in our lives has established for us a rich legacy, and for this we are truly thankful.

God we are reminded that this legacy has not come without cost, and we honor all those for whom the bell tolls this evening. Trusting in your mercy, we pray that the souls of those sixty-six crews remain ever in your keeping. Remind us, too, that there are many who still this very night, without fuss or fanfare, keep a lonely vigil, defending our freedom around the world. Hear us when we pray that you would keep them safe from perils of the deep. Return them safely to the arms of their loved ones and the appreciation of our nation.

We ask your continued blessings on the tireless and vigilant efforts of those who wear dolphins and pray your unwavering grace on us this night and always. We pray that our bodies may be strengthened by the meal we are privileged to enjoy, our spirits be nourished by the camaraderie and esprit de corps we feel so strongly. In all that we do and say may our lives reflect your bountiful and steadfast blessing. It is in the strength of your name we pray. Amen

RADM Margaret Grun Kibben, CHC, USN
26th Chief of Navy Chaplains

NO STINKIN' BEER
RADM T. J. Robertson, USN, (Ret)

Few remember the 1972 Submarine Squadron 10 deployment to set up the advance submarine refit site at La Maddalena, Italy. SUBRON 10 then consisted mostly of maturing 594 Class ships and submarine tender USS *Fulton* (AS-11), oldest commissioned ship in the Navy. Sudden announcement of the plan around 1 April was thought an April Fool's lark by some, including this writer, then Squadron Engineer. *Fulton* was simply not in condition for any arduous deployment and lacked necessary capability to produce oxygen and nitrogen. They had to be kidding!

Our Commodore, Jeff Metzel, thought otherwise! In his thoughtful and persuasive manner, he made it clear this was going to happen. Through herculean efforts he badgered funding and an army of support to bludgeon the necessary upgrades, including an O2-N2 plant. He bulldogged the project relentlessly, using 3x5 cards holding vast details regardless of orientation. *Fulton* deployed on schedule, units following.

Getting there was without incident. However, the refit site was the remote, rocky, uninhabited island of Santo Stefano, off the resort island jewel La Maddalena, which itself was off the tip of Sardinia. The mission of refitting submarines got off to an inauspicious start. Basic challenges of establishing services occupied all waking hours. The cooperative spirit of the local Italian Navy over a friendly glass of wine, solved most problems, generosity we would cherish. Unfortunately, zeal of the Italian Defense Ministry was countered by the haughty obstinacy of their Foreign Ministry. Diplomats alone would decide if and when clearance could be granted for nuclear submarines and-----it was their August "festa" season.

While the Commodore was on the mainland jousting with bureaucrats, a peculiar solution percolated. The submarine tender would service destroyers in La Maddalena while the destroyer tender in Naples would service our submarines. In that regard, destroyer skippers never had it so good, getting work done they weren't likely to get done elsewhere, with the added luxury of submarine quality control. Reciprocal service was however, as they say in Naples with a shrug… "not so good."

Meanwhile, on La Maddalena it was obvious that, aside from the

destroyermen, nobody was happy. The problem was BEER. Beer transported at great effort to serve in our make-shift cantina on The Rock was Birra Peroni's lowest label, a foul brew with suspicious taste and odor. With no submarines to work on, there was plenty of time for complaining. Standard sailor parlance was… "Don't want no (STINKIN') beer." Sailors wouldn't drink the swill for free, exceptional behavior for tough Navy bluejackets.

Staff priorities quickly changed. Priority #1… get BEER! Many tender sailors had not yet ventured off The Rock to enjoy the pleasant summer vacation atmosphere on La Maddalena. So idle time was in abundance to hang around the cantina. Little creativity was needed to visualize beer containers becoming convenient projectiles for makeshift games gone awry, or worse. Best to be hoped for was holding the troops 'sullen but not mutinous' until the relief beer train arrived. A likely hero stepped into the breach, Commander Jim Rolfe, the suave squadron and tender supply officer. Though this event would hardly rank as a signal achievement to his stellar career, we thought it his finest hour. Accepting no excuses, he was a tireless bulldog locating, moving and tracking a lifeblood of beer ever closer to our thirsty shore.

The beer, mostly basic American, arrived several weeks later to great joy and relief. By coincidence, the Foreign Ministry granted grudging approval for nuclear submarine clearance in La Maddalena Roads almost the same date. While no logical connection can be made between the twin miracles, it was magic indeed, like Italy itself. Most likely clearance approval was related only to return of Italian bureaucrats from traditional summer vacations. A measure of normalcy descended on this outpost of the realm as we serviced deployed submarines until December. Forgotten is what became of the vile Birra Peroni. But local Italians had early on shown resourcefulness in making use of materials the Navy discarded, even if the materials were STINKIN'. We can only hope the Birra Peroni found a happy end… "Italian style."

THE MONKEY IN MANEUVERING…
CAPT Peter J. Graef, USN, (Ret)

It was a Saturday morning in 1974 in paradise, a.k.a. Hawaii. As good nukes, we were all at "work." After all, our ship was in the middle of a refueling overhaul in Pearl Harbor Naval Shipyard. Saturdays were part of the "normal" work week.

Sometime mid-morning, the Skipper received a most unusual phone call from SUBPAC Headquarters. Apparently, Admiral Rickover called the Force Commander and chewed him out about one of his Submarines having a monkey in the Maneuvering Room. This had been reported by a local Naval Reactors Representative.

The Skipper jokingly relayed this info to us during lunch. We all laughed. THEN, I suddenly realized we had a Brass Monkey hanging from a bracket high in the Maneuvering Room overhead.

Background:

We had been on two back-to-back WESTPAC deployments in 1971-1972. We spent a lot of time in the Philippines, and we had visits to Hong Kong (at that time a British Crown Colony) and Kaoshung, Taiwan (still a Democratic Chinese Republic). Somewhere along the line, many crew members purchased brass hanging monkeys. They had 2-inch bodies and 5-inch arms with hands turned toward the body so one could be hung from the next and so on. The string could be endless, limited only by the height of the top monkey. One of these fellows ended up hanging from the bracket up against the pressure hull in the overhead of Maneuvering. It had been there so long, we had forgotten about it. It witnessed TWO ORSEs from it's lofty perch!

Realizing our Brass Monkey was the perpetrator, I sheepishly retrieved it and showed it to the Skipper. I apologized for the embarrassment of having to come clean to the Admiral and told him he would never see it again.

I have no idea what he said to the Admiral. I'm sure he had to explain it. But, true to his nature, nothing ever trickled down on us.

As Paul Harvey says: "And now for the rest of the story." I lied. At a ship reunion, 33 years later, the ship having been long laid to rest, THE MONKEY REEMERGED brightly polished.

The Monkey was then presented to our skipper, Captain Mike McBride, CO USS *Sargo*, 1972-1975.

ICE CREAM
How to defuse a reprimand
CAPT Jack Maurer, Jr., USN, (Ret)

Bergall had one of the finest softball teams in the Atlantic Fleet.[3] We all loved the game, and it was natural for us to schedule a beer-ball game when we visited Roosevelt Roads for a brief stop-over. When *Bergall* played softball, it was for real. Even the beer moved aside when someone stepped to the plate. After two games ("One is never enough …") in the hot Puerto Rican sun, however, we were dusty and tired.

The ship was moored nearby, and we tramped back. Swimming was not allowed off the pier, but we were the only ship in the Roads, and the cool water was so inviting….

First one, then two, then nearly the whole crew "accidentally fell" into the water. I was among them, and the water was wonderful.

Within about five minutes, the officer in charge of the harbor came running down the pier, spouting fire. "Swimming is not allowed! I want to see your Executive Officer, NOW!"

The crew pointed me out, and I sheepishly climbed out of the water. It was obvious that I would not do, and the officer demanded to see the captain. I dried off as best I could and then went below to get our Commanding Officer, CDR Ray Wyatt.

"Captain, I'm afraid I've gotten you in trouble," I opened. "CDR H _____ is topside. He's boiling mad because we were swimming off his pier."

Captain Wyatt rose, and in what I have ever since considered a stroke of absolute genius, he drew two large cones at our soft-serve ice cream machine. He carried them topside into the hot Puerto Rican sunshine and offered one to the commander who was waiting to read him the riot act.

Have you ever tried to chew someone out when you have to stop every few seconds to lick the ice cream that is threatening to melt all over your hand?

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1 We were runners-up in the Fleet-wide tournament, one year. Quite an accomplishment for a small ship.

GOING DEEP, JOHN HOLLAND AND THE INVENTION OF THE ATTACK SUBMARINE
BY LAWRENCE GOLDSTONE
Reviewed by RADM John P. (Phil) Davis USN, (Ret)

After reading this book, the reviewer is surprised that the US Navy ever introduced submarines to the fleet before WWI due to the politics, intrigue and competing ideas of the various submarine competitors, along with the inconsistent behavior of the US Navy and the US Congress. This fascinating book goes into the saga of submarine development in the United States and the years of frustration encountered by John Holland in attempts to have his concepts accepted. Although the book starts off slowly with a short history of submarines from the earliest time to the Civil War, the pace picks up with the arrival of John Holland in the United States and the building of the *Finian Ram* in chapter six.

The book is not a technical treatise on submarine design but gives the reader enough insight into the technical aspects of the various early designs and innovations all the way from coal powered steam (yes! steam), to gasoline, to diesel.

The author stays on course with documented facts that are well footnoted, providing an excellent bibliography at the end. But the reader can read between the lines regarding the various personalities and companies involved and can deduce money and favors moving around in the background.

The book's title suggests that this work is a biography of John Holland. However, the book is much wider in scope covering the early development of the submarine with enough background information to introduce all the key individuals, their backgrounds and efforts. It was especially interesting to this reviewer to finally learn the unique roles carried out by specific personnel in submarine history that led to the naming of post-WWII submarine tenders such as USS *Emery S. Land* and *L.Y. Spear*. Much coverage is given to Simon Lake, for example, who played a significant (and, in retrospect, not necessarily positive) role up through WWI.The books traces John Holland's early years, his immigration to the United States in 1873, and his early design concepts, along with the history of the *Finiam Ram* (which is still in existence in

Paterson, New Jersey). John Holland's association with the US Navy goes back as far as 1883. The author notes naval history would have been different at various times if it were not for the US budgets and politics -- as frequent and impactful issues then as today. The interactions with Congress and appropriations played large roles in the early history. At times Congress was the main supporter of submarine progress while the US Navy was largely skeptical, hidebound by its own bureaucracy and traditions. The book follows the tract of the US Navy letting the first submarine design contract (*Plunger*) from the Holland Boat Company in 1895 followed by the challenges of persuading the US Navy to accept a more practical design (*Holland*). At the same time, Simon Lake was working to have his own different design concept funded and tested along with John Holland's. The book introduces Isaac Rice, the founder of the Electric Boat Company, and the acquisition of John Holland's submarine company. That was combined with success of the unique (now common, lead acid) batteries that Rice owned, as the rest of the country was quickly 'going electric.'

The book lags in reading when the *Lessler* affair is documented in some detail but is must-reading to understand the different times and conduct of government affairs and the impact on acquisition of submarines until WWI. Both the Holland designs and Lake designs were marketed with some success overseas, including the first boats purchased by the United Kingdom, Japan and Russia. The book concludes with the details of John Holland's exit from Electric Boat, (a sad story), Simon Lake's last efforts to secure a contract from the US Navy and the transfer of management from Isaac Rice to L.Y. Spear.

The reviewer thoroughly enjoyed the book which gave him a lot of historical insight into the early years of US submarine development. If you a looking for readable submarine history, this is the book for you.

The reviewer: RADM John P. (Phil) Davis (Ret), a 35-year veteran submarine officer, CO of USS *Jacksonville* and USS *Glenard P Lipscomb*, last active duty six years as PEO SUBMARINES and Deputy Commander for Submarines, NAVSEA and life member of the Naval Submarine League.

OCEANS VENTURED: WINNING THE COLD WAR AT SEA
BY JOHN LEHMAN
Reviewed by LCDR Ryan Hilger, USN

President Ronald Reagan's maritime strategy, the one that played such a pivotal role in hastening the end of the Cold War, was first drawn up on a napkin. John Lehman, not then in government service near the end of the Carter administration, sat at the Black Pearl in Newport, Rhode Island with Secretary of the Navy Graham Claytor, Deputy Secretary James Woosley, and Francis 'Bing' West following a strategy session at the Naval War College. The gears greased with libations and drawn butter for their lobsters, the four of them molded a revolutionary new operating construct for fleet combat operations in the Norwegian Sea that laid the foundations for Lehman's maritime strategy as Secretary of the Navy a few years later.[1]

The story of the development and execution of the maritime strategy in the 1980s, well documented and debated in the pages of the United States Naval Institute's *Proceedings* and in the minds of the Navy's current senior leaders, has finally been told from the perspective of its original architect. Secretary Lehman, awaiting the declassification of several key Cold War documents, recently published *Oceans Ventured*, meticulously documenting the Navy's aggressive operations in the 1980s. Secretary Lehman's readily accessible book tells the story as if you were having a casual conversation at the Black Pearl, listening to the reminiscences and sea stories of a well-traveled naval officer. *The Submarine Review*'s readership will find *Oceans Ventured* relatable and refreshing.

In this era, as many *Review* readers lived through or know, submarines found themselves far forward taking the Soviets to task. The Soviet resurgence in the 1970s caused American submariners to doubt their technical superiority as tracking Soviet ballistic missile submarines became harder and moved under the Arctic ice. At the time, we did not know that John Walker had already compromised our operations.[2] Several nerve-wracking years would pass until President Carter's defense strategy, rather anti-Navy, could be repealed and replaced with a far more hawkish one under President Reagan. Secretary Lehman was confirmed in February 1981 for what would become an eventful six-year tour.

Lehman's memoir relates his tour through the lens of the Ocean-series of military exercises, starting in 1981 and continuing into the late 1980s. These exercises, true joint exercises with our Allies, demonstrated American resolve in the far-forward regions of the Norwegian Sea in the Atlantic and into the Sea of Okhotsk in the Pacific—the Russian's backyards. The exercises demonstrated the modernization of carrier battle group tactics, hiding from the Soviets and they surged forward from their homeports under emissions control, only to pop up in nominal launch positions, forcing the Russians to scramble to monitor. Throughout the Reagan years, Lehman paints the growth of the exercises in complexity and their desire to provoke a response form the Russians. Other US forces were not the Red Team; the Russians responded as themselves, giving the United States the opportunity not only gain intelligence on Russian operational and tactical doctrine, but observe first-hand how their technology and tactics improved and train against them. By the end, the Navy had mastered operating a carrier in Vestfjord in Norway, with submarines clearing out the fjord ahead of time and protecting the inlet so that we might operate with impunity.

The Submarine Force took the strategy under the polar ice caps, demonstrating to the Russians on multiple occasions that their ballistic missile submarines were not safe under the ice; that we could find them wherever they were hiding. On several occasions we showed this publicly with two to three submarines all surfacing together at the North Pole. In a throwback to this era, Secretary of Defense James Mattis has advocated for 'dynamic force employment,' which submariners of the 1980s will similarly remember as the "flushing" of the East Coast ports to keep the Soviets on their toes.

Oceans Ventured gives submariners, new and old, a compellingly written account of one of the most prosperous times in our history. As the United States moves into a new era of great power competition, Secretary Lehman's book gives everyone a history lesson, not only on how to gain and maintain the initiative, but on how to see how your actions fit into the strategic whole in real time. For that, *Oceans Ventured* needs to be well read at all levels.

Endnotes

1 John Lehman. *Oceans Ventured*. New York, NY: W. W. Norton & Co., 2018, p. 52.

2 Ibid, p. 58.

NOTES FROM NSL HEADQUARTERS

OPEN HOUSE!

We are having an Open House for all NSL members from noon to 7 PM on October 9th at our new office: 1737 King St., Suite 600, Alexandria, VA 22314. Come see our library with its artifacts and books donated by our generous members.

CALLING FOR STORIES

This issue has three anecdotes (pages 131-135) and we want more! Send your stories to review@navalsubleague.org. Thank you to those who have already submitted.

AWARDS

Four members of the submarine community are going to be honored at our upcoming Annual Symposium. Join us in celebrating them.
Distinguished Civilians: Mr. Fred Harris and Mr. Bill Johnson
Distinguished Submariners: ADM Hank Chiles, USN, Ret. and RADM Jerry Holland, USN, Ret.

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A stipend of $200 will be paid for each major article selected for publication. A major article should be at least 2000 words, exclusive of footnotes and bibliography. Shorter articles and opinion pieces are welcome. Previously published articles may be considered for publication but will not receive a stipend.

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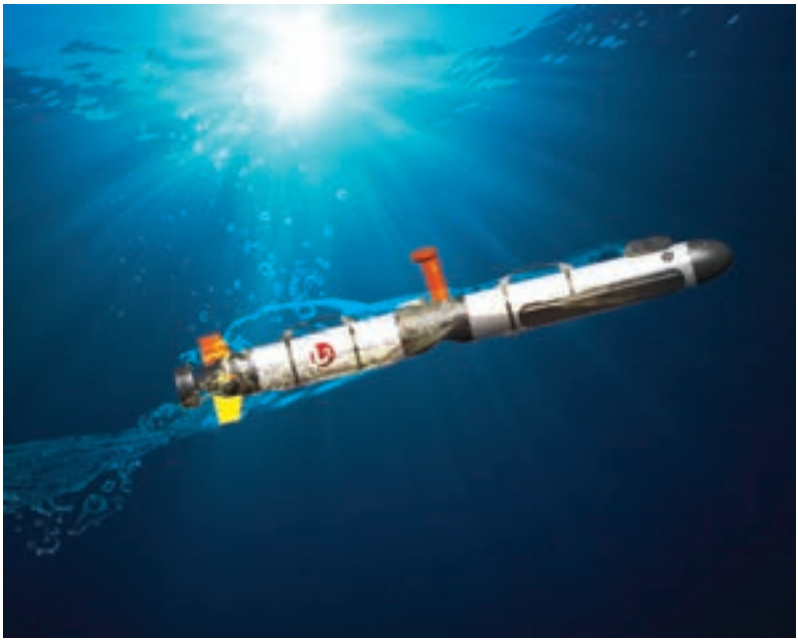

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