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YOU CAN'T SEE IT. YOU CAN'T FEEL IT. So, you'd better be able to detect it.

#11/18

The 21st century's rapidly changing threats demand warfare systems that are easy to upgrade and adapt. The Acoustic Rapid COTS Insertion program leverages the latest computer hardware and software to track a submanne's stealthy opponents. Lockheed Martin, along with U.S. Navy, industry, small business, and academic teammates, delivers transformational capabilities to the U.S. submarine fleet using a revolutionary approach on an unprecedented scale. Innovative integration. Application of new commercial technology. Collaboration: Helping to detect and defeat enemies more efficiently and cost-effectively than ever before.

LOCKHEED MART

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EDITOR'S COMMENTS

I is always the hope, with each issue of THE SUBMARINE REVIEW, that we can provide topics which add to the body of information across the broad spectrum of interest found in our submarine community. With this April '05 issue we have a total number of Features, Articles, discussion points, Sea Stories and community reflections which is a fair amount greater than our normal publication list. This wider spread does indicate the increasing breadth of the submarine community and the extending reach of our Submarine Force in these troubled times, which continue what Admiral Jim Watkins once called "a violent peace".

Starting with the commissioning of USS JIMMY CARTER, which is generally recognized as a special kind of submarine beyond even the SSN 21 class from which it springs, we can see that broader reach of US submarines. Consider Bob Hamilton's lead article about Special Forces Operations and Submarines in which he recounts the capabilities in modern SFO of the Virginia class, the SSGNs and JIMMY CARTER. That is both an impressive new capability and an old concept adapted for these times. Real problems still exist, of course, and they may be more intractable than their earlier counterparts of the Cold War, but they are being recognized and addressed within the community and by its supporters. Both Admiral Kirk Donald, the new Director of Naval Nuclear Propulsion, and Congresswoman Jo Ann Davis of the First Congressional District of Virginia offered their views of these problems and their efforts to meet them to the League's Corporate Benefactor Days in February. Those addresses are recommended to all readers as a very useful overview.

In our first publication of a speech of his as Commander, Naval Submarine Forces, Vice Admiral Chuck Munns gave a straightforward approach to the technological needs of the Submarine Force in his talk to SUBTECH in December. For those not familiar with the official context of the term, the following is provided from the mission statement: "SUBTECH under the leadership of a Flag Panel is responsible to submarine leadership to provide a continuing stream of affordable new technologies for insertion in submarines in response to changes in Naval Warfare. In support of that mission,

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SUBTECH will assess the submarine Research and Development (R&D) investment and provide recommendations for change if needed. Additionally, SUBTECH facilitates agreements with technology providers to transition promising technologies to submarines." It is a official body for oversight of submarine technology. Again, this piece is important reading for all in the submarine community who are interested in the way ahead.

There are several more policy-related articles here. Captain Jim Patton offers his view of the currently emphasized FORCEnet comms in ASW. Since most of us believe the Submarine Force has to be intimately involved in the so called ASW renaissance in the US Navy, and FORCEnet will be a fact of life the emerging Navy, this is an important subject worthy of our understanding. There is a cautionary note sounded as well by Rear Admiral Jerry Holland in his discussion of an ASW article which appeared in the October issue of this magazine. In another think piece, Captain Bill Norris, our guy in Sandia, gives us plenty to think about in the future world of nuclear weapons. Remembering here once again, of course, that submariners are among the last practitioners of the arcane arts involved in nuclear weapon employment and may well be in the forefront of any future-appropriate nuclear options offered our national leadership. Just to show a bit more about submariners getting out in the bigger world, Bob Hamilton has a second article in this issue, and it concerns American submarine officers competing in Allied navies' PCO courses, long known by the name Perisher.

In addition, there are several pieces of interesting history-US boats off Viet Nam and a star-crossed merchant ship with a U-Boat as its personal *Flying Dutchman*. There are also several bits of news, some foreign and some US as well as a very curious bit translated by Mr Andy Skinner from Russian language sources about Soviet submarines using a polar transit to the Western Atlantic.

THE SUBMARINE COMMUNITY section has several fine pieces with remembrances and reflections, along with a couple of suggestions for doing further remembrances and reflections. There is even a long ago letter about submarine underway training and familiarization. Read it all, you'll enjoy it.

Jim Hay

FROM THE PRESIDENT

The Naval Submarine League completed its fiscal year on 31 March 2005. We maintained a surplus of approximately \$30,000 to continue to restore our fiscal health while maintaining robust programs and some grants. The Board supported a budget for the next fiscal year that will maintain this approach with a goal of growing the corpus to \$500,000. The revenue generated is used to promote programs that educate the general public in the importance of submarines as the Crown Jewel of national defense. We will also support a Studies and Analysis program to identify ways and means of increasing the capabilities and employment of submarines.

Our Corporate Benefactors continue to be the backbone of your organization. This year Corporate Benefactors sponsored symposium events and other events. We also received a grant to refurbish and upgrade our headquarters facilities. We added four new Corporate Benefactors bring the total to 71.

The Corporate Benefactor Recognition Days held 15-16 February 2005 was the best attended in our history. The active duty submarine Flag Officers and guest speakers were the centerpiece of the event. Over 200 members of the League's submarine support community and individuals representing 54 corporations attended. The opportunity to interact with the active duty Flag Officers at a reception following Admiral Kirk Donald's remarks was one of the highlights of the event.

The Submarine Technology Symposium will be held at The Johns Hopkins University Applied Physics Laboratory on 17-19 May 2005. We have an exceptional slate of speakers including Admiral Kirk Donald, Admiral Ed Giambastiani, General Doug Brown, Commander, U.S. Special Operations Command, and other Submarine Force leaders. The Banquet speaker is former CIA Director James Woolsey. This year's theme, "Submarine Capabilities for the 21" Century" focuses on the elements essential to traditional submarine missions as well as the submarine's support for the War on Terrorism. Presentation topics include communications, connectivity, intelligence collection and dissemination, electric propulsion, automation, payload, off-board vehicles and SOF. This classified

event is limited to the first 500 attendees because of the size of the auditorium. Be sure to use the online registration early to secure your seat; http://www.jhuapl.edu/sts/.

Our final event for this year will be the Annual Symposium held again at the Hilton Alexandria at Mark Center in Alexandria, VA on 8-9 June. Our Distinguished Submariner this year will be Admiral Carlisle A. H. Trost, USN (Retired). This year will feature a report on exercise SILENT HAMMER and a report of the state of the Navy submarine escape, rescue and salvage capabilities. The new Submarine Force leadership team will give us their report on the state of the force as well as other reports from the fleet. We will recognize six outstanding officers and sailors and the Distinguished Civilian during the annual awards luncheon. This symposium is for you, our members and your guests, to get an update on the State of the Submarine Force from the leadership. Watch for the mailing of the registration package later this month.

Your Naval Submarine League leadership is focused on increasing membership. In the coming year we will launch additional initiatives to recruit active duty and retired service members and submarine advocates. We are partnering with USSVI to promote our respective organizations at submarine reunions and encourage members to represent us at these events. I ask each of you to recruit a new member.

It is important that Submarine Force history, culture and traditions be preserved. Submarine concepts of personal accountability, technical competence and intellectual honesty have served the Nation and Force well. The Naval Submarine League is dedicated to preserving this heritage and assist in transmitting from one generation to the next lessons learned from 105 years of submarine operations. You can participate by writing an article for <u>THE</u> SUBMARINE REVIEW.

Jan joins me in wishing you a healthy and refreshing spring.

J. Guy Reynolds President

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COMMISSIONING OF USS JIMMY CARTER REMARKS BY FORMER PRESIDENT JIMMY CARTER AT THE COMMISSIONING CEREMONY FOR USS JIMMY CARTER (SSN 23), NAVAL SUBMARINE BASE NEW LONDON, GROTON, CONNECTICUT 19 FEBRUARY 2005

was thinking last night about a question I want to ask the entire group. How many of you have had your personal life affected by Admiral Hyman Rickover? Raise your hand.

Let me correct those who did not raise their hand.

It's very likely that every human being who lives in the United States of America and perhaps in other nations have had their lives directly affected by the work and the dreams and vision of Admiral Hyman Rickover. He saw, under the most difficult personal circumstances and professional circumstances when he was a naval officer, the opportunity for the atom to be split for peaceful purposes.

Rosalynn and I were delighted when I was President and finally came ostensibly to be his senior officer. He never felt that way and neither did I. But we went out with him on LOS ANGELES and he mentioned, not particularly typical modesty that his ships propelled by nuclear power if placed end to end would be 12 miles long. And never at that time nor until today has there been a nuclear accident that caused injury to a human being or at least atomic radiation that might injure anyone. And it's his legacy that truly affected the lives of every person on Earth. This morning, on his behalf, I would like to ask Mrs. Hyman Rickover to stand. Eleanor would you please stand?

I'm going to ask two more groups to stand. The second one are my classmates at the U.S. Naval Academy and their families. Could you all stand? It might take a few minutes for all of them to stand. Thank you for being patient. They can't all just immediately leap to their feet.

And this is a good opportunity for me to thank Stansfield Turner for what he had to say. I might point out that when I received intelligence briefings from Stan Turner, he was in charge of every aspect of America's intelligence. There was never any inaccuracy. There was never any confusion, and our country had the utmost

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quality of intelligence under his leadership and I want to thank Stan Turner for that.

And the last group I want to stand is all of my own kinfolks and along with them the people who served with me when I was in Washington. Would you all stand just a moment?

Thank you very much. Well I happen to have a personal affinity for this ship and the captain and the crew. I have been reminded recently of my time in the Navy. I received my dolphins. I pinned the dolphins on a sailor on JIMMY CARTER yesterday. I was on an old fleet type submarine in the Pacific during the Korean War and that's when I first got my qualifications as a submariner.

Later, here in New London I was the first officer assigned to the first ship the Navy built after the second war, the K-1 and I qualified to command submarines here. And just a few months later while the senior officer on the crew that was building USS SEAWOLF, the second atomic powered submarine, I came here to watch President Harry Truman as the keel was laid for USS NAUTILUS. So my background and my interest and my commitment, my dedication and appreciation to the Navy is deep and everlasting.

I believe that this ship exemplifies the finest aspect of the work of Electric Boat. I was here as the only officer when they built the K-1, in ancient times, 53 years ago. I don't hate to admit it even. But Rosalynn and I, in the last few years, have watched the miracle of design and engineering as SSN JIMMY CARTER has begun to come to life.

I've been honored in my life to be the governor of a great state. I've been honored in my life to be President of the greatest nation in the world. I've been honored since then as part of the Carter Center for our work for peace around the world. But the most deeply appreciated and emotional honor I ever had is to have this great ship bear my name.

I'm proud of the ship. I'm proud of Captain Kelso. I'm proud of all the officers and men who will serve in her because I know that their dedication is to us and to the ship's extraordinary capabilities, many top secret, to preserve peace, to protect our country and to keep high the banner of human rights around the world.

On behalf of my wife and myself, let me express my deepest possible appreciation. Thank you very much.

USS JIMMY CARTER COMMISSIONING SPEECH REMARKS BY ADMIRAL STANSFIELD TURNER, USN(Ret.) NAVAL SUBMARINE BASE NEW LONDON GROTON, CONNECTICUT 19 FEBRUARY 2005

President Carter, Mrs. Carter, Vice President Mondale, Mrs. Mondale, Senator Reed, Senator Dodd, Congressman Simmons, platform party and distinguished guests, I'm certainly pleased there have been these warm-up speeches. I hope you're all settled in and your cars are tuned and in 45 minutes I'll finish.

This is a great day for the Navy; this is a great day for the nation; and it's a great day for a great president. But I'd like to address my remarks first to Captain Kelso and in the tradition of old admirals, I'm going to do it by telling him a sea story. If you don't know what a sea story is, it's something that an old admiral imagined happened in his past and he now tells about with exaggeration.

Captain Kelso, some years ago I was in a position that now must be yours, as the commissioning skipper of a naval warship. Of course, it had sails rather than nuclear power.

Today, if you asked me "what's the most rewarding experience of your entire career?" from ensign to admiral, to Chief of Intelligence to professor, in a flash I would say to you, "it was having been commissioning skipper of a naval warship." Why? When I left that ship after two years, I knew it was a good ship. We had taken it to Vietnam and engaged it in combat. I knew it was a happy ship, I knew that I could take personal satisfaction from all that. I'd taken a hunk of steel and a bunch of machinery such as what's here on JIMMY CARTER, infused a crew into it, trained that crew, rehearsed our ways of operating and was responsible. I did not inherit a ship that someone else had built and manned and trained. It was all mine, good or bad. Captain Kelso, when you are required in a few years to stand on deck and say, "I stand relieved, sir," you're going to look back with similar satisfaction. So do a good job, skipper, it's all responsibility and it will all be your reward. And you'll live with it the rest of your life.

And now I'd like to address some similar remarks to the officers and crew of JIMMY CARTER; I'd like to give you a similar charge. Whether you are the mess cook or the Executive Officer, the style and the tone in which you do your job in JIMMY CARTER will set the pace of this ship for a long time to come. Yes, there will be others who will follow you and will change what you set up, but your imprint will last a long time. Make it a good imprint. Make it a professional imprint. Make it an imprint of teamwork that will make this boat an effective unit of the U.S. Navy and a happy one. Yours is a great responsibility as plankowners, and it will be a greater responsibility of any of those who come behind you. Do your best to make this the best ship it can possibly be.

Now, there is a lot that you each can learn from studying JIMMY CARTER. Let me give you an example. In late 1975, I was passing through Atlanta, Georgia. I called and asked if I could have an appointment with my friend and Naval Academy classmate, Governor Carter. I was given a 30-minute opportunity and I was delighted. I thought maybe we'd sit back and reminisce about the days at Annapolis and climbing over the wall, which, maybe, we shouldn't have done. We took 30 seconds to talk about the old days, but then I suddenly found myself being interrogated, intensely. This governor was asking me questions about the Fleet I commanded, asking me about the readiness of the Navy and the personnel situation, the money situation. Then I suddenly found myself over my head and out of my depth. I could not truly answer these as well as I thought I should have. I actually sent him a letter afterwards following up where I couldn't answer. At the end of 29 minutes, because he's a very punctual person, he stood up, escorted me to the door, put his hand on my shoulder, and said, "Stan, I want you to know that the day after tomorrow, I'm announcing my run for the presidency," I said, "Good luck, Jimmy!" And then I went out the door and smiled to myself and wondered, "how could this governor who nobody's ever heard of become the president of the United States?" I mean, he's a classmate of mine you know, it just can't be. Well, that was the last time I ever called him Jimmy.

Now, the lesson of this for you in the crew is that here was a man who was preparing himself for bigger things, for his next job. He was taking advantage of every opportunity to learn. And each of you

need to take that as a model for yourselves because that's the way you're going to improve, you're going to move forward, you're going to move JIMMY CARTER forward and the United States with it. I also urge you, the crew, to be proud of the fact that your ship is named for Jimmy Carter, the 39th president. Because where Jimmy Carter stands out over all presidents I have known in my lifetime, is in the model that he carved for both being an effective president, but also showing the world what the United States stands for in values. integrity, morality, and in unselfish compassion for others in the pursuit of peace. A few days after I went to work for Jimmy Carter as his Chief of Intelligence, he handed me a document that he had written about how human rights would be the centerpiece of his foreign policy. I read it and thought it was marvelous, but I also thought it was impractical. The United States had never taken human rights that far forward. Today, as a result of Jimmy Carter's initiative, we all just accept the fact that promoting human rights is part of our obligation as a nation: in part, because of our sense of humanity, in part because we know it's an essential step on the road to world peace. Jimmy Carter was ahead of his time. And I'm grateful that two years ago, the Nobel Peace Institute recognized that and awarded him the Peace Prize.

Let me tell you of another incident in my experience with President Carter. A terrifying experience of 444 excruciating days when Americans were being held hostage in our own embassy in Iran, from 1979 to 1981. Every day of that crisis, you could just feel the President's chances of reelection just ebbing away. Never once did I suspect that any decision President Carter made with respect to those hostages was colored by his electoral prospects. What he thought was most likely to rescue those hostages and get them back home safely, is exactly what he did. This was integrity at its very best.

During that 444 days, on one occasion the President had his foreign policy team come up to Camp David for discussion. The Iranians had just put a proposal on the table. They would give us back the hostages if we would agree to have the United Nations come and make a thorough inspection or review of what they said was United States interference over many years in the internal affairs of Iran. I spoke up at this point, raised my hand and said,

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"Mr. President, I think we ought to agree, get the hostages back, and then renege on the promise to let the United Nations to conduct a review. After all, we're doing this under duress." Well, I can't tell you the look I got across the table. I wish I could have slid under the table. The President said to me, "Stan, you know we can't do that." His presidential horizon was, of course, much broader than mine. He was thinking of the reputation of the United States in the world, and that we could not permit ourselves to be accused of duplicity. And so I say to you that Jimmy Carter is a beacon that will always be important for the United States to hold high: a beacon that tells the world we are honest, that tells the world we do have integrity in the way we go about our business, that we do have concern for others in our foreign policy; and that we're not just selfish. And as a nation I suggest when we look back at the years 1977 to 1981, when Jimmy Carter was our President, we should thank him for the moral light that be brought and which has never shone brighter. It has never shone brighter because we had a President who did not just espouse morality, but who was himself, moral to the core. If we, as a nation, are going to lead the world today, and it badly needs our leadership, we won't get that leadership because we have great economic strength, because we have immense military power, because we are very astute diplomatic people. We will get that world leadership because the world respects us. So as you sail this ship around the world, never forget that the name of your ship tells the world that the United States does care for others, that the United States does do what it deems to be right, that the United States lives up to its word, that the United States' role in the world is based on morality and a quest for peace.

President Carter, we're so glad you are that beacon for our country. Congratulations, on this much deserved honor today.

Thank you.

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FEATURES

REMARKS BY ADMIRAL BRUCE DEMARS, USN(Ret.) AT THE NSL CORPORATE BENEFACTORS' RECOGNITION DAYS TUESDAY, 15 FEBRUARY 2005

Thave three tasks and 10 minutes—I must welcome you and thank you for your support, deliver a message and introduce our speaker.

First-Welcome and thanks for your support.

Second-For my message I want to speak to this Tango Bravo project.

As I understand it—it is a DARPA led effort to fund five areas in order to develop a smaller, cheaper submarine—one of DARPA's holy grails.

I certainly don't object to advancing submarine R&D in this era when Navy is mis-using R&D funds to build ships.

But to specify that the outcome is a half-size, half-price submarine is ludicrous. It is a prime example of the current lack of *intellectual rigor* that infuses the Navy. This effort is seriously flawed on at least three counts.

First-DARPA has neither the experience nor the talent to broker a serious submarine R&D effort.

Second—the amount of money is trivial compared to what would constitute a serious conceptual design effort. The expected results will be too meager to result in a cost estimate. However a cost estimate is being demanded *now*-even before the studies are complete.

A serious ship design effort starts with a mission, proceeds through ship characteristics studies and a series of design analyses. The winners are then costed out for R&D, construction and life cycle costs. That is the major league-this is the Peewee League.

Finally-this quest continues the mystique that size is the predominate driver for cost. If this were true, why did a Trident submarine, two times the displacement of an SSN 21 cost significantly less in equivalent dollars?

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If DARPA will give me a contract I will explain all this to them. In summation—This is a misguided effort. The money could be better spent developing a mission for the LCS or reducing the burgeoning cost of DDX, which, I am told, now exceeds the cost of a nuclear submarine.

Now to my third task. We are most pleased to have Admiral Donald, Director of Naval Reactors, here to speak to us. While he is still completing his basic engineering qualification card, I have found his insights to be right on. The Navy is fortunate to have a person of his intellect, integrity and industry during these difficult times.



REMARKS BY ADMIRAL K. H. DONALD AT THE NSL CORPORATE BENEFACTORS' RECOGNITION DAYS TUESDAY, 15 FEBRUARY 2005

B ruce, thank you for the kind introductory words, and I assure you that it's my pleasure to attend this event and speak to you this evening. Admiral DeMars, Admiral Chiles, Admiral Mies, and Admiral Smith, it's great to see you, as always. We're fortunate to have the MCPON, Master Chief (Submarines) Terry Scott here as well.

To the Corporate Benefactors, the real purpose of this event is to acknowledge your strong support and to express our appreciation for all you have done for the Naval Submarine League and the Submarine Force. Let me lead off by personally thanking all of you who contributed to some remarkable successes over the last 12 months. I will leave the details to others, but suffice it to say that it has been a while since we had a submarine construction year like 2004.

On Saturday we will culminate an extraordinary journey when we commission JIMMY CARTER, the last of the SEAWOLF-class and a transformational leap ahead in undersea technology and capabilities. Many of you have helped infuse new technologies in our operating ships. Thank you for supporting our great people and their families in many ways. What you do for the Submarine Force is important and valued.

This is an important year for the Naval Nuclear Propulsion Program. Fifty years ago, on January 17, 1955, USS NAUTILUS (SSN 571) put to sea and signaled the now famous report, "Underway on nuclear power." NAUTILUS revolutionized undersea warfare by freeing the attack submarine from the air-sea interface, allowing essentially unlimited endurance, and the true stealth afforded by the submerged environment.

With the commissioning of USS ENTERPRISE in 1961, naval aviation experienced an equally dramatic leap forward in capability. No longer tied to slow at-sea supply lines and with immense propulsion power immediately available all the time, the aircraft

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carrier and, more importantly, the decisive air power of modern naval aviation could be responsive to war fighters' needs in unprecedented ways. As aviation and undersea capabilities have advanced, so has the value of these imposing symbols of national power.

And when considering today's national security environment and that of the foreseeable future, I can't think of a time when the advantages of nuclear propulsion for our submarines and aircraft carriers have been clearer. The Navy today values the ability to surge forces anywhere on the globe to quickly amass decisive combat power. Speed is a valued attribute in battle space dominance. As we have become a smaller Navy and our reliance on the availability of forward bases on foreign soil has become more uncertain, it is only logical that we should value ships that can cover long distances quickly and that can remain on station ready to respond to the needs of the Nation, all relatively independent of the traditional encumbrances of fossil fueled ships. Aside from the obvious tactical, operational, and strategic advantages, I believe the business case for nuclear power for capital ships is convincing today. For example, the historical operations and support costs for USS NIMITZ (CVN 68) are only about 10% more than those for USS JOHN F. KEN-NEDY (CV 67). However, nuclear propulsion provides unmatched warfighting capability, mobility, sustainability, and nearly unlimited endurance.

Additionally, the business case is likely to further shift toward a nuclear option as the market for energy, and specifically oil, continues to become more competitive among industrialized nations. While I am certainly concerned over the instabilities in our world that necessitate the global reach our Navy must provide, I am optimistic that nuclear power in ships is, and will continue to be, a critical enabler for our forces. Of course, I am not exactly an unbiased observer in all this, but since you invited me to speak, I feel free to offer my opinions.

Let me shift gears and speak about the Naval Nuclear Propulsion Program, as it exists today. I am proud and honored to lead it and ever mindful of the legacy of excellence left to me by my predecessors. If you have ever been to our Headquarters, you have probably seen the four large portraits of the previous Directors, painted by one of our talented staff members, which hang just outside my office. It is not uncommon for the eyes of a well-done portrait to seem to follow the observer. I believe it is unusual, however, for portraits to talk to you. These do! But only to me!

They remind me of the paintings that adorn the walls in the famed Hogwart's School of Wizardry and Magic, from the Harry Potter novels and movies. I can't pass by them without being offered a range of strongly held opinions on virtually every topic of the day. Of course the four are never in agreement with each other, with differing opinions on the same topic. For that matter, the same painting often has diametrically opposed opinions on one issue. None can be ignored, of course, and one gets particularly annoyed if not afforded appropriate respect. They argue with each other constantly, mostly on technical issues, of course. Three of them have been observed to challenge each other's manhood by comparing their Nuclear Power School standings, ORSE grades, and the like. One has little tolerance for such nonsense and makes his displeasure known.

All kidding aside, it's good to have those pictures prominently displayed. Collectively, they are symbols of the enduring nature of the place, the importance of continuity of purpose. They also serve to remind that there are high expectations. That we must not relent in our mission of providing safe and effective nuclear propulsion for the warships of this Navy. We have all been blessed that there are over 7400 dedicated professionals at Naval Reactors Headquarters, in the field, and at our prime contractors as well as nearly 17,100 nuclear-trained personnel in the Fleet who embrace that mission, day in and day out, and I certainly am proud of all of them.

Job One at Naval Reactors is fleet support. Pressurized water reactor technology is relatively mature, and we have a substantial body of knowledge and experience operating them. Day in and day out, we exist to ensure the Fleet has everything they need to operate these plants safely and that the exacting standards of maintenance, operation, and training are observed.

I am very confident that we are delivering what the Fleet needs in reliable, safe propulsion power for our capital ships, and we are continuously striving to improve the operability and affordability of

our plants. For example, we are upgrading our reactor instrumentation and controls electronics to a generic system that uses essentially identical hardware for all our plant designs. The difference in operating characteristics of the plants is accounted for, for the most part, in the software. This will improve not only the maintainability and affordability of our nuclear fleet, but also allows us the flexibility to respond to advances in technology more quickly and efficiently.

The key challenge in fleet support is the fact that our plants are aging. The average reactor plant has operated for about 19 years in 2004 and that will increase to nearly 24 years in 2011. With this aging come complexities and some occasional surprises. After all, we are venturing into uncharted territory as we approach end of life on our long-lived cores and as we wring more life out of shipboard components. Again, given the talent, ingenuity, and dedication resident in the program. I am confident in our ability to deal with that challenge keeping it transparent to the warfighters. There are folks outside the Program who view us as being a bit staid, risk averse, and even stubborn when it comes to expanding the application of nuclear power beyond the pressurized water reactors that we have employed at seafor now over 50 years. Similarly, to some, our training processes appear to be old fashioned since, after all, we haven't even changed the name of Nuclear Power School since its inception. To that criticism, I have two responses.

First, we are staid and stubborn when it comes to designing, building, and maintaining rugged, reliable, and safe reactor plants for warships that will take our Sailors in harm's way and that will operate in ports in our country and around the world. The recent grounding of USS SAN FRANCISCO near Guam was a tragic event, no doubt about it. And it hit closer to home than you know. The father of Petty Officer Joseph Ashley who was killed in the accident is Dan Ashley, a 25-year employee of BWXT-Barberton, the company that makes most of our heavy components for our reactor plants.

He is part of the Naval Reactors family and we grieve with him. However, if there is a silver lining to that dark cloud, it was that the ship took a shot, what could have been a knockout punch, yet it brought those Sailors home. The reactor plant provided continuity of power, ship's systems sustained the crew and maintained buoyancy, and the operators drew on their skills honed through

rigorous, practical training to respond properly under what must have been chaotic conditions. And while I am sure the Submarine Force will thoroughly investigate the circumstances of the accident and apply lessons learned to minimize the likelihood of future recurrence, we do live in an imperfect world. Our plant designs and our training must account for that imperfect world. They must provide safety margin to the unexpected and unforeseen so that our Sailors retain the confidence that their ship will prevail in the most hostile environments, in peace or in war. That imperative underscores what we do every day in the Nuclear Propulsion program.

Second, just because we can be staid, old fashioned, and stubborn doesn't mean we don't have vision; that we don't "challenge assumptions" as has become popular to say. You can't assemble a bunch of bright folks like we have in our program and expect them to be satisfied with "That's the way we have always done it". If you look in our history, there have been numerous examples of "challenging assumptions" - none more provocative than NAUTILUS herself. The original core on NAUTILUS lasted two years; our submarine cores now last the life of the ship. Plant designs, each building on the lessons from the previous, have become simpler, more reliable, and maintainable. CVN-21 will have three times the electrical generating capacity of its predecessors; yet will require only 25% of the cabling to distribute that power throughout the ship. Further, we believe we can safely reduce the Reactor Department manning on CVN-21 by 50% when compared to the NIMITZ-class carriers.

VIRGINIA's power plant has fewer valves, pumps, and circuit breakers plus improved control systems that will allow us to eliminate some watchstanders and, accordingly, reduce the manning of that class of ship. In total, design improvements for VIRGINIA yielded 40% total construction labor savings over SEAWOLF. We built and proved the efficacy of the light water breeder reactor at Shippingport Atomic Power Station. We tried a sodium-cooled reactor on the SEAWOLF (SSN 575) and experimented with electric drive in capital ships on the submarines TULLIBEE and GLENARD P. LIPSCOMB. A lesserknown fact is that in the VIRGINIA reactor plant, for the first time, we were able to advance the engineering of acoustic stealth while reducing the hull size.

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With respect to training, Nuclear Power School today is not the same Nuclear Power School it was when many of us attended. We allow the use of calculators now.

Seriously, Nuclear Power School is home to the full spectrum of learning techniques from traditional classroom teaching to the latest computer based training. Change is evident as, for example, we have reduced enlisted nuclear pipeline attrition from 70% to 30% without even the hint of compromise in quality of our graduates. Looking back on that fist I just read, you will note that some of those innovations were more successful than others. To me, that clearly indicates a willingness to push the boundaries of the creative envelope and to take some calculated risk to advance the utility of nuclear power in our Navy.

And we are still pushing that envelope. Recognizing the potential increased energy needs of our ships to power future advanced sensors, weapons, and unmanned vehicles and to ensure we can sustain worldwide surge readiness over the lives of our ships, we are developing a core that provides 1/3 more energy in the same volume as a VIRGINIA core.

We call it the Transformational Technology Core (TTC). With significantly more energy, we expect to extend ship life by as much as 30%, increase core operating hours per year, and allow operation at a higher average reactor power. The TTC will give us greater operational capability and mission flexibility.

Looking further into the future—beyond the next design most likely, we have three initiatives underway that all converge about similar technological challenges. First, we are looking at an advanced pressurized water reactor with an objective of significantly trimming down acquisition cost while reducing the size and weight of the plant. Second, we are working cooperatively with NASA to provide a reactor to meet the deep space power requirements for the PROMETHEUS project targeted for launch in the middle of the next decade. Third, we are investigating technologies leading toward a direct energy conversion reactor plant that eliminates the steam cycle, converting nuclear energy directly into electricity. In this effort, we are the world leaders in improving cycle efficiency from a meager 4% to in excess of 20% approaching that required for a viable energy source.

Each of these projects presents their own unique challenges, but all involve the use of very high temperature fuels and materials that simply have not been used anywhere in practical applications.

We are cooperating with the Navy/DARPA technology demonstration initiative called TANGO BRAVO to investigate innovations that can potentially reduce the cost of future submarine designs while retaining (or advancing) today's capabilities. As they look at initiatives such as distributed propulsion, we are, in a separate effort, investigating options for reducing cost of a future power plant that could complement their efforts.

Progressive as Naval Reactors is, we remain grounded in reality – a bedrock value that has endured for the Program's 56-year history. Admiral Rickover scorned what he called paper reactors: The promise of a reactor that is simple, small, inexpensive, and capable of delivering all the performance we could want, yet exists only on paper.

The march of technology forces me to alter my predecessor's view in one significant way: Paper reactors have evolved to PowerPoint reactors, becoming *more* beguiling because of the mesmerizing lure of pictures, graphics, lifelike animation, their tendency to proliferate at light speed, and their seeming legitimacy when emblazoned with appropriate clipart logos. While the above initiatives all represent potentially disruptive technologies worthy of our pursuit, and most have progressed beyond mere PowerPoint, none are sure bets. We have to invest in rigorous design and engineering to bring them to reality, and even then, be willing to abandon them if the leap to reality is too far. Ultimately we must be ready to send whatever we design into combat with every expectation that it will not just survive, but will prevail. The public must remain confident that we will protect them with safe, rugged reactors on the ships operating near their cities. At Naval Reactors, "We get that – we embrace it – everyday".

In closing, I offer you a quote from coaching legend, Vince Lombardi, who said,

"Individual commitment to a group effort that is what makes a team work, a company work, a society work..."

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The Corporate Benefactors are among the MVPs that help make "Team Submarine" work. Good men and women, thank you for your dedication to the development of our Submarine Force, the innovations that allow us to succeed, and your assistance with our readiness to represent and protect America's interests all over the world. Your individual commitment to our group effort in defending this great Nation is duly noted. As always, you're out there not just making us better—but making us the best!

Thank you!

REMARKS BY CONGRESSWOMAN JO ANN DAVIS (R-VA) AT THE NSL CORPORATE BENEFACTORS' RECOGNITION DAYS WEDNESDAY, 16 FEBRUARY 2005

A dmiral DeMars, Vice Admiral Reynolds, Members of the Naval Submarine League, Ladies and Gentlemen, Good Morning. I want to thank you for your invitation to speak at your NSL Corporate Benefactor Recognition Day. It is always a pleasure to escape Capitol Hill and speak about an issue that is very near and dear to my heart: the role of our naval forces, specifically submarines, in the defense of our nation.

With the 109th Congress settling into its legislative routine, now is the time to highlight and promote the remarkable capabilities of America's silent service and begin a dialogue on the future of our Submarine Force. I recently sent a letter to Congressman Roscoe Bartlett of Maryland who is chairman of the Subcommittee on Projection Forces. This subcommittee has direct oversight responsibilities for Navy and Marine Corps programs including our nation's submarine fleet. As a Member of this subcommittee, several of my colleagues and I have requested hearings on the current and future state of our Submarine Force. The integral role of the submarine in this security environment is not being met with appropriate procurement and maintenance funding. While several factors are to blame, we are facing increasing demands and decreasing resources for our submarine fleet.

While the schedule is still being finalized, this is certainly a hot topic on the Hill and I look forward to our hearings and discussions. Recently, I formed the Congressional Shipbuilding Caucus with Representative Gene Taylor of Mississippi. To date, we have over 60 members who have joined us from across the country. Members of Congress from landlocked states like Missouri and Arizona have joined our ranks as we all realize that shipbuilding and the associated industrial bases have a huge impact nationwide. I am pleased to report that Members of Congress from submarine-heavy districts have joined in great numbers as Representatives from Connecticut, Virginia, and Washington state are among our membership. This is truly a surface/subsurface partnership, as the issues and challenges confronting the subsurface navy and its industrial base are the same ones facing our surface and carrier friends.

While there are certainly many issues confronting the industrial base that produces these stealthy and versatile platforms, there is yet another issue of requirements and the current Submarine Force. The 2001 QDR Baseline Submarine Force called for 55 subs. We have 53 in our inventory today. On Saturday, USS JIMMY CARTER, the last of the Seawolf class, will be commissioned —bringing our inventory up to 54. While this new addition to the sub fleet is welcomed, we are not prepared for the long term challenges of our Submarine Force structure as the Los Angeles class will begin to decommission in just a few years.

The Chairman of the Joint Chiefs of Staff Attack Submarine Study of 1999-2000 set 68 subs in 2015 and 76 in 2025 as goals for growing our Submarine Force. This will allow us to meet all of the operational and collection requirements of both the Combatant Commanders and our Intelligence Community. Anything below 55 SSNs in 2015 and 62 in 2025 would leave our combatant commanders with insufficient capability to meet urgent crucial demands without gapping other requirements of higher national interest. Incidentally, a complement of 18 Virginia Class submarines would be needed in 2015 to meet the goal of 55 SSN. There is no way that we will reach that number at current production levels proposed by this and recent budgets.

Stealth, sustainability, versatility, combat effectiveness: there are few platforms in our military inventory that bring so much to the table. I am absolutely certain that we will employ these ships with greater frequency in the future and our next generation SSN will be the dominant undersea warfare platform of the 21st Century. It is up to the leadership in the Pentagon and those of us in Congress to devise strategies that will enable us to meet the requirements of the Joint Chiefs and Combatant Commanders.

It is incumbent upon all of us both in and out of uniform to make a correct determination on the size and shape of our future Submarine Force. Here are a few recent observations from both the Navy

and the outside perspectives which are helpful in framing the debate:

- A senior Navy submariner recently estimated that the Navy is meeting only 65% of the Combatant Commander requirements worldwide.
- A Congressional Budget Office study on long term implications of current defense plans for Fiscal Year 04 said;

Notwithstanding some modest changes in planned procurement rates for attack submarines, maintaining a force of 55 SSN remains the Navy's most serious challenge.

 A non-partisan think tank, the Lexington Institute, made a similar determination: "the continuing evolution of the threat against the American homeland and U.S. interests abroad demand that the country continue to invest in and deploy advanced submarine technology optimized for the new environment. With adequate funding, robust training, and innovative operational thinking, the submarine fleet will continue to be the Navy crown jewel well into the future.

In the current fiscal environment, we are meeting increased challenges with dwindling budgets. Of course, we were disappointed to hear the budget proposal of the Virginia class order being cut from 2 to 1 as this build rate will not sustain us to meet the Combatant Commander requirement both now and in the future. Additionally, this decision will only result in a net cost INCREASE in the long term. These myopic budget decisions are cause for concern, and I assure you that they will be a priority for me in this Congress.

The 21" Century has indeed brought many challenges to our national security. The current environment has forced us to be prepared for both the asymmetric and traditional threats, amid operations in both Iraq, Afghanistan, and elsewhere. Fortunately, we have assets which allow us to respond to these challenges, and the submarine is absolutely critical to this capability. The recent decommissioning of USS PARCHE and commissioning of USS VIRGINIA provide an opportunity to take a step back and examine where we have been and then look toward the future. The subsurface threat has changed significantly since PARCHE was the vanguard of our Cold War operations. While many of PARCHE exploits are best left untold, we nonetheless celebrate her and the rest of the Sturgeon-class for their contributions to the defeat of the Soviet Union and the end of the Cold War.

Our future threats are no longer a large fleet of nuclear-powered Soviet submarines. We find ourselves facing diesel powered, littoral subs that have grown in number since the end of the Cold War. Countries such as Iran and China are building fleets of almost undetectable diesel-electric submarines which we must prepare to counterbalance. The Virginia class submarine will give us this capability and be able to shoot Tomahawks, launch unmanned vehicles of all types, and allow our undersea Navy to continue its proud tradition of service to the nation.

Finally, as a Member of the House Armed Services Committee, my top priority is supporting the men and women of the United States Military. This committee is unique in that it is perhaps the most non-partisan on Capitol Hill. All of us have the same goal: to support our Armed Forces and, of course, our submarine fleet. Again, I thank you for the invitation to speak here today and I look forward to your questions.

KEYNOTE SPEECH TO THE SUBTECH OFFSITE SPONSORED BY NAVSEA 023 VADM CHUCK MUNNS, USN 16 DECEMBER 2004

Editor's Note: To prevent any confusion on the part of NSL members accustomed to using the term SUBTECH in reference to the annual JHU-APL?NSL classified symposium, the following is offered from the Navy:

"SUBTECH" refers to both the organization and process by which submarine technology requirements are established, prioritized and communicated. SUBTECH encompasses not only submarines but also Undersea Warfare technologies. Technology requirements span both the long term Science & Technology (S&T) and nearer term Research & Development (R&D) environments. The mission of SUBTECH is to focus the transition of submarine technology from its emergence to platform insertion while maintaining emphasis on the key technology areas of connectivity, mission payload, platform stealth, sensors and processors and affordability. SUBTECH produces a recommended R&D investment strategy that integrates, aligns and prioritizes R&D investment to meet the Submarine Force strategic goals.

Thank you Steve (Ed. Note: RDML Steve Johnson) for your kind introduction. Welcome to all the members of the Undersea Enterprise. I am glad you took the time to attend this off-site. Special thanks to Mr. Glenn Zora and Joe Hellner who put together a superb program, which should leave all of us more informed and better synchronized. It truly is a pleasure for me to be here and today I hope to engage in some very frank conversation, which will help to guide all of us into the future.

As I look to the future and the challenges we face in keeping the Submarine Force ready and relevant, I am reminded of a challenge faced by a fellow submariner more than 62 years ago. On 27 May 1942, USS YORKTOWN returned to Naval Station Pearl Harbor for

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repairs to significant damage sustained during the Battle of Coral Sea. Conservative estimates placed the time for repair at no less than three months. Admiral Nimitz, who was well aware of the Japanese advances toward Midway, desperately needed the capabilities YORKTOWN, a proven Fleet carrier, would bring to the upcoming fight, and simply could not afford to lose her. He compressed the three month yard period to three days. The workforce at Naval Shipyard Pearl turned to---magnificently dedicating 1400 workers night and day. To ensure sufficient electrical power to the yard throughout the timeframe, the entire island of Oahu sustained sequential black-outs. These extraordinary efforts ensured YORKTOWN sailed from Pearl Harbor on 30 May a battle ready asset, and into history.

It is my honor and privilege to be serving as Commander Naval Submarine Forces. We, like those supporting YORKTOWN, have an urgent mission. We are being called to fight the Global War on Terrorists. Like Nimitz, we need improved capability, which will give us more of an advantage in this war and because the enemy is pressing, we need it NOW. But unlike Nimitz, we don't have the luxury of redirecting virtually unlimited assets at our challenges we operate in an environment of fiscal constraint simply unknown to our predecessors. We can, however, do this... it's the right thing to do... it is possible... we can meet the Nation's needs with a creative mixture of innovation, technical excellence, intelligent investment, and responsible resource management.

Just look at our success this past year. Our globally deployable force is contributing to operations in every theater. Today, 11 submarines are deployed and another 24 ready to surge if needed. We sent them forward by every possible route: under the Arctic, around the Capes, and through the major canals. This flexibility and responsiveness is a tribute to the capability and training investment we have made in the past. And we are continuing to invest. USS VIRGINIA, the first of our new class of attack submarines designed for the post-Cold War environment, has been commissioned, PCU JIMMY CARTER has successfully completed sea trials, USS OHIO is back in the water progressing toward completion of her conversion to SSGN, and we have solid new construction and modernization efforts underway.

To ensure continued success, we must collectively work a tight process, which provides solid, efficient results. That's what we are really here to do today: synchronize and focus our already established SUBTECH process. So today I will talk about our SUBTECH process a bit and then highlight some focus areas, namely: decision making, analysis, interoperability, expanding our area of regard, and cost-wise technology insertion.

It is a great time in our history for SUBTECH, because we are at a crossroads. Technology has reached the point of enabling the submarine crew to expand their area of regard and, at the same time, become a much more connected and collaborative participant of the Joint Force. Each submarine is, and eventually each sensor and weapon will be, a node in the force-wide network.

There is much to do. I believe our formula for continued success is the effective, timely and efficient output of a finely tuned system of people, processes and equipment. During my tour as Commander, Submarine Group Eight, I had the opportunity to ride many foreign and U.S. submarines. And I will tell you we are truly blessed. We have the best equipment, the best support, and the most motivated, professional, and innovative sailors on earth. But I also noted a few areas where there wasn't much difference in output between what our subs were doing and the other benchmarks. To stay ahead, we need to continuously improve the intersection of people, processes and equipment, and the second of these three—process—holds the potential for quickest and most significant improvement. The people and equipment are already there, and it's the processes that tie them together.

Gathered here today are people who can make a difference— YOU. You, together can work that synergy of people, process and equipment. In the audience you will find:

- Our leadership from the Secretary of the Navy's and CNO's staffs
- Industry
- University Research Centers
- Government Research Labs
- Warfare Centers
- Program Offices

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- System Commands
- Strategic Systems Programs
- · Resource Sponsors, and
- · The Fleet

SUBTECH was formed to establish communication and intersection paths to keep Submarine Force needs synchronized with the evolution of technology. We have a responsibility to fulfill this charter. Some of you bring technology into submarines and their subsystems. Some of you, the Fleet, recruits and trains the people and equips and maintains the boats. Together we create a smooth, efficient, repeatable, and connectable process which delivers worldclass undersea capability. The structure we have established is simple and it is aligned with Sea Power 21, the Future Capability Vision, and the Naval Capabilities Development Process. The structure is in place, we merely have to use it, effectively.

Let's start with some attributes we must all jealously guard: stealth, agility, mobility, and war winning capability. We, to date, have built, integrated, and executed these attributes to make undersea warfare more relevant than ever. Our ships and crews provide unique value, particularly in forward areas during the prehostilities phase of combat and we are equal partners in the other phases.

We clearly have the best components of superiority—people and equipment—but if other nations meld these same components into a better system, then they can approach our performance. Said another way—if we don't mold these into the best, most coherent system then we are not making best use of the resources our great nation has loaned to us, and we put our people and our Nation at RISK.

Let me provide a bit of background which supports SUBTECH effort. We have a good system in place to analyze, articulate, and prioritize requirements. If you haven't already, you need to read the <u>Submarine Force Future Capabilities Vision</u>, which is posted on the SUBLANT homepage <u>http://www.sublant.navy.mil.</u> By the way, this speech is also posted there. Everything I tell you today is consistent with the Future Capability Vision. To summarize, there are four strategic concepts:

- Assure access
- Develop and share knowledge
- · Strike rapidly, with surprise
- · And, dissuade and deter

These drive 5 technology vectors:

- Payload
- Modularity
- Connectivity
- Computing and automation
- · And, integrated electrical systems

The vision provides Sea Power 21 capabilities to pursue on a priority basis. You should, as I do, refer to these when making resource decisions.

In addition, to assure alignment throughout the Force, we also have a robust bottom-up approach to requirement generation, which utilizes the Submarine Tactical Requirements Group to capture shortfalls and recommend improvements to tactical systems. They rely heavily on an ability to upgrade these systems through the APB process inherent now in our weapons control, communications, electronic surveillance, and torpedo systems.

To formalize the process, we have developed systems to maintain history, vet new ideas, and prioritize expenditures of limited resources. The "Cost of Doing Business" matrix tracks the fixed requirements associated with running our Submarine Force. The "Minimum Modernization Matrix" captures the process of maintaining our submarines and systems up to date and responsive to needs of the fleet. And the "Future Capability Matrix" helps guide our investment decisions to buy new capability. You have access to all of these on the SIPRNET through the N8 section of the SUBLANT web site. Now on to the meat of the discussion...

I'll discuss five outputs we want from our systems. There are more than five but these are a good place to start. Others will talk about payload, UUV, ARCI, APB... let me rather turn to output characteristics. How do we tune our system of people, process, and

equipment. I will start from inside the hull and work my way out. I'll discuss:

- Decision making
- Analysis
- Interoperability
- · An expanded area of regard
- · Cost-wise technology insertion

First, decision making. Throughout my career I have observed as computing power increases, that in a relative sense distilled, relevant, and intuitive information presented to the decision maker has diminished. I am about to carbon date myself, but all of you have access to my bio. Let me take you back to my first Fire Control system, the Mark 101 Attack Director. Although limited in its versatility, it formed a tight system with the decision maker. The Commanding Officer could look over at the simple analog dials and without having to assimilate and integrate in his head, he was provided the knowledge he needed to make decisions and take actions. These dials presented in an intuitive way the information that was needed. When you don't know much, it's not too hard to clearly present it. Today, as we sense so much more, we have built many tools. Most of these are focused on the technician as they work to process data. But we have missed the opportunity to develop commensurate improvements in data fusion, display and decision making. The decision makers are increasingly less connected to the system and are forced to spend substantial cognitive effort processing and integrating data-stealing precious time needed for strategic planning and operational analysis. I have seen a recent trend reversal with emphasis on fusing data and presenting it in a format more conducive to decision making. We have long since gone digital, we have written a number of fancy tracking algorithms, we have even implemented tools, such as the Parameter Evaluation Plot, or PEP, which help the operators and decision makers gauge the accuracy of generated solutions. But we must do more. Available sensor and environmental data is only going to grow, so we need to get out, and stay, in front of this power curve. We shouldn't require several dozen people jammed into a full control room to assist the single decision maker-the Approach Officer. We need to do better.
There is more to the story than just the way information is presented. We must also consider the viscosity of information flow. The Commanding Officer can't make a decision on information trapped in a Department Head's inbox, or displayed only on the fire control operator's hidden screen. Conversely, a decision maker swamped with information flowing unimpeded to him is worse off than if none of it had come his way. The great crews I've seenwhether conducting navigation, weapons employment or engineering drills-all have a low viscosity of information flow. The right information gets to the right people at the right time so they can make the right decisions. There are several reasons this might not happen, all of which we need to address. First, we need to have the right information. The problem here is not all information is equal. accessible, or even of constant importance. As an example, the Navy's Distance Support program and the Submarine Force's Technical Data Knowledge Management program together are working on accessing information from off hull and dynamically updating information stores such as tech manuals. However, no system is in the works that finds, validates, and makes this and other information easily accessible to the crew once it's on board. We need an efficient search, retrieval, and new posting mechanism. Then, the right person needs to have this information at the right time. Here is where viscosity of information plays a large role. Another example-maybe a bit dated but it's one we can all relate to. Consider the information flow from the sensor to the Approach Officer when we were using manual plots. Sonar would detect a contact, put a tracker on the noise level (3-4 people), we then align a repeater to the tracker, read out loud the bearing at 15 sec intervals, plot it on a chart to give us an average over a minute (2-3 people), plot this on a separate geographic chart, do some analysis and then pass the result to the Fire Control Coordinator (4-5 people). He would compare this solution to other algorithms, insert a system solution which drove weapon presets and finally assisted the Approach Officer with ship placement and weapons launch decisions and action. A total of several dozen people and five to fifteen minutes of time. This was a highly viscous information system. What happens when the bearing jumps 4 degrees in 10 secs-does the CO see it on his own, does sonar report, does time bearing

recorder or plot report, does plot coordinator speak up, does FCC recognize the close contact? The good news is that we, by and large, have improved and moved past this particular viscous process but you get my point—there is more to be gained here and many other processes to improve. We need low information viscosity in all our processes —navigation, contact coordination, environmental sensing, sailor training, equipment maintenance, engineering drills, etc. So here is your challenge: design systems which present relevant information from sensor or historical data, which do so quickly and intuitively and which require fewer technicians. Then help us to drastically streamline the process which that info supports.

Second, Analysis. Now that we have the right information flowing to the right people at the right time and in the best format, we need to conduct analysis. I break this down into strategic and tactical. Strategic analysis is conducted across the force to trend matters like our torpedo proficiency, navigation practices, and tracking expertise. It's being done by NUWC, DEVRON-12 and others. We are doing well but need to do more. Let me discuss tactical analysis here. So often, during the heat of standing watch, we either miss an important piece of data, don't recognize its closeness to a red line or trip wire or fail to note a worsening trend. And even more critical, when we do see and learn, we fail to advise the other watch teams, or other ships, which means they are doomed to relearn the same lesson. To illustrate, imagine you're a watch team transiting along a coast-it's much more than maintaining your track on a chart and assigning contact numbers as you progress through the area. Rather, you must collect information from multiple sources: spherical, hull, wide aperture, and towed arrays, radar, fathometer, ESM, radio, sound velocity profilers, acoustic intercept, visual, IR, GCCS, reach back, etc, etc., etc... You must work hard to correlate multiple sources, to build a picture, a visual representation of the environment around you. You must constantly conduct analyses to determine merchant transit lanes, trawler hot spots, ocean characteristics like SVP, directional prop loss, propagation paths, Le variability, etc ..., then you must pass this story on to the next watch section. They take what you give them, and build ... they validate, refine, and improve the collective knowledge. We must take care to capture the permanent lessons, or knowledge, and pass

them on to the collective Force wisdom—to the next deployers. All of that is not easy today and it's not effectively done. I am asking you to develop the equipment, databases, and analysis procedures to dramatically improve this capability—to capture, store and pass on the intrinsic knowledge we create everyday.

Next, my third point—interoperability. We value being connected and collaborative, and an essential element of both these characteristics is achieving interoperability. We can ill afford isolated stand alone systems, which will not directly connect to joint forces at the tactical and operational level. These systems will quite simply drive us out of business. They invariably will force us to speak a language not understood by our partners—rendering us irrelevant. Anything new we put on a submarine must be conceived and born joint, and must be open and interoperable.

We know how to do this. ARCI is a prime example where we led the way implementing a revolutionary concept in architectural design and capability acquisition. There was an element of risk in taking this approach, but imagine how far back we would be today without ARCI. The inherent open architecture design allowed us to build an interoperable system and maintain it interoperable with scheduled updates. We will continue to entertain new out-of-the-box ideas as long as they are interoperable and improve capability or reduce overall cost.

Part of being interoperable is the capability to communicate. You know the challenges we face. I know there is plenty of good work going on to make communications at speed and depth a reality. So much work, I fear we may spread our efforts too thinly in an effort to chase too many technologies. The Undersea FORCEnet working group is the right collaborative mix for attacking this. They have started some excellent work by surveying and assessing the technologies and concepts currently fielded, in prototype, and on the drawing board. In parallel, we are Sea-trialing several potential near term systems. SUBPAC is leading the effort to write the first draft of an overall communications at speed and depth CONOPs. All of these efforts must result in a significant reduction in the time latency of establishing and conducting reliable, two-way communications at data rates sufficient for the problem at hand. Our current focus is ASW. If during a future coordinated ASW engagement, the Theater

ASW Commander can, within the span of a few minutes, communicate some concept or action to a CO on a submerged submarine on demand, if they can coordinate contact and targeting data, effect real time waterspace management, and carry out the prosecution, then we will have achieved initial success. From there we can build toward higher data rates, greater communications security, more operational flexibility, and more extensive, ubiquitous reach, but the first step is coordinated, littoral, anti-submarine warfare. And we should do it in a build-test-build fashion.

Fourth, expand our area of regard. With the SSGN coming online in the very near future and options being considered for our SSNs, we need to take advantage of the increased payload volume to expand the area of regard of our boats. While operating undetected for long periods in the littorals, we will deploy unmanned vehicles and sensors. Our ears will be open and our reach will be extensive. We will be able to prepare the environment and influence events when directed.

We have been working several years toward universal encapsulation, which will simplify and reduce the cost of employing existing payload from a submarine. We are getting much closer to achieving this goal. Just two months ago, we released a Stealthy Affordable Capsule from a Flexible Payload Module onboard USS GEORGIA. From initial indications, this launch was a success and clears the way for the next step, which is to launch an actual payload. Right now, the Submarine Littoral Warfare Weapon is poised to be first out of the chute. Working through this new payload will not only give us an area dominance weapon, it will also facilitate an offensive capability to support SOF and other littoral combat options. Working this capability will enable us to resolve many of the general technical issues of submerged payloads. We will leverage this effort to field UAVs, UUVs, IO, and weapons for time critical strike. The Submarine will be an enhanced node in the net, providing a viable, responsive option for wide area clandestine surveillance, battlespace shaping, and target servicing.

Lastly, the cost of technology insertion. New capability, which reduces our overall costs, must be embraced. We pay a significant amount in terms of time, dollars, and training to enhance the capability of our boats. Driving down these costs will not only free up more dollars to buy additional capability, but will enable higher operational availability and will more efficiently utilize our people's time. One dollar today in order to save two dollars tomorrow could also be a wise investment. Cost reductions in technology insertion, maintenance, training, and manpower can add to significant amounts, which can more than offset initial procurement costs. To make smart decisions, we will need a rock solid business case. You should find Navy leadership today has a better appreciation for business principles and is eager to pursue this approach.

Let me give you an example. The COATS facility at EB required a large initial investment. However, the savings we have achieved in terms of reduced ship building cost, reduced time to install and integrate combat systems, and more rapid crew training has produced a sizable return on investment. Ring laser gyro systems in place of more fragile inertial navigators is another.

An initiative we have taken at the operational level has reduced people and effort while piloting in restricted waters. This is an area where we throw too many people at what should be a relatively simple problem. Commercial mariners accomplish this task with 5 people and we use 19. After conducting an experiment on USS OKLAHOMA CITY and USS KEY WEST we learned how to reduce the number of people to 14, while still using current technology. It's working. We have invested in electronic navigation and charting systems and when they are fully implemented and certified, we should be able to reduce this to 9 and we should go further. The net result will be a savings to the Submarine Force and Navy.

There are other opportunities out there to reduce manning requirements through technology insertion. I don't have all the answers, but will offer one area to investigate: force protection. Since 9/11, we have continued to grow the requirements and every new requirement means more people. It is up to us to scrub the requirements for validity, but technology could also help by automating some of the functions currently performed by humans.

I have given you quite a bit today, but I really do believe I'm not asking too much from you. Just deliver people, process, and equipment in a way to improve our systems so they present a clear picture of reality to the decision makers in an actionable format at the time they need it. Automate collection of information and enable

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analysis required to distill trends which will enable continuity and learning at both the tactical and strategic levels. Make all future systems interoperable, even with systems which do not exist yet. In the near term, get our submarines connected to the larger battle-force with emphasis on reducing latency of command. Bring universal encapsulation to fruition so we can put new payload on our submarines without breaking the bank. And, taking into account total lifecycle costs, bring new capability, or even replace current capability, with designs that cost less to equip, maintain, and operate. There is nothing earth-shattering about this, it is the list we need to work together on a priority basis. And if there is any doubt out there that these things can be done—just look at the capability today in USS VIRGINIA and her modern, all volunteer crew in comparison to our early nuclear subs. The distance we have come is much further than what I am asking you to do.

I realize your membership in SUBTECH is not your primary duty, but you serve a very important function in developing and shaping the future of undersea capability. Like Admiral Nimitz in 1942, we face significant challenges in meeting our commitments to the Navy and our Nation - I am confident we too, will find the way to ensure our Naval forces are as well equipped as we can make them; as well trained as current unpredictable circumstances demand; and as capable of defeating every foe as our nation expects. If we can keep the engine of Undersea Enterprise in tune and firing in a synchronized manner, we will be successful in delivering the capability this nation needs. We will deliver undersea superiority to every portion of the globe. Thank you for your attention and keep charging. The sea dominates the Earth. This dominates the sea.

It runs silent, it runs deep. The Organia-daw attack submarine is the most advanced andersea weapons system in the world. This machar-poweren submarine comprises an univarive mix of technology flexibility and combat effectiveness. Designed to meet charging missions and threats, it is at the forefront of the Navy's pash to maintain 21st century sea superiority. Northrop Gramman Newport News is proad to be a partner on the Navy's next-generation submarine. It's one reason there will always be something in the water that keeps America strong.

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SUBMARINE/SPECIAL FORCES OPERATIONAL RELATIONSHIP GETTING CLOSER

by Mr. Robert A. Hamilton

Mr. Bob Hamilton is a journalist who is a frequent contributor to <u>THE SUBMARINE REVIEW</u>. He has long reported on defense issues and currently writes on submarine-related subjects for <u>The New London Day</u>.

S ince Carlson's Raiders deployed off submarines in World War II, Special Operations forces have enjoyed a close relationship with the undersea warfare community. Now the convergence of three unique submarine programs promises to bring the affiliation to an entirely new level.

With the commissioning of VIRGINIA and JIMMY CARTER over the last year, and their sister ships of the SSGN force that will follow, the submarine community has a greatly expanded ability to support Special Operations missions. VIRGINIA is equipped with the gear it will need to insert quick-strike SOF (Special Operations Forces) teams anywhere along the coast. JIMMY CARTER will allow Special Forces to deploy an entirely new range of equipment when necessary. And the converted Ohio-class submarines known as SSGNs will support entire Special Operations campaigns, becoming a virtual underwater base.

Commander Jeff Bender, a spokesman for the Naval Special Warfare Command, said there are some things that are common across the platforms that will make them particularly valuable to SOF personnel.

"All three of the submarine classes are capable of hosting the Dry Deck Shelter, the standard fleet system for garaging a SEAL Delivery Vehicle," as well as the Advanced SEAL Delivery System, the next generation of SOF transport off submarines, said Bender. "Both VIRGINIA fast attack submarine and the Ohio-class submarine (SSGN) contain diver lock-in/lock-out systems for combat swimmers to utilize when tactics do not dictate use of the SDV."

All three ships have installed the most modern communications and electronic systems, Bender continued. For instance, the radio rooms on the submarines all contain equipment for communications with Special Operations Forces, traditional Navy radio systems and advanced Joint Forces radios.

"Although discussion of particular tactics is limited to military planners, the general public can infer some ideas from the operational capabilities," Bender said. "All three submarines steam underway on nuclear power ... The SSGN is fitted with unique high endurance features to enable much longer mission durations, with many more specialists and SOF personnel on board, if need be. The fast attack submarines are smaller ships, designed to be more flexible and multi-mission capable. The fast attack submarines are more numerous than SSGNs, meaning they will be more readily at hand if a contingency popped up across the globe."

While the military planners are reluctant to talk about how the SOF capabilities of the three classes of submarines might be exploited, many analysts and experts believe the full potential still hasn't been realized, that the submarine and Special Operations communities are just beginning to understand how they might be leveraged.

"It's going to make a huge difference, but it's so early I think the SOF (Special Operating Force) is really just waking up to the capabilities that they are going to have at their disposal," said Robert O. Work, a senior analyst with the Center for Strategic and Budgetary Assessments. "The capabilities of all these new classes of ships give the Special Operations community more breadth than they've ever had before. I don't think it's going to be just Navy SEALs operating on these. Special Forces, Delta Force, there are a lot of units that are going to be able to use these capabilities."

And it will not just benefit SOF, said Captain James Patton Jr., USN (Ret). The stronger ties will give submarines greater relevancy in 21" century warfare as well, he said. Since the end of the Cold War submarines have proven their worth at strike operations and surveillance, but delivering Special Forces is something that it can do better than any other platform.

"The conflicts of the next decade or two, at least, are going to be very oriented towards special forces, there's going to be a lot more finesse involved, and as Special Forces related combat becomes more important, then submarine delivery is going to be more important, which is going to make submarine numbers more important," Patton said.

Special Forces appreciate submarines for a number of reasons, Patton said, including the fact that they are stealthy, have great endurance and are not hampered by a logistics tail. "And both communities are very compatible, because both are very cautious, meticulous about planning things down to the finest detail," Patton said. "Seals like the fact that when they have to get out of a submarine, a very talented enlisted guy checks the lockout trunk, and then an officer goes in and checks it again."

A decade ago, when VIRGINIA was taking shape in a computeraided design program at Electric Boat, Navy planners recognized the importance of special operations in a post-Cold War environment, and built the capabilities to support them into the ship. A nine-man lockout trunk will allow large groups to leave the submarine at the same time, and the ship can carry two different types of minisubmarines to deliver commandoes ashore covertly. But equally important will be its computerized depth control system, giving it the ability to hover within inches of a specified depth, at very slow speeds. When SEALs are leaving a boat, the pressure differences from even a small change in depth can be debilitating.

"In the littorals, it's not about how fast you can go, it's about how slow you can go, and how well you can maintain depth," said Capt. David Kern, the first skipper to take VIRGINIA to sea. "We've never had the fine control we have with this system." For obvious reasons, some of VIRGINIA's SOF support capabilities are not discussed publicly, but there are many unclassified improvements that make it more accommodating to SEALs and other commandoes. The ship's torpedo room can be reconfigured in an hour to berthing for up to 50 Special Forces, and the attack center is outfitted with equipment such as an infrared imaging system and laser range finder on the periscope, so VIRGINIA can detect any movement on the blackest night, and pinpoint its location. It has a compressor that can fill scuba tanks with diver-quality air, a built-in safe for ordnance and ammunition, and a hot air drying system for equipment when the SEALs return.

"This thing was built for the SEALs," said Chief of the Boat Casey White. "In the global war on terror, we have to go places and do things we've never done before, and this ship is going to be able to do it."

JIMMY CARTER started its life as a Seawolf-class submarine but got a 100-foot, 2,500-ton hull insert that gives it, essentially, a bomb bay amidships, with an 88-inch access hatch from the pressure hull into the free-flooding area. It is equipped to carry up to 18 commandoes for extended operations or 50 for shorter periods, who will be able to carry equipment such as large underwater and aerial drones to deploy covertly because of the added stowage space and the ease of deploying the gear that the new platform will give them. Special auxiliary devices near the bow and stern will give it fine control at low speeds, in shallow water and near the surface. And because of its 52,000-shaft-horsepower propulsion plant, it can get where it needs to go quicker than any other class of attack submarine.

Unlike most submarines JIMMY CARTER actually has more berths than people—164 vs. 151—because the ship is expected to have 25 to 30 ocean research and development personnel on most trips, and it is designed to accommodate up to 60 Special Forces, so junior sailors will still probably end up sleeping on temporary bunks in the torpedo room or hot racking, where three sailors who work different shifts share two bunks.

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"We still don't fully comprehend how useful it is going to be," said Vice Adm. Charles L. "Chuck" Munns, Commander of Naval Submarine Forces, at CARTER's commissioning in February. "Every submarine class we have gets used for much more than we thought possible when we put it in the water. That's what's so exciting about JIMMY CARTER. We know how capable this ship is, but we also know it will be used in ways that we cannot even envision now."

And the reason, he said, lies in the crewmen, all of them innovators who will conjure up new uses for the advanced technology that is resident in JIMMY CARTER.

Clearly, the Navy is in a hurry to get its unique capabilities into service as quickly as possible. Instead of a one-year shakedown cruise and a six-month post-shakedown availability, the ship is supposed to meet an ambitious schedule that will see it finish its shakedown cruise in six months, and it will get just a six-week repair period before it transfers to its new home at Naval Station Kitsap in Bangor, Washington.

"There's no room for missing anything on the schedule," said Master Chief Petty Officer Shawn D. Burke, the Chief of the Boat, "It's tight, very tight. The tightest I've ever seen."

"We've got a very demanding schedule, no question about that," said Captain Robert D. "Don" Kelso, the commanding officer. "There's a huge push to get this ship to sea to perform its mission. It's going to be very challenging to get everything done, but we've got a great crew, and we'll get through it."

The SSGN force will consist of four older Trident submarines that will be stripped of their nuclear-tipped ballistic missiles. While most reports have focused on its new capability to fire up to 154 conventional missiles, the conventional missiles will use only the top half of the old Trident tubes; the bottom half of those tubes will be used to store truckloads of gear for 66 SOF personnel.

In the past, commandoes have spent no more time on a submarine than absolutely necessary because they have so little training space on an SSN. But removing the missile navigation system on the Tridents has freed up enough workout space that SEALs and other Special Forces will be able to deploy for days, weeks, perhaps even months if necessary.

For many years the Submarine Force operated two other converted missile boats, USS JAMES K. POLK and the USS KAMEHAMEHA, as SOF platforms, but this conversion is going to be far more extensive, said Bender, the NAVSPECWARCOM spokesman.

"The lessons learned from previous generations of SOF host submarines were incorporated into all of the latest designs," Bender said. "Many personnel who served on SOF host submarines, from SEALs and UDTs to commanding officers and navigators to chief petty officers and deck division seamen, provided critical design and operational input to the ship designs and tactics manuals. Many of the highly experienced civilian submarine engineers and naval architects were able to refine the previous design and incorporate them in building of these submarine classes."

With an estimated 20 times the payload of an SSN on the SSGN, mission planners have let their imaginations run wild. SEALs will have the space to carry exotic equipment such as ground sensors, aerial drones, precision-placement mines, and other devices that can decide a battle before it has begun, and the SSGN's overwhelming firepower will allow it to respond with fire support if the SOF encounter the enemy on the way in or out.

"I think the SSGN force is going to be such a success story you'll see at least two more conversions, and possibly four more," Work said. But he said it is the combination of the three classes of submarines that will be the best story in the coming years.

"We're talking about a situation where the SOF will have a choice of platforms that can support any mission that they can imagine," Work said. "If they need to get in close in contested

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water, they would probably want VIRGINIA because of its advanced silencing and reduced EM (electromagnetic) signature. If they want a little more standoff distances and the ability for a large stock of equipment, if they need a UPS capability, they would take in the SSGN.

"I don't believe JIMMY CARTER will ever be a primary SOF platform, but on very special missions, something that requires the distinctive capabilities of JIMMY CARTER, it will be able to do things that no other submarine will be able to do," Work said. "The VIRGINIA and SSGN will be out there all the time, but when it's a really unique operation, JIMMY CARTER will come into play. They're going to be doing things with these boats that people have not even begun to dream up yet."

FORCEnet COMMS FOR ASW

by Captain James H. Patton, Jr., USN(Ret.)

Capt. Jim Patton is a retired submarine officer who commanded PARGO and in retirement is the Presdient of Submarine Tactics and Technology, Inc. of North Stonington, CT. He is a frequent contributor to <u>THE SUBMARINE</u> <u>REVIEW</u>.

Background

After a hiatus of a decade or so, Anti-Submarine Warfare (ASW) is having a resurgence, especially in the Pacific, and threatens to wrest the most important submarine mission (except, as always, for Intelligence, Surveillance and Reconnaissance – ISR) title back away from Land Attack. Fortunately, the US Submarine Force remains as adaptable and flexible as ever, and has become used to switching most important missions several times during the lifetime of a given boat. This switch will involve more, however, than just asking the graybeards how they did it during the Cold War then emulating their same tactics, techniques and procedures. The playing field has changed, the modus operendi of the probable adversary is different and perhaps the greatest mutation is that the tactical time constant of the associated Orient, Observe, Decide, Act (OODA) loop is shorter.

Discussion

Rather than being faced with the *legacy* prospect of deep water one-on-one engagements in a *target-rich* environment of aggressive, relatively noisy targets (and one where heroic actions would be noted after patrol report submission upon returning to port), the current perceived scenario is different; it is one acted out in near real time by a multitude of *netted* BLUE assets against a single (or few) slow and quiet RED platforms that are *hunkered down* in shallow water waiting for High Value Assets to come to them. These opposing submarines are likely to possess some type of Air-Independent Propulsion (AIP), enabling them to avoid snorkeling for weeks if they remain at very slow speeds, and other Anti-Access/Area Denial (AA/AD) features such as sea mines, and superior air defense systems may be in place to provide them cover and protection. Although there were and are many variants of both these then and now ASW encounters, some of the key changes are summarized in Figure (1) for generalized norms in order to get at some systemic operational changes:

| and the second sec | ASW THEN | ASW NOW |
|--|------------|-------------------------|
| GEOGRAPHY | Oceanic | Littoral |
| TARGETS | Many | Few |
| TYPE | Nuclear | Diesel- Electric/AIP |
| TARGET STANCE | Offensive | Defensive |
| TIME CONSTANT | Days-Weeks | Hours-Days |
| OTHER AA/AD FACTORS | Few | Many |
| SUPPORTING BLUE ASSETS | Many | Few |
| COORDINATION COMMS LOAD | Minor | Moderate |

Figure I

Now, even though the differences are non-trivial, and "...this is not your Father's ASW", there are some commonalties that should be acknowledged in order that efforts not be diluted from coping with the more significant changes.

Proceeding category by category, although the Cold War was ostensibly conducted in deep ocean areas, there was no small degree of operations in waters shallower than the ship was long. There is no shortage of vintage 60s-80s submariners who spent months at a time at periscope depth (P/D) with land visible on one bearing or another. In fact, operating in a *hostile* Persian Gulf is actually a far less traumatic affair for submariners than for most surface warfare officers.

In conducting many missions, there was no lack of targets, but there were others for which there were very large ocean areas within which but one contact of interest existed, and the search, detection and classification phases could be very time consuming. Fortunately, there was generally *cueing* assistance from air or shore-based assets that made a difficult search task easier, but it was not unusual to consume a week massaging SOSUS information or a few days of VP data before initial contact was achieved.

Typically, foreign nuclear powered submarines trying to get somewhere coupled enough acoustic energy to the environment to create credible search and detection expectations in relatively large ocean expanses. However, purposely operated very quietly at slow speeds in established *bastions* close to home shores, newer nuclear submarines presented a search and detection problem not unlike that of a slow and quiet AIP diesel-electric submarine.

A significant ASW threat to BLUE capital ships were fast, mobile and aggressive submarines offensively maneuvering with technique-associated skills to position themselves for attack with torpedoes or short-range Anti-Ship Cruise Missiles (ASCMs). A more typical scenario in today's environment is a slow and defensively-oriented platform standing well off and launching, in a procedurally vice technique-oriented method, long-range and lowobservable ASCMs down bearings as directed by a third party targeteer. The defensive stand-off posture and as directed, procedural attack with wooden rounds greatly simplifies the training and execution of this attack, and allows the employment of top-notch weapons and weapon platforms with relatively inexperienced personnel and without a Submarine Force *culture* that has matured through several generations.

Although any submarine vs. submarine engagement has an inherent level of associated stress upon personnel, Cold War engagements tended to be very benign as regards the time domain, in that consummation of the search, detection and tracking phases could take many days without raising the *pucker factor* of seniors ashore. In today's environment, local non-submariner commanders, seeing the uncertainty of the ASW picture as a significant impediment to overall operational tempo, are likely to have a greater sense of urgency (often reflecting itself through outgoing inquiries about *status*), with the *threshold of pain* moving toward a few hours versus many days. This sense of urgency, of course, has little effect on the sonar equation, but will tend to distract the attention of the BLUE submarine CO away from the sonar shack and into the radio shack.

It was stated earlier that the BLUE Cold War submarine had significant cueing assets assisting him that were not impacted by RED AA/AD assets. This was true in open ocean, but became less and less the case as the BLUE submarine moved closer to an

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opponent's home waters. In today's environment it is expected that cooperative assistance will be available in the littoral until tensions escalate to high-DEFCON conditions, at which time in-place and available RED AA/AD assets could make continued support by air or surface navy assets an unacceptable risk.

For the sake of perspective, it is instructive to produce the matrix of Figure (2), patterned after the above Figure (1), that compares some of the same variables between the legacy ASW mission and the currently popular (and successful) submarine Land Attack mission. Although exploitation of a much greater portion of the submarine operating envelope is the desired goal (the Comms at Speed and Depth programs), present connectivity realities limit the submarine to slow speeds at periscope depth to establish the *persistency* needed for near-real time targeting of mobile targets.

| | ASW THEN | LAND ATTACK NOW |
|----------------------------|------------|------------------------|
| GEOGRAPHY | Oceanic | Littoral |
| TARGETS | Many | Many |
| TYPE | Nuclear | C3/SEAD/Infrastructure |
| TARGET STANCE | Offensive | N/A |
| TIME CONSTANT | Days-Weeks | Minutes-hours |
| OTHER AA/AD FACTORS | Few | Many |
| SUPPORTING BLUE ASSETS | Many | Many |
| COORDINATION COMMS LOAD | Minor | Major |

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| | | _ | - | - | - |
| | - | - | | | |
| | | | | • | - |

The most striking differences between Figure (1) and Figure (2) is that the Land Attack mission involves more targets of varied type, more other BLUE assets to coordinate with, and a shorter required OODA loop—all of which magnify the connectivity needs by perhaps an additional order of magnitude above that which current littoral ASW requires.

Conclusions

The communication load (time-bandwidth product) for Cold War coordinated ASW operations was extremely small. With advances

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in technology and communication pipes of exponentially increasing diameter, the perceived current need is significantly larger. Much of what older submariners wished they had had to improve ASWassociated connectivity then is now available, but the expectations bar has tended to rise faster than the vaulting pole of available technology. In actuality, however, and with due diligence given to the delta between needs and wants, present and easily achievable near-term (i.e. small expendable fiber-optic UHF/IRIDIUM buoys) means could support (for all present and planned hulls) the order of magnitude connectivity increase presently required for ASW in the littorals. In fact, when Land Attack-the other currently most important mission is considered-its connectivity requirements involve about a two order of magnitude improvement in timebandwidth products and persistency when compared to legacy Cold War needs. Clearly, although neither set of requirements are presently achieved, meeting those of the current ASW problem is a lesser included step towards meeting the higher demands of Land Attack-therefore part of the larger solution and not in competition with it.



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RETHINKING OUR NUCLEAR FUTURE

by Captain William L. Norris, USN(Ret.)

Capt. Bill Norris is a retired submarine officer with long experience in nuclear force analysis. Upon retirement from the Navy, he went to work for Sandia Corporation in Albuquerque, NM, one of the nation's premier nuclear weapons research facilities.

The future of US nuclear weapons and the policy for their use has never been more in doubt than today. While the last fifteen years has seen significant reduction in the numbers of nuclear weapons in our arsenal, their main function is still deterrence. But who and what are they deterring and how? And are the weapons that we have inherited from the Cold War the right weapons for today or tomorrow?

One way to state the US policy for nuclear weapons is that they deter the use of all weapons of mass destruction by being able to hold at risk those things that an aggressor values most. Over time, as the United States gave up its arsenals of chemical and biological weapons, it was always done with the knowledge that nuclear weapons were their unstated replacement in the deterrence equations.

The equations referred to above are really left over from the Cold War and may not be applicable today. I don't believe that anybody envisioned the type and capabilities of today's precision delivered munitions or Special Operations Forces. Very few sensed how dominant US conventional military capabilities would become. The bulk of our remaining nuclear forces are really maintained as a hedge against a resurgent and unfriendly Russia or an emergent China. While some may be nervous about and negatively influenced by the current trends in Russian freedoms, the latent power of the Chinese, now also facing a nuclear armed India, or even new proliferators, there is not a viable competitor to the US supremacy on the horizon.

On the other hand, fifteen years ago few believed that weapons of mass destruction in the hands of a terrorist were a real threat or

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that their delivery might be by other than military systems. No one envisioned the use of a commercial jet as a weapon of mass destruction. No one saw the explosion of technology and information sharing that exists on the internet that gives extremely technical information on weapons, conventional or nuclear, systems and their designs to any intelligent browser. Most people believed that the Nuclear Non-Proliferation Treaty was a guarantee against nascent nuclear powers. Few expected that the US would use the technicality that the other party to the Anti-Ballistic Missile Treaty no longer existed and therefore the treaty was no longer applicable. Almost all treaties have a clause that allows "withdrawal for reasons of supreme national interest."

To some degree, we have entered an era when we may need to think of three kinds of weapons. First, we have the conventional weapons. Second we have what I would call weapons of mass "disruption." These are chemical and biological weapons, attacks with radiological weapons, attacks on our web based systems or attacks on our utilities and transportation systems. The third class is weapons of mass destruction, which only nuclear weapons really fit. This paper will limit its discussion to the third category.

The nuclear weapons we retain today were all designed and fielded between fifteen and forty years ago. They were all designed for the Cold War, and in general, for use in the nuclear Armageddon of massive exchanges. Warhead yield was not a concern; in fact some would say that yields were larger than necessary to overcome any deficiencies in delivery accuracy. Like the nuclear weapons, the Department of Defense (DoD) delivery platforms have also had a hiatus in development or production. In essence, both the hardware and policies that define our nuclear deterrent today are now aging one year every year.

The most recent Nuclear Posture Review in 2001 and the national policy that emerged from it for the first time began the integration of missile defense and precision conventional strike into the nuclear policy. That formulation was based on an assumed national missile defense (NMD) system and initial size of that system. As the total size of the NMD system and its demonstrated reliability is determined, then the policy needs to be updated. But always remember that NMD only addresses one of a multitude of weapons delivery

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options, and may not be the most likely in the future. The latest uses of our conventional capabilities have concerned other nations, specifically Russia, who has said that it would treat a precision conventional strike as a nuclear strike and respond accordingly.

In most cases one determines a policy and then determines what is necessary to accomplish it. Today we seem to be trying to make a policy that works with our existing stockpile and delivery systems. It would now appear likely that we should envision, in the foreseeable future, the use of only several nuclear weapons at one time instead of the nuclear Armageddon. If we are only going to use several, do we want to use weapons systems whose reliability might leave unexploded munitions in the hands of the adversary? After our experiences in conventional war over the last fifteen years, do we believe that a bomber can continue to fly directly over a target in order to deliver its munitions? Can we ever hope to use a missile system that must over fly even a friendly Russia and have first and second stage debris falling on ourselves and our friends? Should we use a MIRVed delivery vehicle to strike a single target and thus be willing to sacrifice the now more valuable other warheads on the delivery vehicle?

US nuclear force levels are headed downward as a result of the last bilateral treaty between the US and Russian Federation to 1700 to 2200 strategic warheads, mixed between gravity bombs, cruise missiles, land-based ballistic missiles and submarine based ballistic missiles. I believe that the nuclear warhead numbers still in the inventory are inflated as a result of hedging our bets in an unsure world where the emergence of a more kindly, gentler Russia was in doubt. I believe that we can now pronounce the Soviet Union dead and continue trying to encourage a more democratic Russia. We should not allow a slower than desired transition from an autocratic culture deter us from the right moves for the future. As we move to an era and policy that is further and further away from an old Soviet Union and nuclear Armageddon, we should expect this number to drop again, probably into the 1000 range, and then possibly even lower. This level of weapons will make previous decision making on the US nuclear force mix look easy.

Change is about the budget. Strategy is the allocation of resources. The defense budget must emphasize what we need today

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projected into the future, of which nuclear deterrence is really no longer the first priority. Planning for the future (prioritization and resource allocation) is about being bold and making changes to drive the answer rather than waiting for tactical stimuli like budget or emergent world situations to drive a short term solution. Therefore it should no longer be about how we hedge and do "salami slice" budgeting, but what is the future and how do we get there?

If we continue to make deterrence the cornerstone of why we retain nuclear weapons, then we should examine which weapons should be kept based on the three building blocks of deterrence:

- 1. A credible weapon
- 2. A credible ability to deliver the weapon
- 3. The national will to use it

First, a credible thirty year old nuclear weapon (or any nuclear weapon for that matter) requires a credible infrastructure. The potential enemy must believe that the weapon was quality built, maintained, updated and tested to ensure its functionality. Second, a credible weapon in an environment where only one or two will be used requires an even more reliable weapon than today. In an era in which a nuclear weapon was designed to work in the massive retaliation case, the fact that one or two didn't work would probably not reduce the overall effectiveness of the plan very much. But when one or two out of one or two don't operate for the same reasons, not only have you failed the mission, you may have given the target country or organization a real asset as well as significantly degraded the viability of your overall national deterrence.

A credible nuclear weapon should be one that's properly aligned with the damage expectancy requirements for mission success. Always remember that the use of a nuclear weapon, whether it is only one or two weapons or a massive strike, is a monumental national decision that everyone hopes will never be made. Assigning an existing nuclear weapon whose yield size is twice as large as required for mission success, may now be deemed not usable because of the collateral damage that may be inflicted.

I must admit that having made that monumental decision that a nuclear weapon must be used, I sometimes think that worrying about

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collateral damage is a tertiary concern. Do you then shift to a weapon with a less desirable delivery system or less estimated reliability so you can minimize the collateral damage? I contend that once that monumental decision is made, we must succeed above all else. It would be nice to have the perfect delivery system and the perfect weapon, but we should never expect to have the stars fall into alignment with such fairy tale timing. That doesn't mean we shouldn't demand the highest reliability weapons, near desirable yield and delivery platforms that are flexible and state of the art.

There is a debate raging both in Congress and in the public that the modernization of our existing stockpile shouldn't be allowed because it makes our weapons more *usable*, more real than something that seems so terrible that it has not been, and probably will never be, used. I believe that the debate should be centered on whom or what we are or will be trying to deter and what nuclear weapons would be necessary to give credence to that deterrence. I am not sure that our future opponents will worry so much about the niceties of how they will use the similar weapons that they have expended so much political and economic capital to acquire. If something is not done, then we take the risk of losing the first part of the nuclear deterrence equation.

In this debate there is much talk that there are either countries or groups that are undeterrable. If we look at both Al Qaeda and Sadaam Hussein's Iraq, one could make the case that neither believed it credible that the United States would ever take military action and therefore they were really unconstrained because they did not believe in the national will part of the deterrence equation. We must also remember that the deterrence part of the national strategy is not limited to nuclear weapons and we need to tailor the whole defense establishment to their specific niches while trying not to neglect any credible facet.

Much of the discussion about what targets we cannot truly hold at risk today is pointed toward deeply buried targets. The newest stockpile weapon, the B61-11, gave us our first real capability against such targets, albeit a limited one. Attempts to gain a better capability have continually foundered in Congress in either getting funding or having such limitations put on programs that they cannot be undertaken. The problem in gaining Congressional funding is

probably tied to the usability argument discussed earlier.

One of the items that must be considered in a budget constrained environment is the numbers of different types of nuclear weapon types that must be maintained. That is a cost to both the DoD and National Nuclear Security Administration (NNSA). For each system that we keep, the military must have trained technicians and certified delivery platforms and crews with demonstrated reliability. NNSA must have the technical resources to maintain the nuclear weapons and assess their safety and reliability. Some worry that the fewer systems we have, the closer we are to a one point failure that could undermine our whole deterrence. On the other hand the more systems (or variants) you maintain, the more it costs and the less you may know about each system or variant.

Turning to the second factor in the deterrence equation, we must have a credible means of delivering the nuclear weapon. Today we rely on three different means of delivery; gravity bombs, cruise missiles warheads and ballistic missile warheads from the traditional triad of bombers, land based Intercontinental Ballistic Missiles (ICBMs) and sea based Submarine launched Ballistic Missiles (SLBMs). There is little doubt that these are credible in the all-out Armageddon usage. If we reduce our probable usage to one or two, some become less credible.

There is no question that our fighters today and in the future will be world class and can accurately deliver munitions from gravity to precision to nuclear. Once domination of the air environment has been gained, these fighters can be even more effective. The one drawback they have with today's nuclear weapons is that they must make essentially a final straight-line approach to the target and be reasonably close to the target at weapons release. There is a rational reason why nuclear bomb delivery remains so basic. They were designed to be delivered in any environment we might face in an allout nuclear war and so had to be stand-alone systems.

When we begin to discuss the use of one or two weapons in an essentially benign environment where Global Positioning System (GPS) is now probably available for both the delivery aircraft and munitions, there is no reason that nuclear bombs cannot be modified by strap on guidance systems (or even integral systems) similar to what we have done for conventional ordinance in and since both

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Gulf Wars. Such a minor adaptation would allow high altitude, accurate delivery without requiring the target or its immediate vicinity to be over flown. This would be a significant enhancement for mission success and aircraft survivability.

An even greater enhancement could be the development of a Short Range Attack Missile (SRAM) type delivery system or even possibly a GPS guided glide bomb that could be launched from either a fighter or bomber. These short-range nuclear munitions could be targeted on board the aircraft and accurately delivered by use of a rocket propulsion system or strap-on or extendable wings. This would also give the US a great capability to go after mobile launchers, again without directly flying over the target area.

One must be careful when starting down this slippery slope. Nuclear weapons described in the preceding paragraphs might be wonderfully effective in the benign environment, but totally ineffective in the non-benign environment of the old *Cold War*. As with all policies and their execution there must be some balance such that nuclear deterrence can be maintained across the spectrum. While we cannot have everything, we must make irreversible decisions with great deliberation and caution.

Cruise missiles are a big enigma. Their capabilities, including accuracy, are among the best (and could be even better with GPS). However, their sub-sonic speed and long-range (i.e. long flight time) delivery make them a less reliable system. In their long distance flight they are vulnerable to all anti-aircraft systems. A mechanical failure during that flight could be just as problematic. An even bigger problem is that either of these mission failure modes leaves a nuclear weapon in the hands of your adversary. Clearly, again we see the difference in weapon selection when trying to decide weapon application for one or two instead of thousands.

I find ICBMs (as deployed today) in a probable world of targeting one or two, to be an unusable system. The first reason is that the launch of a multi-stage ballistic missile means that the expended first and second stage have to come to earth somewhere on their flight path. In today's deployment, that means in the United States or Canada. Second, because for almost all targets they are launched on a polar trajectory, they will fly over Russian territory. Their use therefore might require prior notification of the Russians

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and their faith in our promise that the warhead is not either targeted at them or will not accidentally fail in a way that causes it to impact in their territory. (As an aside, we must also address this problem of Russian notification for use of an ABM system or an SLBM launch, mainly because of early warning launch detection systems.)

ICBMs are probably our least accurate delivery system. This can be offset in the launch of large quantities of nuclear weapons by having a large yield and lesser concerns for collateral damage. This will probably not be tolerable in the one or two weapon case (as discussed earlier) where mission success should be the predominant factor in mission planning but gets clouded by the collateral damage considerations.

Today, NNSA is forced to maintain three different warheads to support this leg of the *old* triad. In the next decade it will probably be reduced to only two warheads. While from different eras and slightly different designs, their *end use* capabilities are all very similar. There would be definite economy for the NNSA if they had either one type or even none to maintain.

There is some discussion of creating a limited ICBM capability on the ocean coasts to be able to work around the first and second stage problem referred to three paragraphs ago, and possibly for some targets, most of the Russian over flight problem as well. The launch detection problem remains the same. I think this would require a cost benefit analysis to determine its viability and what capability could really be gained that is not already available by other means. However, without increased accuracy and decreased yield, I do not believe that ICBMs can compete favorably. That, in and of itself, may make it not cost effective. Requiring NNSA or the USAF to maintain a small inventory, single use system in a more budget constrained environment also significantly degrades its costeffectiveness.

SLBMs are a system worthy of much discussion as we move forward. They have always been valued as the ultimate survivable nuclear weapons system. In the days of Armageddon planning, that was most important. With the dissolution of the Soviet Union, the decreased threat of its Navy, a more friendly relationship, the absence of any other peer competitor with a *blue water* Navy and the increased importance of small mission planning, survivability may

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become a less important characteristic. The downside of this approach is the same for nuclear weapons and delivery systems, especially single mission ones. Their development is lengthy and their costs are great. Therefore, if they are not there when you need them, they will take too long and too much money to redevelop or reconstitute.

SLBMs are one of our more accurate delivery systems as well as our only remaining MIRVed system. Today, these are much more important in mass strike planning than the use of one or two weapon planning scenarios. While the SLBM weapon system design allowed for quick retargeting and less than full load usage, that would mean both wasting more valuable nuclear weapons assets and some dirtying of the landscape. That dirtying, like excessive collateral damage, might now be unacceptable. The footprint for each missile has some limitations that if the targets have too much geographic separation and therefore require two missiles, resulting in discarding more valuable warheads than one might want and dirtying even more landscape (In the future, the number of warheads being wasted will probably outweigh the condition of the landscape). For the small scenario planning, it may be smart for the next generation SLBM to have single reentry body capability. Because the SLBM can reposition itself, the first and second stage concerns discussed concerning ICBMs can almost always be avoided. If single weapon loading capability became a reality, then the SLBM weapon might also benefit from looking at the possibility of changing its nuclear yield or examining earth penetration capabilities to optimize targeting. The future deterrence missions might require that the submarine missile warhead loading be varied from most missiles with full warhead capacity to some missiles with medium capacity loading and some with one warhead with a variety of yields. With even better accuracy and an optimized warhead, the mission space for the SLBM force could be intelligently expanded.

The third element of deterrence is national will. Merely continuing to support the nuclear deterrent budgetarily is a strong signal. The actual decision to employ a nuclear weapon will be made by the President. But his decision will be greatly influenced by his advisors based on the case at hand. As we have discussed, the only option for deterrence is not nuclear weapons and that is indeed a good thing. So

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what is needed is a series of continuing command post exercises that put scenarios in front of these advisors that require decisions. A good feedback system on what decisions were made and why, what options were considered or discarded, and what new or different capabilities would have led to a better decision is crucial. The wrong path forward is to wait until a real decision is necessary.

As one can see there are a lot of variables in determining the direction and execution of nuclear policy could and should go. The only sure thing is that the total numbers of nuclear weapons will continue to decrease. Further decreases should require us to determine whether it is time to break the traditional triad of bombers, ICBMs and SLBMs. As the last nuclear posture review put forward the modern triad of forces, defenses and infrastructure tied together with robust Command, Control, and Intelligence systems and avoided any real decisions on the old triad., I believe that the time is ripe as we head towards nuclear stockpiles of 1000, or even 500, to realign and head steadily toward a new force construction.

Maintaining a single purpose system in a budget constrained future is ill-advised. ICBMs should be considered very seriously at risk. While SLBMs will remain our survivable system, without the suggested improvements noted above or improvements in and regular employment of their other war fighting capabilities, they too may become unaffordable. Upgrading the submarine warfighting capabilities of the next SSBN would make it look more dual capable. Fighter and bomber nuclear weapons are sadly overdue for modernization to capabilities more suited to the present war fighting environment. Lastly, without changes that can make nuclear cruise missiles viable, the days of the noble B-52 may finally be over.

The rice bowls are cracking. As Les Aspin said, nuclear weapons cannot be un-invented. The nuclear deterrence mission will not go away. It must be done right with a right-sized force structure. Today, not tomorrow, is the time to define the answer and to start moving forward with a vision to the future.

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US SUBMARINERS INCREASINGLY CROSS POLLINATE WITH FOREIGN NAVIES

by Mr. Robert A. Hamilton

Bob Hamilton is a newsman with extensive experience covering defense news. He was an embedded reporter on board submarines during Operation Iraqi Freedom in 2003. He currently writes for <u>The New London Day</u>.

I twas a submariner's worst nightmare. Lieutenant Commander Todd Cloutier was at the con while three frigates and their embarked helicopters searched for him. They knew the general area where he was going to be operating and about the time he would arrive. And there were several other officers watching, eager to point out any mistakes he made. Welcome to the final examination for the Netherlands Submarine Command Course, known as *Perisher*, an appellation which marks the death of many a naval officer's aspirations.

Cloutier was the first U.S. Navy student to complete the vaunted course on diesel-electric submarine operations. Since it was established in 1995, no Perisher class has ever graduated intact, and 50 percent attrition is not uncommon. So it was with some trepidation that Cloutier accepted the challenge to be the second U.S. submariner to enroll in the course.

"Just before leaving, I did start to think, 'what if I have to come back? Am I washed up?'" Cloutier recalled. "Then, I just decided that if that happened, I would accept that I didn't make it and go on. But I didn't want to test that theory."

On the Sunday he finished his last drill, *Teacher*, Commander Marc Elsensohn, called him into the wardroom for a personal meeting.

"As I walked in he put out his hand and said, 'congratulations, captain,' and I almost looked over my shoulder," Cloutier recalled. "That just was not a greeting I expected." Today, Cloutier is the executive officer of USS SEAWOLF (SSN-21), and one of the

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vanguard of officers with experience in foreign fleets, thanks to increasingly close ties between the U.S. Submarine Force and allied navies.

In the Pacific, there is an annual weapons training exercise that brings U.S. and Australian submariners to the same class, on boats from both fleets. Two U.S. Navy submariners have now completed the United Kingdom's nuclear *Perisher* course, and U.K. submariners have enrolled in U.S. Prospective Commanding Officer training. Before he retired as commander of Naval Submarine Forces last year, Vice Admiral John J. Grossenbacher had opened talks with Canada about a possible exchange program that could eventually put a U.S. lieutenant on a Canadian Upholder-class diesel-electric submarine for a two-year tour.

"As a Force, we're going to learn a lot about how other people operate," Grossenbacher said.

Captain James F. Caldwell, commodore of Submarine Development Squadron 12 at the Naval Submarine Base, agreed: "Through those kinds of liaisons, we're gaining great insights into the capabilities of those foreign navies, and some of those navies have pretty impressive capabilities."

There are subtle differences in how even closely allied navies operate, he noted. The British, for instance, tend to operate their nuclear submarines with the periscope down more than their U.S. counterparts. There are differences in how they collect intelligence, how they take surveillance photographs, and so forth.

"That's not to say that one of us is doing it right and the other is doing it wrong. But we need to know about these other approaches if we're going to be able to do our job properly," Caldwell said. "We've got some good things to learn from our association with the British, and the Dutch, and everyone else."

Lieutenant Commander Stephen Mack was the first U.S. submariner to finish the British Perisher course, and he had to be ready to hit the ground running, because the Royal Navy had made it clear when it offered him the posting that the standards would not be relaxed for the colonial, as he became known during the course. And the first U.S. submariner to enroll in the course the previous year had not earned his certificate of graduation.

"I was a little nervous," Mack said. "I don't think anyone

wouldn't be. But I looked at it as just too big an opportunity to pass up."

But when Mack completed the course, *Teacher*, Royal Navy Commander Paul Anderson, who had been an *in-your-face* kind of instructor always putting pressure on his students to think on their feet, pinned on Mack the set of British dolphins he had himself earned 20 years earlier.

Mack said he had just returned from a six-month deployment on USS TOLEDO when he was approached about taking the assignment to the Perisher course, which would require another extended absence from his family.

He had a few orientation sessions with the British liaison officer at Submarine Development Squadron 12 in Groton before departing, and then was given an eight-week introductory course when he arrived in England last January, before enrolling in the 16-week Perisher.

He said he found himself constantly having to adjust to a different language. Even though everyone used English, the British use *port rudder* instead of *left rudder* as a navigational command, they measure water beneath the keel in meters instead of feet and they talk about liters of water in the ballast tanks instead of pounds.

There were also significant differences in the way they the British conducted the business of operating an SSN: on a British boat, the officers handle navigation, instead of a senior enlisted electronics technician—and their charting techniques are unlike what is done on U.S. submarines. On a U.S. SSN during a casualty, the executive officer typically reports to the scene and handles recovery efforts, while on the U.K. boats the XO would go the damage control center and coordinate the efforts of the DC teams from there.

In addition, Mack said some of the equipment on board the British submarines was different as well, though in the tradition of the Silent Service around the world, the most detailed explanation he would provide was, *interesting*.

Even though the language was a little different, Mack said one thing he immediately understood was his British counterparts' sense of humor, and the sense of camaraderie. They might poke fun at a classmate struggling with a problem, but they would all stay up

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through the night to make sure he mastered it.

"We do the same job and do it well," Mack said. "They have the same high standards there that we have here."

British graduates of the Perisher course go directly into an executive officer's spot on a British submarine, and depending on how they do there, some will be chosen to move up to command. His classmates seemed surprised to learn he would spend the next 18 months at Sub School, teaching tactics in the school's simulated attack center, instead of going to sea. The intention was for him to immediately impart some of his lessons he learned during his Perisher experience to the rest of the fleet. Within weeks of his return he was briefing some of the U.S. Navy's top admirals as well.

"There is a pretty significant amount of interest in how it worked," Mack said. "And I think it's only healthy for us to look at how everyone else operates, and say, 'maybe there are better ways we can do things.' They were always asking me the same thing over there—'what can we do better?'"

Mack and Cloutier followed similar paths to their respective Perisher courses. Mack enlisted in the Navy in April 1986, and began training as an electronics technician. He was selected for the Nuclear Enlisted Commissioning Program in 1988 as an ET2, and attended the University of New Mexico and graduated with honors, earning a commission in 1991. Cloutier enlisted in the Navy in 1985 and trained as a machinist mate, was picked up for the Nuclear Enlisted Commissioning Program, and earned his degree at the University of New Mexico as well, earning a commission in 1990.

He was riding a submarine as operations officer for Submarine Development Squadron 12 when he got word he'd been picked for the Netherlands course. A few months later he went to the Australian submarine school in New Perth for three weeks of individualized instruction in diesel submarines, then two weeks in their trainer. Within a month, he reported to the Netherlands for orientation.

Though he wasn't sure if he'd have any free time, his wife Priya and their son Pascal accompanied him to both countries. They packed as many second-grade textbooks as they could fit in a backpack to keep their son current with his studies, and as it turned out during the first few weeks he was home most nights at 5 p.m.

"When I went to Holland in February for my sea ride, they toured
New Zealand instead, flying to Holland to meet me when I got back from sea," Cloutier said. They also managed a tour of Italy, Paris, the United Kingdom and Ireland while he was occupied.

"My son has now seen more of the world than I have, and he's only 7," Cloutier said.

Cloutier had more of a language barrier to overcome, but found that Dutch had so much in common with English and German, which he had studied in high school, that he could usually understand conversations in his hosts' language, and in any event the officers all spoke English. The six people in his class bonded quickly, he said.

"In the history of the Dutch Perisher, there's never been a class where everybody graduated, but we wanted to be the first," Cloutier said. "We decided early on: six in, six out." But fate was not to be denied: one of the officers had to drop out after he had an accident on his bicycle; another was asked to leave because he was not meeting the standards.

During the initial phases of training, which focus almost entirely on keeping the boat safe in busy near-shore waters, it can get quite daunting, even in a simulator, Cloutier said.

"You step out of the trainer sweating and shaking, and hand it over to the next guy," Cloutier said. "I felt like a junior officer again for the first month." He had the additional challenge of having to learn the operational characteristics of a diesel-electric submarine that all the other students had served on. But his classmates worked hard to bring him up to speed on the boat.

"At first, I said I was doing it because it was something different, and a challenge, and if there's a challenge you should go for it," Cloutier said. Only later did he realize that it was an opportunity to expand his skills as a submariner, to test his own personal limits.

The Dutch Perisher course was started in 1995 after the U.K. Navy switched to an all-nuclear undersea fleet and discontinued training for diesel-electric submarine operations. It has quickly earned a reputation as one of the best training courses of its kind in the world, and officers from Australia, Brazil, Korea, Denmark and other allied countries compete for space in the program.

Perisher graduates speak with awe and a tinge of terror about Teacher, but Cloutier found Commander Marc Elsensohn to be easy to work with.

"Before you get there it's pure fear of what he could be," Cloutier said. "It turns out, he was calm, humorous, and attentive. He never missed a detail—and he never forgot to let you know about it."

Teacher had only three rules: never miss a safety problem; don't make the same mistake twice; and for God's sake, don't let the British detect you (British frigates and aircraft served as the opposing force for the at-sea exercises).

He also said that while his course focused on diesel submarine operations, the skills involved in submarining are the same no matter what drives the boat. And much of Elsensohn's time was spent teaching his students to define their personal limits: what was the deepest they felt they could safely operate the boat? How close to shore could they drive the boat and feel safe? How much training did they think was enough for the crew?

"At the heart of it, you're trying to get the same missions done," Cloutier said.

Out in the Pacific, Commander Barry Bruner, who directed the PCO course for the Pacific Submarine Force in the early stages of an exchange program with the Australians, said the collaborations provide a better understanding of the capabilities of allied navies. The Australians operate the diesel-electric Collins class of boat, which has earned a lot of respect in undersea circles despite some widely publicized problems early in the Collins program.

"The PCOs come out of this course with a much better understanding of diesel submarines than anyone else in the Navy," Bruner said. And that is important, given the proliferation of quiet diesels, he said. "There's a good chance, if we do go to war, it will be against a country that operates diesel submarines."

In addition, given the participation of Australian forces in Operation Enduring Freedom and other recent multi-nation coalition actions, it is likely that the Royal Australian Navy's Submarine Force would participate in any naval actions involving the United States in the Pacific.

"If that happens, we've already had the experience of doing indepth, detailed operations with our allies," Bruner said.

The exchange course in the Pacific fleet goes back to August 2000 when the HMAS WALLER and HMAS COLLINS visited Pearl Harbor and participated in PCO operations, Bruner said, with the COLLINS-class boats simulating diesel-powered enemies in a wartime setting against USS CHICAGO and USS SANTA FE.

The following year, 11 PCO students and two instructors from Pearl Harbor flew to Perth where they split into groups and took turns in the attack centers on an exercise that pitted the USS ASHEVILLE against the HMAS SHEEHAN, he said. Last summer, SHEEHAN visited Pearl Harbor for exercises against USS OLYMPIA.

The two navies have decided to formalize the relationship, alternating every other summer at Pearl Harbor and Stirling Submarine Base in Australia.

Each class typically spends a little less than three weeks underwater taking part in the submarine-on-submarine operations, and the experience they get working on the diesels, and trying to find them, is invaluable, Bruner said.

The submarine officers who finish the course are much better equipped to deal with the diesel submarine threat, Bruner said. In fact, he said, he'd prefer that all four classes every year get a similar opportunity, instead of just one every summer.

"The knowledge level on both sides goes up quite a bit every time we do this," Bruner said. There's no question in my mind that this is key to increasing the experience level of submarine commanding officers."

A SUBMARINE LIFEGUARD OPERATION OFF NORTH VIETNAM by Captain Al Koster, USN(Ret.)

Captain Koster is a retired submarine officer who served on both Submarine Group Eight staff and on the staff of CINCUSNAVEUR. He now lives in Winter Springs, Florida.

Author's note: The contributions of the Skipper, Capt Herbert O Burton, USN Ret, have been extremely valuable in preparation.

he letter from Frank Uhlig, Jr. in the January Review raised the issue of putting expensive SSNs in shallow water in support of SEAL operations and information gathering. He cited the vulnerability concerns expressed by ADM J. L. Holloway in planning and executing a surface ship raid on the entrance to Haiphong harbor in Operation Lion's Den in late August 1972. The Admiral's excellent article in the August 2004 issue of Naval History provided a blow-by-blow of the mission involving two cruisers and two destroyers in a surprise shore bombardment raid close inshore. The Admiral, then COMSEVENTHFLEET, was embarked as an observer in the NEWPORT NEWS, the big-gun cruiser involved. The force was attacked by three P-6 MTBs on retiring from the area that were destroyed by gunfire and supporting aircraft. The issue of submarine operations in littoral waters resurrected memories of a six-week lifeguard operation in 1965 mostly in the approaches to Haiphong to seaward of Lion's Den. Mr. Uhlig's question is valid, but clearly one that has been faced before.

SALMON (SS573) was one of perhaps half a dozen submarines assigned, off and on, to lifeguard missions in 1965 to support ROLLING THUNDER air strikes on North Vietnam north of the 19th parallel. A submarine picked up one downed pilot in the Spring off Bach Long Vi Island in the north central Tonkin Gulf (USS CHARR SS328 on 29 March '65). Submarine participation started for brief periods in March and terminated by December. By then rescue helicopters, hot-refueled by surface ships on NORTH SAR and PIRAZ stations in the northern Gulf, were demonstrated to be far more effective than submarines could ever be in that environment.

SALMON, I believe, served the longest time on a dedicated lifeguard mission-six weeks continuously from late-September to early November '65. We were well prepared, knowing our first operation after deployment from San Diego would be as lifeguard. We studied the few previous reports, all the charts, coast pilots, meteorological and intelligence assessments and everything else we could get our hands on. AMS/JN Charts were added to our inventory for land recognition. And the boat was augmented for self-defense on the surface. Two water-tight, ready-service ammo lockers, removed from a mothballed fleet boat, were installed on the navigation deck and heavy machine gun mounts were welded on each side of the large bridge cockpit. We received 50-caliber machine guns, and trainers from PHIBASE Coronado taught us basics of 50-caliber marksmanship and weapon cleaning. We practiced battle surface and gun crew drills on the transit to Subic in late August. These involved hauling the machine guns up through the bridge trunk and mounting, retrieving ammo boxes from the ready service lockers, and firing a few practice rounds. All were timed and we practiced until it went smoothly. The crew was most enthusiastic and everyone wanted to get qualified. As navigator during this period details are easily refreshed with current charts and in discussions with shipmates. Lessons-learned were documented in our post-mission report and many are recalled.

Operations

Lifeguard areas, 24-mile diameter circles, were positioned north of the 19th parallel generally tangent to the 12 mile limit to support 'Alfa strikes' from carriers in the Gulf. These gave the pilots a ditching target and provided a safe haven. Several are shown on the chartlet *reconstructed* to general locations from memory. Area *Hotel* is the most accurately positioned as SALMON occupied it most of the time on station. It is also an area not previously occupied.

Current charts of the area indicate soundings in meters based on

lowest, low water; even considering the four-meter diurnal tidal range, the soundings are somewhat less than those encountered during SALMON's operation. Soundings on charts used 40 years ago were in fathoms and feet. In researching the current charts, sedimentation from the Red River (Song Hong and Song Duong) has increased significantly in recent years as a result of extensive upriver deforestation.¹ We would be hard pressed to operate in these charted waters today as SALMON did.

We positioned in response to direction from the operational commander, COMSUBFLOT SEVEN/ CTG70.9 in Yokosuka, based on assigned target packages and scheduled times for the air strikes. This was delivered by FLASH message, repeated on the submarine broadcast with the normal 12-hour assured-delivery cycle. In my recollection, we always copied the message on first transmission. One occasion of late notification required a 10-knot snorkel transit to Area Golf partly during daylight to cover the strike. (This makes the case for nuclear power, but waters were shallow and fishing hazards abundant.)

No special submarine coordination nets were established. We monitored the CTF 77 intra-ship tactical circuits along with aircraft strike and SAR/emergency frequencies. Our one occasion to communicate was to rendezvous for the long awaited mail transfer when we left station.

The ROE are not memorable; we felt we had all the flexibility needed to rescue downed flyers. By the end of the operation we considered the most likely scenario for our participation would be if one of the SAR helos went down while *feet wet*.

SALMON made initial landfall on Hon Me Island after a 200 mile submerged transit across the mouth of the Gulf. We then moved north covering several strikes as we proceeded to Area *Hotel* where we were assigned for most of the time. Monitoring the downlink of a successful pilot recovery by helo well inland provided a great sense of purpose for the operation. The transit exposed us to local conditions and we adjusted to operating in shallow water—less than 100 feet for most of the operation—and the fathometer was used as needed without fear of detection throughout. Trimming was a demanding task in the shallow, sometimes brackish water of the Red River outflow. (At 350 feet LOA, anything greater than a three down or a two degree up angle risked putting the bow or stern in the mud much of the time.) Fortunately, seas were generally calm during the operation. Anything much more than a moderate swell would have forced us to deeper water.

Relatively few fishing boats were encountered in the transit; untended long-line fishnets proved to be the biggest hazard. Strung across the current that set to the southwest along the coast, nets were sometimes marked by poles at the ends, other times by floats. Sighting a single pole forward of the beam prompted a turn to seaward and a diligent search for the second pole, adjusting the turn to clear both. We snagged a net early on, detected by a float thumping on the hull. We surfaced that night to clear it and found, to our surprise, imbedded fishhooks making removal a timeconsuming task. Later we observed a school of sea snakes frolicking on the surface—recalling that a boat had previously surfaced in the Gulf with a sea snake in the shears that reportedly fell on a lookout. The deadly snakes were said to die on encountering air...right! Those going topside for every surfacing thereafter donned a rain parka and gloves.

Coastal navigation, essentially piloting, relied primarily on a hand DR on a chart overlay, with the MK 19 plotter set to the chart scale. With erratic visibility, nondescript coastal features, a generally flat bottom with a very gradual slope to seaward, no RDF, and occasionally a weak LORAN line, it took a while to develop confidence in our position. Sparse charted soundings in fathoms and feet indicated a 15-fathom curve that roughly bisected the SAR areas but included no reliable information for contour navigation. Variable currents influenced by the monsoons and diurnal tides, coupled with our slow speed, added to challenges of maintaining a good DR position. When visibility cleared the Chief Quartermaster identified several distant peaks from topography on a Jet Navigation Chart that provided good bearing lines for a fix. On entering Area Hotel we found a reliable NAVAID-Grande Norway light. It marked the eastern entrance to Haiphong channel and was normally illuminated. Visibility permitting, dipping the light provided a reasonable 21 mile range arc at night. Fortunately, our first fix using this method positioned us as having entered the area from the south, clear of the most prominent charted feature in Area Hotel-a 12fathom *pinnacle* in the northwest quadrant. We carefully avoided that region and fortunately soundings always seemed to indicate water slightly deeper than shown on the charts we used.

Area Hotel was positioned on the primary shipping lane serving Haiphong from the Hainan Strait about a hundred fifty miles to the east. A second lane, generally less traveled, extended southward around Hainan. Most MERSHIPS were detected at night, apparently the result of the daytime air raids.

Hotel also straddled a major fishing area served from many coastal villages in the Red River delta. With water temperatures almost 90 degrees and heavy nutrient content in the river outflow, the biologics, largely shrimp and carpenter fish, contributed to a very high ambient noise level. This situation worsened in the relatively frequent rain showers of the south Monsoon. Fortunately, PUFFS punched through the ambient noise in many cases. (A retired Senior Chief Sonarman recently described those conditions off Haiphong as being the worst he encountered in 22 years.²) All combined with the shallow water to influence operating procedures in the area. Predeployment preparations had provided only the basics as we were the first to occupy *Hotel*.

The driving operational factor was to be in a *ready* position at the announced time of 'Alfa strikes'—by recollection, most occurred in the early morning or late afternoon. This position was ideally to be clear of contacts so that both scopes, and occasionally the ESM mast, could be used. We often had only 20 to 30 feet of water beneath the keel in these areas. (Remaining undetected was paramount, unless and until required to conduct a rescue.) From there, visibility permitting, we occasionally observed helos that were always present for the strikes, loitering off the coast and readily available if a plane went down. We considered helo movements to be an early indicator of SALMON's potential involvement. The crew was keyed to all events. Only when the aircraft departed the area did we detect radio transmissions, and then the pilot chatter seemed near continuous--understandably.

The ubiquitous fishing boats presented problems not fully appreciated beforehand. Most were relatively small, about 30 feet with one and sometimes two masts, not the characteristic fishing junks found off Hong Kong. Many towed a sampan to tend nets.

Most were under sail or drifting, and only a few were motorized-distinctive one-lungers. No large trawlers here. (Fortunately PUFFS was relatively unaffected by biologics and it was often the first to detect the one-lung fishing boats and merchants.) Several times each week before dawn large groups migrated out from land, probably riding the diurnal tides; they always seemed to straddle our track as we proceeded to our *ready* position. Most seemed unlighted or with a dim lantern. In the evenings large numbers would return to shore most often across our intended track to a night snorkel area.

At first light one morning soon after arriving in *Hotel* we found ourselves amid what seemed to be hundreds. Our Skipper, CDR Herb Burton, described the situation best: "...we've got 'em surrounded...". SALMON seemed to "surround 'em" frequently thereafter.

We saw no evidence of the long-line, largely untended nets observed in transit. And we were fortunate to clear the smaller tended nets—at least we had no sign of dragging any boats astern always a potential problem amid fishing fleets.

Periscope procedures and close-contact management skills were rapidly honed to avoid detection while winding our way through these seemingly endless flotillas. Minimum scope exposure and very short observations, often in low power, were essential. The conning officer marked contact bearings and estimated ranges that were recorded on a laminated maneuvering/tote board for reference. A stopwatch assured short exposures and the plotter was set at 500 yards to the inch to keep track of major concentrations. (The Contact Evaluation Plot, the bearings-only presentation adopted from the British in 1971, would have been a valuable tool in these situations.) Fortunately most contacts were at slow speed or stationery; we focused largely on those with visible waterlines well inside the horizon-less than 1000 yards. These would sometimes number a dozen or more. With very little water beneath the keel the boat had no place to duck, and running with the scope down for more than two minutes created new hazards. (Those weak-of-knee rapidly gained leg muscles on the scope.) Additional problems resulted when visibility closed in with rain or heavy mist. We were always able to maneuver through a hole to a ready position relatively clear of contacts where at least #1 scope would provide an antenna for

strike coverage. After sunset the problem was sometimes more difficult as we tried to thread through to a safe snorkel area in the gathering darkness.

High ambient noise levels contributed significantly to the problem of detecting merchant ships. One night during a snorkel shutdown to clear baffles PUFFS detected a faint merchant through the biologics—it turned out to be a bow null. Soon, out of the limited visibility a masthead, range light and two sidelights appeared. We were clearing the track with its bearing moving ever so slowly. We couldn't take an angle and go deep, only plane down a few feet and lower the scope; the reconstructed bearing rate at CPA was well over 40 degrees/minute. We looked up at the ship's deck lights—not a comfortable experience in shallow water. Many heard it through the hull at CPA and the BQR-2B could only pick up reliable track when the ship came out of the baffles and opened.

PUFFS also detected *light fast screws* amid the biologics one morning that turned out to be a small patrol craft with a machine gun on the foredeck—the only NVN warship we observed during the operation. It was patrolling about 3,000 yards north of our position. (Hostile encounters were frequent subjects of wardroom discussions. Our only real defense in recovering a downed pilot would be the 50 caliber machine guns. The MK 37 couldn't be used with its six-foot ceiling cutout switch, and the straight-running MK 14 could only be used set at low speed, 31 knots, with its minimum 10 foot running depth suitable only for a larger warship not in the NVN navy OOB. The hi-speed 45-knot setting would bury in the mud with its depth excursion on impulse. Other weapons were not feasible.)

The high injection temperatures and an often-oily sea surface off Haiphong created problems, first reflected in increased time for periscope upper optics to clear. Draining time of less than a second was acceptable; it increased to three seconds soon after arrival in *Hotel*. This required surfacing every second night as we nightsnorkeled in the deeper water, 100-120 feet, toward the seaward edge of the area. At this time we cleaned and polished the headwindows coating them with a wetting agent.

We also noted sea-slime on the bridge—a situation that worsened with each surfacing thereafter. The full magnitude of the problem only became apparent when we departed station. The magnetic log became erratic periodically requiring retraction and cleaning on several occasions. I also recall the engineers having to clean salt water cooling system strainers more frequently while in the warm waters.

Air temperature and humidity were high, even at night, with a smell on surfacing similar to that from open sewers in third world countries. On one occasion when the foul air was not noted on the bridge in the on-shore breeze, we 'ventilated ship' by taking the engine suction through the forward torpedo room hatch. That was a memorable mistake as the odor lingered near the sea surface and soon everyone was exposed to the foul air. It took a long time to get back to a good diesel-boat smell.

On surfacing in the Central Gulf for the long-awaited mail transfer on departing station we noted the extent of the sea-growth problem. Green *hair* almost an inch long covered the hull. When dry and bleached by the sun it turned almost white. We resembled Moby Dick on arrival in Kaohsiung. We also found barnacles, some the size of saucers, in the superstructure away from the water flow. Fortunately we were in Taiwan where local labor assisted the topside gang in removing the growth.

In summary, SALMON'S lifeguard operation almost 40 years ago demonstrates the feasibility of operating a relatively large (SALMON was the largest diesel) submarine in shallow and congested waters for extended periods. Clearly the environment is a major factor and the mission trade-offs must be favorable. Accurate pre-mission intelligence, including timely updates, is vital. Information on fishing patterns is particularly important.

The rapid response of P-6 MTBs, craft not reported in the area by pre-mission intelligence for Lion's Den, in 1972 suggests that we could have been in serious trouble had we tried to recover a downed pilot much closer to the coast than our position at time of ditching.

From the SALMON experience, the submarine rescue function, so vital in WWII, was clearly obviated by helicopters in the Vietnam War. The boat was better suited for employment elsewhere.

Endnotes

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^{1.} http://arcbc.org/arcbcweb/wetlands/vietnam_redrivdel.htm

^{2.} STCS Douglas Weston, USN, Ret, - Feb 2005

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U-BOATS AND FRIENDLY FIRE: A CONVOLUTED TALE

by CDR David H. Grover USNR(Ret.)

Mr. Grover is a retired Commander in the Naval Reserve and a Chief Mate in the Merchant Marine. He is the author of five books of Naval/Maritime history and many articles in related journals. He lives in Napa, California.

O ne of the most unusual relationships that existed between an American ship and German U-boats through the early days of World War II was that which surrounded the SS LIBER-ATOR. Somehow she had become a ship whose years of solid unspectacular service were interrupted briefly by occasional bizarre episodes of contacts with U-boats, resulting in the spinning of a complex and tangled web of circumstances involving undersea warfare.

The strange story culminated shortly after the traditionally ominous Ides of March in 1942. The setting was the infamous *Torpedo Junction*, that stretch of the East Coast between Cape Hatteras and Cape Lookout in North Carolina along which large numbers of ships were sunk by German submarines in the opening months of American involvement in World War II, a period known as the *happy time* among the U-boat crews.

At that critical time and place occurred a freakish event, whenwhat might have passed as a comedy of errors-became instead a tragedy of errors. It was the result of an ill-fated encounter between two American ships, one World War I vintage destroyer and the other a merchant freighter which had also served in the Navy in that war. A third vessel, a German U-boat, made it an even deadlier menage a trois.

The destroyer was the USS DICKERSON, DD 157, and the freighter was the SS LIBERATOR, which had been designated SP 3134 by the Navy in the earlier war. At the time they met at Cape Lookout in 1942 they had two things in common: each ship had been built during a World War I construction program to serve in the Navy, and each had sunk a World War I German U-boat in peacetime.

The DICKERSON was a flush-deck four-stack destroyer completed in 1919 at New York Ship in Camden. Aside from an eight year lay-up which she shared with several of her sisterships, she had experienced a typical peacetime career. At the beginning of American involvement in World War II she was working out of Norfolk on a limited patrol schedule for the Navy's coastal command, the Eastern Sea Frontier.¹ That command had only 14 destroyers on such duty on the entire East Coast, ten of which were 20-year-old classmates of DICKERSON bearing numbers in the 140s or 150s. Furthermore, these ships were not well utilized, averaging only five days at sea during the crucial month of March in 1942. DICKERSON had managed to spend 8 days on patrol that month before she. . . but that's getting ahead of our story.²

Her opposite number in the strange drama that was about to unfold was the steamer LIBERATOR. A product of the shipbuilding program of the Emergency Fleet Corporation of the U.S. Shipping Board, this ship was one of a number of cargo vessels built by the Bethlehem Shipbuilding Company in San Francisco. At 410 feet in length and measuring out at 7720 gross tons with a displacement of 11,713 tons, she was one of the large and successful *West* type freighters which would go on to long and productive careers in the merchant fleet of the United States.³

Before that service began, however, she was called upon to perform her World War I duty which had been the *raison d'etre* of her construction. That duty was carried out as USS LIBERATOR. Unlike most Shipping Board freighters that were completed after the war, she actually began active duty in the Navy while the war still had several months to run. She served first as an animal transport for the Naval Overseas Transportation Service and then as a troop transport for the Cruiser/Transport Force in bringing home the men of the American Expeditionary Force. LIBERATOR made a number of Atlantic crossings before she was turned back to the Shipping Board in October of 1919 after 15 months of service. At that time the destroyer DICKERSON had been in commission for only one month, so it is highly unlikely that the two ships had ever been together.

During this early Navy career LIBERATOR apparently had no direct contact with U-boats.⁴ That would change eight years later

when, while still owned by the federal government, she was working as a freighter for the Barber Line. In those days, steamship companies could acquire government-owned ships and operate them on specified runs with subsidy from the Shipping Board. LIBERATOR would remain in this federal ownership status until 1933.

LIBERATOR was not the first American ship to encounter a Uboat in the Pacific in 1927. On April 10th of that year the freighter SS ELKRIDGE, under the command of Captain T. J. Flynn, encountered a submarine, apparently a derelict, in the Pacific, about 500 miles northeast of Midway, and reported the event to the Hydrographic Office of the Navy.³ On August 6th, 118 days later, LIBERATOR encountered the same vessel, 1000 miles southwest of where she had been sighted in April, suggesting that she was drifting at 8.5 nautical miles per day. The submarine had drifted first to the east, and then after looping around Midway had come back to the west in what the Office of Naval Intelligence would later characterize as the *Black Current.*⁶

The hull of the submarine was intact and was floating at a normal depth in the water, presenting a traditional profile. The most conspicuous thing about her, however, was the conning tower which consisted only of the steel frames of the structure with no plating covering them.

The captain of LIBERATOR, a man with the unusual name of Columbus Darwin Smith, was curious about what he had found.⁷ He was unaware of the earlier sighting for the simple reason that Captain Flynn had contacted the Hydrographic Office by surface mail from the Philippines, and information about this hazard to navigation had not yet been widely disseminated to mariners.

Captain Smith sent his chief officer and chief engineer to investigate; they found that the submarine hatches were dogged down and that she was seaworthy, but there was no trace of anyone having been aboard. The vessel appeared to be a German U-boat, but also had some temporary structural reinforcement inside her that had a Japanese look.

Aware of a storm out ahead on his trackline to Yokohama, Captain Smith rejected an initial impulse to try to tow the vessel, and instead decided to sink her. With no explosive charges available and no desire to risk his ship by ramming the submarine, he was forced to use a slow but safe form of scuttling. After reporting his position and decision to the Hydrographic Office, he ordered his men to open all the hatches, letting the swells that sloshed across her deck eventually sink her. The submarine had taken on a list and had sunk deeper into the water by the time LIBERATOR resumed her passage.

Upon arrival in Yokohama Captain Smith initially encountered stone-walling from officials when he asked about the submarine. Even high-raking American naval officers scoffed at his claims, until he produced photographs of both the exterior and interior of the vessel he had scuttled. These photographs are extant today, and illustrate dramatically the odd appearance of the submarine.

Eventually Smith found a Japanese naval officer who offered a logical explanation: that the vessel was probably the 0-2, the former U-46, one of seven submarines given to Japan by Germany as part of the reparations settlement immediately after World War I. She had been an eminently successful U-boat, sinking 35 merchant vessels totaling more than 150,000 tons during her career. Two of her victims had been American vessels, including USS BUENA VENTURA, an auxiliary with the Naval Overseas Transportation Service, aboard which 16 men died.

While being towed from Yokosuka to Kure in 1925 she had been separated from her tug when a storm parted the towline. The U-boat was never found again, giving the Japanese reason to assume that she had foundered. Thus, the story of the phantom submarine was finally resolved with Captain Smith's discovery of her in 1927, even though there was still no absolute assurance that she actually had sunk after her latest encounter with LIBERATOR.⁶ Moreover, a byproduct of her scuttling at the hands of an American ship was the retribution which had symbolically been exacted from her for the loss of BUENA VENTURA.

It is worth noting that Captain Smith was no stranger to the U.S. Navy. As an ensign he had been awarded the Navy Cross for his role in commanding a sub chaser in World War I in the Battle of Durazzo in the Adriatic, at which time the sub chasers were assigned the containment of German U-boats. Following his time aboard LIBERATOR he would go on to a colorful career in which he

commanded Yangtze River steamers and served as a Shanghai bar and river pilot before assuming command of USS WAKE, the gunboat that was left in Shanghai at the start of the war in the Pacific. The ship was overrun by the Japanese just hours after the Pearl Harbor attack, and Smith and his crew were imprisoned for the duration.

In the meatime, Smith's former ship, LIBERATOR was making a name for herself back home. In 1933 she had been acquired from the U.S. Shipping Board by the Lykes Brothers, an aggressive and well-regarded steamship company headquartered on the Gulf Coast. In March of 1942, under the command of Captain Albin Johnson, she was off the North Carolina coast en route to New York with a load of sulphur when she re-established her relationship with Uboats.⁹

March of 1942 was an exceptionally bad time for shipping along the East Coast. As many as ten German submarines were lurking between Cape Hatteras and Cape Lookout, each of which could sink a number of ships before running out of torpedoes. Fires from blazing tankers lit up the nightime sky, and by day crewmen aboard still-functioning vessels could see the half-sunk and smouldering hulls of derelict ships around them.

American destroyers, as previously noted, were scarce in the area. Smaller patrol craft were equally in short supply in the danger zones. The 5th Naval District, headquartered in Norfolk, had only five naval vessels (an eagle boat, patrol yachts, and three sub chasers) plus 16 Coast Guard craft (6 75-footers, 2 80-83 footers, 4 125-footers, 4 158-65-footers) and 4 ex-British trawlers. These vessels were augmented by the Coast Guard power boats from the coastal lifesaving stations, generally 36 footers.¹⁰

It would be an understatement to say that everyone aboard the ships in that area was edgy because of the known presence of the Uboats. Aboard LIBERATOR the edginess had turned to near-panic. According to the records of the Eastern Sea Frontier, on March 18 in mid-morning the ship had reported by radio the sighting of a Uboat, followed twenty minutes later by a report that she had been torpedoed. Shortly thereafter, she signaled that her reports were in error, and that she did not need assistance.¹¹

Apparently, at that time no workable system of recognition and

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challenges had been devised for ships running independently and for patrol vessels that ventured infrequently into these wild waters. Thus, it was impossible for a merchant vessel to anticipate what naval vessels to expect in the area. In the early hours of the morning of March 19, 1942, USS DICKERSON was present. She had not yet experienced a baptism of fire in World War II, but, curiously, had one German U-boat to her credit from many years earlier. In 1921 off the Virginia Capes she had been ordered to sink with gunfire the U-140 which the U.S. Navy had acquired at the end of World War I and which had been damaged in General Billy Mitchell's infamous bombing tests earlier that year.¹²

On the previous day, March 18, 1942, DICKERSON had picked up survivors from the torpedoed tanker, E. M. CLARK, and had transferred them to a Coast Guard small craft for delivery to the shore. Now, in the middle of the night, she found herself within two miles of LIBERATOR, still unaware of the ship that would soon become her nemesis.

The destroyer's captain, LCDR J. K. Reybold, then saw the contact of LIBERATOR on the radar screen, and identified it as a large tanker, northbound at about ten knots. Having reached the southern limit of his assigned patrol sector, he came about, and placed his ship on a zig-zag pattern on a base course of 045 degrees.

The night was dark, and only a sliver of a new moon was visible. Aboard LIBERATOR, although the sequence of events has never been fully explained, someone detected nearby motion in the dark and concluded that it was a submarine on the surface. Neither is it known definitively who ordered the shells fired, but LIBERATOR's armed guard crew fired two rounds from the ship's 4-inch gun at the dark target. The target turned out to be the DICKERSON. She was then only about 1500 yards from the freighter; as a result, the first shot turned out to be incredibly accurate and deadly.

The attack by LIBERATOR decimated the bridge and chart house of the destroyer, killing four men including the ship's captain. Much of the electronic and electrical equipment of the bridge was destroyed, but the ship could still be conned from that station. DICKERSON then began an emergency run to Norfolk at flank speed under the command of her executive officer. Apparently, Captain Johnson of LIBERATOR had no idea at that time what his ship had done.

Johnson continued on north to a point inside of Diamond Shoals lighted buoy which was serving as a replacement for the lightship which was normally stationed there but had been called in for her own safety. That action reflected what had happened in World War I when the Diamond Shoals lightship, alerting mariners to the shoal which was located off Cape Hatteras, had been sunk by a German submarine, the U-140 no less, DICKERSON's trophy from 1921.

At that location in mid-morning of March 19, 1942, Captain Johnson of LIBERATOR had his first documented encounter with a real U-boat. Although it was a sunny day and Johnson had stationed no less than eight men as lookouts, no one detected any indication of trouble.¹⁹ The clear weather and choppy sea apparently favored the attacker; U-332 put a single torpedo into the port side of the engine room of the ship, killing five men and shutting down all the vessel's power. LIBERATOR stayed afloat for about 20 minutes, during which time the 31 survivors abandoned her in two lifeboats. The old fleet tug USS UMPQUA, ATO 25, which had witnessed the sinking, then picked up the men in the two boats and took them to Morehead City, North Carolina.

As is the case with any sinking, a number of questions arose after the loss of LIBERATOR, and her shelling of DICKERSON. Principal among these was: who was in charge of the four-man armed guard crew, and what protocols existed for ordering the guns to be fired? Later in the war the standard naval armed guard crews had as many as 30 men commanded by a young ensign who had a few first or second class petty officers for support. Written protocols outlined the responsibilities of both the ship's captain and the armed guard officer. However, during both the start-up and the winding down of the armed guard program throughout the Navy small detachments of only a few enlisted men sometimes existed (the author sailed on a tanker in 1945 that had a two-man armed guard crew). The risks inherent in such an arrangement were obvious, particularly when the ship was sailing alone and the senior petty officer did not have recourse to a convoy commander or to an armed guard officer on decisions concerning the use of weapons.

Today, several internet sites dealing with the prospective diving locations and with naval history indicate that the crew of

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LIBERATOR reported that before their own sinking, they had engaged a U-boat in battle and sunk a German submarine, a reference to the shelling of DICKERSON.¹⁴ Thus, it seems likely that the crewmen, as they left their rescue vessel in Morehead City, were feeling pride in having sunk a U-boat, rather than regrets over having hit an American destroyer.

The captain of LIBERATOR was ultimately accountable for what took place; the law of the sea, written and unwritten, could have it no other way. Yet the Navy, which by all accounts was doing an ineffective job of protecting shipping along the Atlantic Coast, must assume some responsibility, too. The trigger-happy Navy gun erew, the lack of convoys, the absence of recognition and challenge procedures, and the infrequency of destroyer patrols in the area were the result of Navy decisions. These circumstances contributed to a confusing milieu, full of jittery seafarers and ships that were incidents waiting to happen.

The armed guard crewmen in explaining their action created an additional discrepancy in the account of the incident. Their leader, a Coxswain named Camillo, reported that the firing occurred at 0105, not at 0230 as generally reported, and that he "saw the sub turn over after the attack."¹⁵ This interpretation, however, seems to reflect only the relatively inexpert perspective of the petty officer.

Although the war diary of the Eastern Sea Frontier headquarters on March 23 contained a correct statement of the basic facts of the incident, apparently the whole story emerged only at the time of the Court of Inquiry which was convened to investigate what had happened. That investigation was surprisingly superficial; its principal findings were that the destroyer captain failed to identify or challenge the tanker, and that the gun captain on the tanker had no training whatsoever in ship recognition. In spite of these findings, it concluded that there was no improper performance of duty on the part of either man.¹⁶ It is clear that no corrective or punitive action was taken to prevent such a tragedy from occurring again, even though action reports and endorsements on those reports all agreed that recognition procedures needed improvement.

Unfortunately, neither the Naval Historical Center nor the National Archives can furnish any additional information on the engagement between DICKERSON and LIBERATOR. Ironically,

Captain Arlin Johnson of the freighter experienced deja vu only six months later when he had another ship torpedoed out from under him, JOHN PENN, a Liberty ship that was sunk by aerial torpedoes with a loss of several lives while in a convoy bound for Archangel.¹⁷ The ship initially failed to sink, and had to be sunk by the guns of escort vessels, perhaps a bittersweet memory for Johnson of his own attack on DICKERSON. One can only imagine what losing two ships under his command in six months-thus being perceived as a bit of a Jonah-may have done for the professional pride of the captain.

The only other sequel to this curious story concerns the two vessels that LIBERATOR encountered during that brief interlude off the North Carolina coast. In May of 1943 the U-332, which had sunk LIBERATOR, was in turn bombed and sunk by Allied planes north of Cape Finisterre on the Spanish coast. There were no survivors. The American destroyer DICKERSON after extensive repairs returned to service with the fleet, and was subsequently redesignated as APD 21, a high speed attack transport. In this role, in April of 1945 at Okinawa she was hit by a Kamikaze plane in an attack that killed her commanding officer and 53 others, and rendered the ship uninhabitable and unusable. She was ordered scuttled shortly thereafter.

Thus ended the final chapter of the strange story of LIBERA-TOR, and of the ships and lives she touched during her impulsive showdowns with submarines.

ENDNOTES

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4, Clephane, 230.

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Ltr, CAPT E. M. Zacharias to the Director, Naval Intelligence (Albert W. Johnson), 4 June 1930, Register No. 16797.

 Smith's background and behavior are described in his ghost-written biography. Quentin Reynolds, Officially Dead: The Story of Commander C. D. Smith (New York: Random House, 1945) 92-95. A short version of the submarine incident appears on the internet at <u>www.u-boat.net.com</u>.

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10. Eastern Sea Frontier War Diary.

11. Easter Sea Frontier War Diary.

12. See the account in DANFS for the U-140 which was considered a U. S. Navy vessel at that time. The Navy, of course, protested the bombing tests as unfair, inasmuch as the ships were not allowed to exercise any evasive or damage control measures.

13. The reaction to the torpedoing aboard the LIBERATOR is described by Moore and Browning, as well as in the Coast Guard "Report on U. S. Merchant Vessel War Action Casualty," completed by the ship's master on July 21, 1944, more than two years after the incident.

 Clay Blair, Hitler's U-Boat War: The Hunters, 1939-1942 (New York: Modern Library, 2000), 518.

15. Eastern Sea Frontier, War Diary, 19 March 1942.

 Record of Proceedings of a Court of Inquiry Convened at the Norfolk Navy Yard, Portsmouth, Virginia, by Order of the Secretary of the Navy to Inquire into the Shelling of the USS DICKERSON by an Unidentified Tanker, March 20, 1942, Document No. 58130 (Washington, DC: Office of the Judge Advocate General of the U. S. Navy, 1942).

17. Accounts of this sinking are in Moore and in Browning.

AN END RUN AROUND SOSUS?

by LT. A.H. Skinner, Jr., USNR(Ret.)

Mr. Skinner has contributed to <u>THE SUBMARINE RE-</u> <u>VIEW</u> in the past with his excellent translations of Soviet technical publications. He graduated from MIT in Naval Architecture and has worked at Electric Boat Co., David Taylor Model Basin and of various Navy shipyards and bases. He was a consultant on submarine design to various intelligence agencies and was a student of the Russian language from 1946 to 1971. He makes his home in Marblehead, Mass.

I n recent years there have been some remarkable statements in the Russian literature concerning naval matters. Amongst these are two that raise very interesting questions relative to past Russian and Soviet submarine operations.

For example, in the Journal "Tayfun" ["Typhoon"] of February 1999¹, it is stated

"In 1985, great success as achieved by Capt. 1st rank V.V. Protopopov in the submarine K-524 of Project 671RTM [Victor III Class] passing through the narrow straits separating Greenland from the Canadian archipelago, going from the Arctic Ocean to Baffin Bay, and even further into the Atlantic. For this accomplishment Capt. Protopopov was made a Hero of the Soviet Union."

Further, this article continues by describing the passage through Baffin Bay of a ballistic missile submarine as follows:

"In 1984, the K-279 of Project 667B [Delta I Class], Capt. V.V. Zhuravlev commanding, while carrying out a mission in the middle of Baffin Bay struck an iceberg at a depth of 197m. and a speed of 7 knots. With a trim by the bow of 45 degrees, the submarine continued down to a depth of 287m. But this was actually a useful experience, since no available

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navigational-hydrographic textbook gave the depth of the largest icebergs as more than 160m."

Another journal² describes the mission of the K-524 as follows:

"The general concept of this mission was to proceed from the Arctic Ocean to the Atlantic by passing to the northwest of Greenland. Entering the Lincoln Sea, the submarine passed through the narrow, shallow Robeson and Kennedy Straits separating Grant Land and Grinnell land from Greenland, thence into Baffin Bay, ultimately reaching the Atlantic Ocean."

"This route is exceedingly complicated and dangerous. It is full of shoals and icebergs, which are abundantly tossed into water by the glaciers of Greenland. Under such conditions, the most reliable source of information on the operating environment was sonar."

While in the Atlantic, K-524 met up with the American aircraft carrier AMERICA, and secretly "attacked" it, (doubtless in simulation) [sic]. The entire voyage took 80 days, 54 of which were under ice, at depths of more than 150m."

This would seem to be a remarkable accomplishment if carried out without having the benefit of prior surveys, data acquisition programs, test runs, and other preparations for that area performed by the US Navy over many years.

Another description of the collision of the K-279 with the iceberg has come to light. In an unpublished manuscript³ by V.G. Redansky, Capt 1" Rank, Reserve, who is clearly an authority on Arctic operation of both US and Soviet submarines, the encounter is described as follows:

"On thirteen September 1983 at 2113 hours the missile submarine K-279 of Project 667B, Capt 1" Rank N.A. Zhuravlev, while conducting operations at Latitude 67 degrees 45 min. N., Longitude 60 degrees 30 min W., struck an iceberg at a depth of 197m and a speed only of 4 knots. The ship took a trim of more than 15 degrees by the bow and began to descend rapidly. In the control room, the reaction was immediate. Ahead full was ordered and all planes put on rise. With this maneuver the boat leveled off at a depth of 240 m.

"At 0430 the submarine came to periscope depth. Within a range of 50 cables [5 n.m.] five icebergs were sighted. These bergs had a height of about 50 m. The ship continued its mission and the damage was repaired after returning to base.

"The area where the collision occurred was full of icebergs. But never before had icebergs been noted to have extended to such great depths. It had been believed that icebergs did not extend more than 160 m. below their waterline. Therefor the depth at which K-279 was proceeding was thought to ensure a safe passage."

The source given by Redansky for this story is "Historical Journal of the Navigation Service of the Northern Fleet (on the occasion of the 300th Anniversary of the Russian Navy 25 Jan 1701-25 Jan 2001)" Severomorsk, 2001, p60. According to other data, this event took place in September 1984." [sic].

It will be noted that some confusion exists concerning the year in which the collision with the iceberg occurred. The Russian journals cited are considered, however, to be generally reliable. The second reference, for example, also gives seemingly official inboard profiles of several nuclear-powered Soviet-era submarines as well as numerous photographs of them at Northern Fleet bases.

The foregoing "sea stories," if true, imply the existence of some pretty cool submarine skippers and crews in the Russian Navy. As a matter of historical interest, one might ask how many such operations were there and when did they commence?

Endnotes:

 Redansky, VG. Podlednyye mili k polyusu, The Under-ice Miles to the Pole. MS received from Prof. W. Leary of the University of Georgia.

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^{1. &}quot;Tayfun," No 2, February 1999 pp19-20.

^{2. &}quot;Tekhnika i Vooruzheniye" No. 5-6, May-June 2000, p16.

US NAVY IN BID TO OVERHAUL UNDERSEA COMBAT

by Mr. Andre Koch

Reprinted with permission from the March 9th issue of Jane's Defence Weekly.

The US Navy is reviewing how it is organised and equipped to conduct combat operations under the sea, spurred by the growing realisation that its ability to fend off attacks by enemy submarines requires enhancement.

The moves include a new concept of operations for conducting anti-submarine warfare (ASW) and the development of technologies to enable it. The concept "is calling for a different approach to the way we even think about conducting ASW operations", Chief of Naval Operations Admiral Vernon Clark told JDW.

The new vision includes "distributed sensor systems that can be rapidly fielded by offboard systems" and tied together with a communications network "that will allow you to bring all of your forces to bear in the entire detect-to-engage scenario," Admiral Clark said. "It is going to change what the enemy is going to have to deal with. We are going to close on the enemy with speed in multiple ways."

The concept calls for using widely dispersed sensors networked together with not only US submarines but also surface vessels and aircraft, with the latter two playing an increasingly important ASW role. The idea is to reduce the navy's reliance on force-on-force engagements—typically conducted by attack submarines—and go to a new concept similar to that used on the networked battlefield, which takes advantage of all available forces to rapidly attack enemies when they are detected.

<u>Key question</u> - One key question in the development of new ASW technology is how \$600 million set aside over five years for an *undersea superiority system* would be spent. Admiral Clark said: "It is a number of things ... those kinds of capabilities that are in the new concept with distributed systems and advancing our speed timeline in the detect-to-engage sequence." Such systems include immobile equipment like the Advanced Deployable System (ADS)

and its follow-on Deployable Autonomous Distributed System which are intended to provide long-term surveillance of an area but are not mobile. Others, such as technologies being developed under the Mobile Undersea Distributed Systems programme, are intended for faster deployment and can be re-used. Sources said a number of armed and sensor-carrying unmanned vehicles are also being explored as part of this vision. An ASW Master Plan that will outline how the Navy intends to field these and other enabling systems is being drafted.

Other Navy officials and some members of Congress, however, are pushing for funds to be used to design a possible follow-on to the Virginia-class nuclear-powered attack submarine. John Young, Assistant Secretary of the Navy for research, development and acquisition, told JDW earlier this year: "I can't hide from the fact that the Virginia is a \$2.5 billion submarine ... I think it is very worthwhile to study whether there is an option, beyond VIRGINIA or parallel with VIRGINIA, so we might be able build a more affordable submarine." Two other senior navy officials said they expected the service to conduct a study in Fiscal Year 2006 looking at submarine roles and missions, after which design work on "a smaller, more focused sub" would begin. That new effort would use technologies from a four-year, \$97 million Navy-Defense Advanced Research Projects Agency programme called Tango-Bravo, which is developing five key technologies useful for reducing the size and cost of future submarines.

While several officials said such a new design could ultimately lead to the end of the Virginia-class, most said it would likely augment those boats. "My feeling is that it will augment the VIRGINIA but I don't know that yet," Allison Stiller, Deputy Assistant Secretary of the Navy for Ships, told JDW. Suggestions that the Navy plans to replace the Virginia-class "is too far to go right now ... I'm not looking at an alternate platform," Admiral Clark noted.

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U.S., SWEDISH NAVIES SIGN AGREEMENT TO BILATERALLY TRAIN ON STATE-OF-THE-ART SUB

From U.S. Fleet Forces Command Public Affairs

NORFOLK, VA, March 23,2005

The U.S. Navy and the Swedish Navy signed a Memorandum of Understanding March 21 that will begin a bilateral training effort, providing a Swedish advanced diesel submarine and crew for U.S. Navy fleet anti-submarine warfare (ASW) training.

The partnership will focus on ASW system test and evaluation, as well as the combined development of naval capabilities.

"Recent establishment of the Fleet ASW Command in San Diego, Calif., combined with the planned deployment of a state-of-the-art Swedish diesel sub and crew to the West Coast, provides our forces innovative opportunities to train during combined exercises," said U.S. Fleet Forces Command Director of Readiness and Training, Rear Admiral Don Bullard.

The Swedish Navy will provide an advanced diesel submarine, a Gotland-class air independent propulsion (AIP) submarine, for the U.S. Navy's long-term use. ASW training will be conducted from San Diego and attached to Submarine Squadron 11. The Swedish submarine will be Swedish-flagged, commanded, manned and operated. U.S. Navy personnel will be aboard the Swedish submarine as riders and observers for training purposes.

The mission of this training effort is to conduct focused and integrated ASW training and assessment of the U.S. Navy's fleet ASW operations, tactics and doctrine, and ASW education.

The U.S.—Swedish effort will focus on acoustic analysis performance of fleet operators aboard all ASW platforms; theater, carrier/expeditionary strike group, unit-level ship, aviation squadron and submarine levels ASW performance assessments against standardized, common metrics; individual student ASW training and qualifications; and overall theater undersea warfare capability.

"This U.S.-Swedish effort will demonstrate the further development of international interoperability between the two nations," said Inspector of the Royal Swedish Navy, Rear Adm. Jörgen Ericsson.

Nations around the globe continue to acquire quiet and lethal submarines designed to operate in littoral regions and the open ocean. With advanced developments in weaponry and propulsion, the nature of ASW has changed, increasing the risks to operations at sea.

Control of littoral environments is essential to ensuring prompt access for joint forces moving ashore from the sea. Future ASW effectiveness in this critical area demands a dedicated focus on sensors, operational doctrine, and fleet ASW training. Through U.S. and Swedish efforts, both navies are meeting this challenge head on, and preparing for the future.

"This will vastly improve our capability to conduct realistic, effective antisubmarine warfare training that is so critical to the Navy's ability to accomplish our mission," said Bullard. "It also expands our efforts in developing coalition ASW tactics, techniques and procedures. This is a great opportunity for both navies, and we are very excited about it."

This bilateral effort is a great example of the U.S. and Swedish Navies' commitment to ensure that our naval service and those of our allies and partners retain operational primacy at sea.

SUBMARINE NEWS FROM AROUND THE WORLD

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From the November 2004 Issue

INDIA - Akula SSN Lease

As of early November 2004, it appears that Russia and India are on the brink of signing a deal for the lease of one Akula II class submarine to the Indian Navy. The deal is worth an estimated US\$500M for a ten-year period (although some reports estimate the price ten times higher), which is expected to begin in 2007. The submarine in question, RYS, began construction in Russia in 2003 and was originally intended for the Russian Navy.

However, soon after construction started, Russia decided to finish the submarine for lease to a foreign navy. The submarine lease has been in negotiations since the late 1990s as part of the package with the Gorshkov class aircraft carrier sale, which was recently completed in January 2004. Following the Gorshkov transaction in early 2004, India began negotiating in earnest for a nuclear submarine in order to bridge the gap of nuclear trained personnel until the Advanced Technology Vessel (ATV) (Indian nuclear submarine) enters service after 2011. The deal is expected to be finalized when President Putin visits India in 2005.

For the latest information on the Akula submarine lease, see AMI International's India Decommissionings, Transfers & Receipts Section at http://www.amiinter.com/wnpr/india/decomm.html.

RUSSIA - First Lada Submarine Launched

On 28 October 2004, the first boat of the Lada class dieselelectric submarine, SAINT PETERSBURG, was launched at the

Admiralty Shipyards in Saint Petersburg nearly a year and a half behind schedule. Laid down in 1997 and originally scheduled to be launched in May 2003 to coincide with the 300^a anniversary of Saint Petersburg, the construction of the boat was delayed due to "technical and financial problems."

Launching of the 677 Lada class marks the first of a new generation of diesel submarines for the Russian Navy designed by the Rubin Design Bureau with more than 100 subcontractors and numerous new technology systems. Scheduled for sea trials in the Baltic Sea in 2005, SAINT PETERSBURG will join the Russian Navy about six months later.

The Lada class displaces around 2500t when submerged. SAINT PETERSBURG boasts the Klub missile complex as well as a newly designed radar, weapon system and main electric plant. The 67meter (219.8ft) submarine also has a new, larger passive sonar array, non-penetrating masts (with the exception of the attack periscope) and complete anechoic coating on the hull. It is equipped with six torpedo tubes capable of launching the newest generation torpedoes as well as cruise missiles and can carry up to eighteen weapons in a mixed load-out.

This new class of submarine marks a significant step in diesel submarine construction as well as punctuates the statements from Russian President Vladimir Putin that he fully intends to rebuild the Navy to its levels in Russia's days of glory although the pace will probably be considerably slower than planned by President Putin and the Navy.

It must be remembered that the Russian Navy is attempting to move forward on the diesel powered Lada class as well as the nuclear-powered Akula and Yasen classes, which is probably much too aggressive for the Russian Navy as it continues to suffer from severe under-funding that began after the breakup of the former Soviet Union in 1990.

For the latest information on this project, see AMI International's Saint Petersburg (Lada - Project 677) Class Conventionally Powered Attack Submarine (SS) project report at:

http://www.amiinter.com/wnpr/russia/RS2201.html

From the December 2004 Issue

Egypt - German Type 206 Submarines for the Egyptian Navy

Reporting on 12 December 2004 indicates that Germany is in negotiations with Egypt concerning the sale of two Type 206A class submarines. The German Navy is beginning to take delivery of its first Type 212A submarines and is beginning to offer its 11 type 206s on the international market.

The prospective deal was announced by German Defense Minister Peter Struck as a step to deepen the defense cooperation between the two countries. Although still being negotiated, it is estimated that the deal can be concluded with the transfer of the two units by the end of 2005. The Egyptian Navy Submarine Force presently consists of four Improved Romeo class submarines built in China from 1982 through 1984, and then later modernized with Western weapons sensor systems.

This is the second major transaction between the German Ministry of Defense and Egypt since 2003 when the Egyptian Navy acquired five decommissioning Tiger class (Type 148) fast attack craft (FAC) from the German Navy. This burgeoning relationship has allowed the Egyptian sea service to access a new market for relatively modern used vessels at low cost, while at the same time benefiting the German Ministry of Defense decommissioning and disposal expenses for its retiring vessels.

Egypt has been attempting to replace its current force with a Western Submarine Force since the early 1990s. In 2001 Egypt was very close to signing a deal with Northrop Grumman (Ingalls) for the construction of new submarines. However, as the US Navy was working through the approvals, the President of the U.S. announced his intention to sell submarines to Taiwan (see Taiwan article this issue) and Egypt's program came to a full stop and became inextricably linked to the Taiwanese program. So Egypt, having still an unfulfilled requirement, has been compelled to seek an alternative solution. The Type 206s (12 in service), will allow Egypt to acquire additional units in the future should its desire to buy new submarines with FMS money in the US remain stymied.

Taking into consideration that Egypt could eventually procure at least four of the Type 206s, the seven remaining units will also

probably be offered for resale. Prospective candidates could include Algeria, Bangladesh, Bulgaria, and Thailand. http://www.amiinter.com/wnpr/egypt/index.html

TAIWAN - Update on the Submarine Program

As of mid-December 2004, it appears that President Chen Shuibian (Democratic Progressive Party - DPP) continues to lose political power in Taiwan. Chen Shui-bian, winning the Presidential election in March by a slim majority, will continue to face a Parliament that is still controlled by the opposition Nationalist Party (Kuomintang). Mid-December elections results show the Nationalist Party (opposition) still controlling Parliament by 114-105 seats, forcing President Chen Shui-bian to resign his post as DPP Chairman.

With Parliament still controlled by the opposition and President Chen Shui-bian's political support eroding, it can be expected that the special funding package of US\$18.1B for new weapons from the US will face tough resistance. The new Parliament is expected to meet in February 2005 and funding package will certainly be the main issue. Of all the programs proposed by the Bush Administration in 2001, only the Kidd class destroyer transfer has been funded by Taiwan. The other proposed programs including the eight dieselelectric submarines, twelve P-3 Orion maritime patrol aircraft (MPA), as well as the Patriot PAC-3 missile system continue to face opposition from the Parliament, being argued for the better part of three years.

The most controversial program of those remaining is the dieselelectric submarine since it faces many more hurdles and questions including final price and foreign/domestic production. Parliament believes that indigenous production would be considerably higher than if produced by a foreign yard, and rumors indicate that the China Shipbuilding Corporation (CSBC) appears to be reconsidering their position. Parliament also believes that the price quoted by the US is rather pricey as well (US\$4B for 8 units).

The biggest questions still posed are what design will be built

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and at what location? Much has been written on this issue, and the facts remain the same, the US is expected to be the primary supplier, yet has not constructed a diesel submarine in the US since the 1960s and has not developed any modern designs. Other nations such as Germany (Taiwan favors the German Type 209), France and the Netherlands have developed new designs although they appear to be unwilling to transfer their designs to the US for fear of retribution by the Peoples Republic of China. This must also be considered against the backdrop that the US Navy does not wish to see any conventional submarines built by US shipyards.

Additionally, prospective US submarine builders such as Northrop Grumman and Electric Boat have to consider the large investment to open a submarine line for conventional submarines. An eight unit line for the Taiwanese is not considered a wise investment, which is why in many circles the Egyptians and the Israelis, also having difficulty in acquiring diesel submarines, have been considering joining the program. A program that will probably expand to as many as fourteen or sixteen units may be considered a worthy investment for a US builder, if all three nations (Taiwan, Egypt and Israel) agree on the same design, whether it is a new US (which will add significantly to the cost) or a foreign designer such as IZAR, HDW or DCN allowing the US to import a design for export to Taiwan.

Other locations such as IZAR in Spain and even Argentina (started but never completed two Type 209s in the 1980s) have not been overlooked as possible construction sites. However, there are still the basic burning questions, where will the design originate from and where will it be built.

Much like a fine wine, no submarine program will be delivered before its time, and it appears that the decision timeline on this submarine program is still far to the right, although there could be some movement if the new Taiwanese Parliament finally approves the budget in early 2005. With a final consensus by the Taiwanese on funding and foreign building, then the final design and building location questions can at least begin to be narrowed down in order to move forward with this program.

http://www.amiinter.com/wnpr/taiwan/TW2201.html

From the January 2005 Issue

SWEDEN - Viking - Dead or Alive?

On 04 December 2004, the Swedish Supreme Commander, Haken Syren issued a directive outlining several drastic cuts for the nation's navy, including the Viking submarine program, the followon to the Visby corvette as well as other smaller projects. Syren's motivations for the cuts come from his belief that previous long-term developments have "become a burden".

Fortunately, on 16 December, the Riksdag made its decision in favor of maintaining a four boat Submarine Force as well as continuing to develop new naval technologies, including submarines and surface systems.

Had the Supreme Commander's proposed cuts been instituted, they would have effectively removed the submarine arm from the Royal Swedish Navy (RSN) as well as removing the ability to maintain an effective shipbuilding industry within the country.

Undersecretary of the Defense Ministry, Jonas Hjelm was quoted as saying, "I don't dare promise the Swedish Submarine Force another 100 years. But on the whole, the future looks quite bright for the Submarine Forces." Although the submarine arm looks to avoid the budget axe for the immediate future, the Swedish Armed Forces must still find a way to slash SEK3B (US\$433M) per year from its current level of SEK45B (US\$5.7B).

Ultimately, it is expected that either the Viking or an alternative submarine program will be needed if Sweden continues to operate a Submarine Force. Sweden has made it clear that it hopes to move forward with the Viking program, although it wishes to have other navies join in making it more affordable. Singapore, which currently operates four used Swedish-built ex-Sjoormen class submarines, has expressed interest in the Viking as a path to new construction submarines on the condition that the Swedish government will also participate. Should both Sweden and Singapore participate in the Viking project, this would allow for the construction of up to eight boats, four for Sweden and four for Singapore. These numbers would increase the probability that the program would survive in Sweden. http://www.amiinter.com/wnpr/sweden/SW2201.html

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From the February Issue

CHINA - Submarine Force Moving Forward

Reporting from Russia in January 2005 indicates that the first of five Project 636 Kilo class submarines being built by Admiraleiskiye Verfi shipyard in St. Petersburg was delivered to the People's Liberation Army-Navy (PLAN) in December 2004. The submarine was launched in October 2004 nearly 6 months ahead of schedule.

The original contract for eight Project 636 Kilos worth US \$1.5B was signed in May 2002 and called for all eight submarines to be delivered by 2007. In order to meet this deadline, five hulls were to be built by Admiraleiskiye Verfi, one by Krasnoye Sormovo shipyard and two by Sevmash.

Itar-Tass reported on 20 January 2005 that the two units being built at Sevmash are to be launched in April and May 2005. It is anticipated that sea trials for the two Sevmash boats will occur throughout the summer in Russian waters with the Chinese crews prior to the boats being officially turned over around September 2005. It appears that the final four units by Admiraleiskiye Verfi shipyard will enter the water in 2005 and 2006 and the single unit from Krasnoye Sormovo in late 2005 or early 2006 in order to meet the 2007 delivery dates to the PLAN.

In addition to the Kilo project proceeding ahead of schedule, sources in China have reported that a Type 039G (Song class) submarine that was publicly displayed by the PLAN in late 2004 was indeed equipped with an air-independent propulsion (AIP) system.

The PLAN has been allowing reports to "slip out" regarding their advanced AIP program for the past two years, however, the advanced state of the program has not been confirmed until now. The Chinese AIP system is reportedly comparable to the Stirling AIP engine and would allow the 039G class to remain submerged for extended periods without the need for surfacing to recharge batteries.

Currently there are six units of the Type 039G under construction at Wuhan Shipyard, Hubei Province and Jiangnan Shipyard, Shanghai. It is only logical to assume all six of these units will be equipped with the Chinese AIP system.
http://www.amiinter.com/wnpr/china/CH2203.html http://www.amiinter.com/wnpr/china/CH2202.html

From the March 2005 Issue

INDIA - Acquisition of a Submarine Rescue Capability

Sources in India have stated that the Indian Navy (IN) and the United States are close to an agreement that would allow the sale of the two Mystic class DSRVs (*Mystic and Avalon*) to the IN when they are replaced in 2006 by the new Submarine Rescue Diving Recompression System (SRDRS).

Although thirty years old, Mystic and her sister ship (Avalon is currently in a lay-up status) will still be quite capable of performing submarine rescues for years to come for the IN or another navy that decides to purchase the vessels. In addition to India, there are several other countries interested in the two DSRVs, but the Indians remain optimistic that they will be able to conclude negotiations and have a contract signed by the end of 2005 according to the vice-chief of the naval staff, Vice Admiral Yashwant Prasad.

Vice Admiral Prasad stated that the IN has already paid earnest money for the contract that covers modifications for the IN's German Type 209 SSKs to handle the docking of the DSRVs.

He also stated "The US experts are now evaluating the Russian supplied Foxtrot and Kilo class submarines to point out alterations to be undertaken on them to make them capable of such deep sea rescue by the US Navy."

The deal for the DSRVs is being worked in concert with the purchase of 10 retrofitted Lockheed Martin P3C Orion Maritime Patrol Aircraft (MPA). This should only add to the likelihood of the IN being selected as the recipients of the two DSRVs as they were developed, built and now maintained by Lockheed Martin Marine Systems. However, India announced on March 29th that the government had cleared the purchase of 11 Dornier 228 aircraft from Germany for the purpose of maritime surveillance. This development certainly would appear to affect the P-3 decision but may not in the end affect the DSRV acquisition.

The IN began planning for a DSRV capability in 2001 and requested the assistance of LMS Technologies of India in order to

procure new DSRVs. However, with the US procuring new DSRVs in the near term, apparently the IN decided to procure the used vessels in order to satisfy the requirement eliminating the need to proceed further with a new hull.

The new SRDRS being developed for the US Navy by OceanWorks International is based on their Remora-1 Remotely Operated Rescue Vehicle (RORV) system currently in use with the Royal Australian Navy (RAN). It will be capable of rescues in up to 2,000 feet of water and will have a capacity of two attendants and sixteen rescued personnel. The SRDRS is designed to be launched from vessels as small as an Auxiliary Fleet Tug (T-ATF) and is to be able to be air-transported to the area of operations and be deployed in less than 72 hours.

UNITED KINGDOM

On 11 March 2005, the keel was laid at Barrow-in-Furness for the third ASTUTE class submarine, HMS ARTFUL. ARTFUL follows HMS ASTUTE and HMS AMBUSH, both of which are currently being assembled at Barrow.

THE SUBMARINE COMMUNITY

REFLECTIONS ON THE BROTHERHOOD

by Steve Collier, EMCM(SS), USN(Ret.)

The news of the USS SAN FRANCISCO grounding accident came to me as a *breaking news* story on television. As a retired submariner, I was riveted to the TV aching for more details. Sadly, those details soon included notice of the death of MM2(SS) Joseph Allen Ashley on January 8, 2005. He is a man whom I have never met, yet the tragedy of his death shocked me as if one of my own siblings had passed away.

I can remember only two previous occasions in my nearly fifty years on this planet that I have experienced such anguish on receiving news of the death of someone I never met.

The first time was the assassination of John F. Kennedy (when I was seven years old), and the other time was the news of the twenty-two hundred or so people who died in New York that fateful September 11.

My remembrance of those two occasions is understandable.

JFK was, after all, the President of the United States, famous as the leader of the free world. On reflection, it is more likely that my grieving memory was etched in my brain by the effect President Kennedy's death had on all the adults around me, rather than the actual event itself. I remember coming home that day, after school was let out early, to find my mother crying in grief, something I never recalled seeing before. It shook my young world to the core.

And the second time was such a horrifically massive number of innocent non-combatant people murdered, with all the implications of challenge to the entire way of life of every citizen in our nation. Though I can recall but few of those victims' names, the death of each and every one of them was personal, and I still grieve for the loss of each.

But why should the death of an individual, MM2(SS) Ashley, neither a President nor one of a massive group of victims, but rather a single twenty-four year old man nearly half a world away, shake me so deeply?

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The answer, as all who have served on submarines either in this country or on those of any other nation knows, is that Joseph was and is our brother, in the truest sense of the word. OK, not genetically, but in every other way that is important to the soul.

While I know this is so, I'm not smart enough to explain why it is so. Those who have never served in the undersea service will have difficulty understanding such a bond amongst men. My dear wife has always been near my side as I searched for understanding of this tragedy, but since my active Navy career ended twelve years ago and we have been married but five years, she had no basis for understanding why I should feel so emotional about this one sailor's passing. The closest explanation I have found as to the *why* was written by Dr. Joyce Brothers in 1963, in an article entitled "Profile of a Submariner", following the loss of USS THRESHER and her entire crew of 129 brothers. She said:

"In an undersea craft, each man is totally dependent upon the skill of every other man in the crew, not only for top performance but for actual survival. Each knows that his very life depends on the others and because this is so, there is a **bond** among them that both challenges and comforts them."

In 1963 when THRESHER was lost, I was in third grade. And in 1968 when USS SCORPION and her 99 shipmates went down, I was in eighth grade. I have no recollection of news stories of either of these tragedies at the time of their occurrence. (It would be another five years before I was 'inducted' into the Brotherhood.) The point is that the world in general, those who took notice for a few days while CNN was covering it, has for the most part already forgotten about the tragedy that claimed our brother, and, perhaps even more significantly, the heroics of the survivors in saving USS SAN FRANCISCO, thus snatching the remainder of the crew from the jaws of the sea.

But Joey's parents Dan and Vicki Ashley, and "Cooter's" genetic brother Dan Jr., will never forget. And neither will I, nor any of the thousands of brothers who mourn the loss of one of our own.

Evidence of the heartache of the Submarine Brotherhood can be found alongside that of genetic family members and friends in an on-

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line guestbook established for the family of Joseph. As of this writing, there are over two thousand expressions to Dan and Vicki of the shared grief. If you take time to page through the guestbook, you will see notes of condolence from American submariners young and old, active duty and retired, and those of many other nations including Russia, Turkey, and Canada, and from the families and friends of submariners.

To quote again from Dr. Brother's article profiling submariners, "We all have tremendous capabilities but are rarely straining at the upper level of what we can do; these men are. This country can be proud and grateful that so many of its sound, young, eager men care enough about their own stature in life and the welfare of their country to pool their skills and match them collectively against the power of the sea."

To our brother MM2(SS) Joseph Allen Ashley, we bid farewell and following seas. Sailor, rest your oars - your shipmates now have the watch.

Note: I urge those who have not already done so to bid their own farewell, with condolences to the Ashley Family, by signing the digital guest book on the internet at

http://www.legacy.com/ohio/Guestbook.asp?Page=Guestbook&PersonI D=3034030

Unofficial information on the accident can be found at

www.SubmarineBrotherhood.blogspot.com, set up by the author to memorialize MM2(SS) Ashley and the tragedy of SAN FRANCISCO.

YOGI - A LEGEND IN HIS OWN TIME

by Captain Jim Patton, USN(Ret.)

In the July 2002 issue of <u>THE SUBMARINE REVIEW</u>, there was a short piece "The First Skipper" which spoke about, for me at least, how important a JO's first CO can be as regards setting initial personal perceptions and expectations (and certainly affecting his retention). My first was a great individual and submariner by the name of Buzz Bessac. The issue wasn't raised in the above article, but a potential downside and occupational hazard of having a truly superior first CO is that the second is merely average—raising serious issues about submarining as a career choice.

Six months into that first submarine tour on SCORPION, Commander Buzz Bessac was relieved by Commander Robert Y. (Yogi) Kaufman. Recently, a Naval Academy classmate of his – VADM Chuck Griffiths – asked me if I had any anecdotal stories about Yogi for a book celebrating their 60th graduation anniversary. Since most stories that immediately came to mind concerned one or another of the arguments and confrontations we had had, it made me honestly reflect upon the impact Yogi had had, on then Ensign Patton. As enigmatic as it may sound, had he been the first CO, I would probably have left the Navy at the end of obligated service (as I had always been predisposed) but as the second, he assured I would remain, if selected, through command – if for no other reason than to do it better than he did. In any case, as much as I wished he were at the time, Yogi was and is anything but average.

Where Bessac had instilled confidence, Kaufman challenged competency. Where Buzz had practiced tolerance towards a neophyte, Yogi demanded conformance to uniform wardroom standards. In a metallurgical sense, if the first CO had *annealed* me to produce something ductile and formative, I was now *quenched* by the second to become hard and usable. As it must be perceived by now, I spent the last 6-7 months on SCORPION very angry with my Skipper (and generally he with me). Not the least of my reasons to be angry was that he really was an extraordinary submariner, making it clear that my announced goal of being a better CO than he would be a very difficult task.

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Many other COs would have a shot at me over the next decade and a half, but to a significant degree, opposing *boundary conditions* were established by these two officers—the first and the second COs —while the others just supplied all the inbetweens. In a later, postcommand life, when interviewing Lieutenant-level officers, I discovered that I needn't do much more than to ask which COs and XOs they had served with to get an 85 percentile feeling for their submarining skills. Many realized the existence of this window into their professional souls and would sometimes skim over or mumble the names of lesser players. I, and I suspect all others that survived him, have never felt as though service under Y ogi was anything but something to be proud of—no mumbling there. It could easily have been Y ogi, not Nietze, that initially perceived (and put into practice) the concept "That which does not destroy you makes you stronger".

As I progressed through a long and rewarding submarine career, I noticed, to plagiarize a Sara Lee cake commercial, that "...nobody didn't know (or know of) Yogi Kaufman". Once a perceived enemy, now a valued friend, Yogi is truly a legend in his own time.

CAPTAIN HARRY A. JACKSON'S PASSING

by RADM John D. Butler, USN

O In Sunday, 10 April 2005, exactly 42 years after the tragic loss of THRESHER (SSN 593), Captain Harry A. Jackson, USN(Ret.) passed away. Captain Jackson was possibly the most influential person in the design of modern nuclear powered submarines. His legacy will be long lived and widely felt for as long as navies sail submarines.

Born on 7 December 1916, Harry enlisted in the Naval Reserve in 1935. He was commissioned an Ensign after graduating from the University of Michigan in 1940 with a Bachelors of Science degree in Naval Architecture and Marine Engineering. Harry worked to design, build, and repair Navy warships throughout World War II.

Harry reported to the Portsmouth Naval Shipyard in 1951 as the Assistant Design Superintendent and Design Project Officer for three important projects: the TANG (SS 563) Class submarine, which was the first submarine designed for optimal submerged, vice surfaced, performance; the GUPPY IIA, or THORNBACK (SS418) Class; and for the first teardrop hulled submarine, ALBACORE (AGSS 569). ALBACORE was commissioned in December 1953 and produced unmatched submerged performance. Since then, virtually every submarine designed and built worldwide has copied its hydrodynamic shape.

Reporting to BUSHIPS in 1956, Captain Jackson was first in charge of the design work for the world's first class of ballistic missile submarines, GEORGE WASHINGTON (SSBN 598) Class during Preliminary and Contract Design Phases. In 1958, he transferred to Portsmouth Naval Shipyard and served as the Design Superintendent and led the design efforts of both the United States' last diesel-electric class submarine, BARBEL (SS 580), and the Navy's first-of-class nuclear fast attack submarine THRESHER (SSN 593). Harry personally knew the crew, shipyard, and contractor personnel who were aboard THRESHER during her last dive in 1963. Their loss haunted him for 42 years.

Harry continued to shape the Submarine Force after he retired from the Navy in 1968 by teaching a submarine design course at the Massachusetts Institute of Technology. Furthermore, for decades after his retirement, Harry reviewed many of NAVSEA's and MIT's design projects. According to Rear Admiral Paul E. Sullivan, Deputy Commander for Ship Design Integration and Engineering, "in his 80's, Harry Jackson had more innovative spirit and design ideas than most 25 year olds."

Harry trained and mentored virtually every submarine Engineering Duty Officer, and many Line Submarine Officers, for the past four decades. He has been both a teacher and a friend. He taught us our business, and the Submarine Force's track record for safe operations is a direct indication of his skill. Captain Jackson has touched the lives of every submariner who has served over the past forty years and because he trained those who now design the VIRGINIA Class, he will continue to be a part of the Submarine Force.

Team Submarine and the Navy's Ship Design, Integration, and Engineering Command send their heartfelt condolences' to the Jackson family. To Harry, we send our thanks for a job, and a life, well done.

ETERNAL PATROL

CAPT Louis H. Goertin, USN(Ret) 14 May 03 CAPT Frank N. Shamer, USN(Ret) 27 Nov04 LCDR Wendell Valentine, USN(Ret) 16 DEC 04 CAPT Joseph R. McCleary, USN(Ret) 30 DEC 04 CAPT Edward H. Browder, USN(Ret) 3 Jan 05 CDR Ronald W. Houchins, USN(Ret) 5 Jan 05 CAPT William E. "Pappy" Sims, USN(Ret) 13 Jan 05 LT Edward J. Brown, USN(Ret) 13 Jan 05 Mr. John Sawyer Leonard 16 Jan 05 CDR Paul D. Pitts, USN(Ret) 21 Feb 05 Mr. Elliott Needleman Mar 05 CDR Gordon W. Hutt, USN(Ret) 8 Mar 05 CDR Norman "Buz" Bessac, USN(Ret) 29 Mar 05 CAPT Paul V. Parkrabek, USN(Ret) (Unknown) CDR Glen A. Snell, USN(Ret) (2002)



NATIONAL SUBMARINE DAY APRIL 11, 2005

by Mr. Billy Grieves

Billy Grieves enlisted in the Navy April 13, 1939 at the age of 18. After Submarine School and duty in USS-R-10 he was assigned to USS THRESHER (SS-200) which went to Pearl Harbor in April of 1941.

pril 11th marks the birth of the submarine into our United States Navy. This historic event took place 105 years ago. We call it National Submarine Day and it is recognized and honored all across this country. But why should submarines be accorded such special recognition? True, and to use the language of our time, it is a weapon of mass destruction but so are many of the other weapons in our arsenal. Where would our country have been in World War II without the B-17 and the B-25 bombers that leveled the factories of Berlin, softened the defenses of Normandy Beach and Omaha Beach, Tarawa, Iwo Jima and Okinawa? And then leveled the cities of Hiroshima and Nagasaki to bring an end to World War II? And what about our mighty battleships and carrier force that hop-scotched all across the Pacific as we retook island after island and then completely decimated the Japanese fleet in the battle of the Philippines. And now as we watch history unfold, I could go on and on about our modern weapons such as our Trident and Tomahawk missiles, our Saberjets and Apache helicopters and many others, each one vital to the victories we have attained. Isn't the submarine just one of a team of key players in the game of war?

But let's take a closer look at the role our submarines have played back through history. It's well known what our boats did in World War II. Long before the atomic bomb was dropped, every major supply line essential to Japan's very survival had been severed. If it wasn't for the outstanding accomplishments of our Submarine Force, World War II would have been much longer, bloodier and more costly.

And then came the Cold War: Forty years of intensive, unabated undersea warfare with the Soviet Union that ranged from beneath the Arctic ice cap, to the shallow waters of the Mediterranean, to the depths of the Pacific with encounters so close there were *twenty* underwater collisions with Russian submarines. And all the while our country slept, unaware of the crucial conflict that was going on all about them.

When USS ALABAMA, a fleet ballistic submarine, commonly known as a boomer, went into commission back in 1987, I was one of a team of civilian plank owners who contributed to her commissioning. We raised seventy five thousand dollars which provided a lavish commissioning party at the officers club at the Sub Base plus athletic equipment and jackets for the crew. In gratitude, we were afforded one day, the day before commissioning, to tour the boat, ask questions, and have lunch in the mess hall. And when we arrived at the huge missile compartment with its twenty-four giant Trident missile silos, each one more than seven feet in diameter and more than four stories tall, the old shellbacks among us were amazed that a compartment almost as big as a basketball court could be contained in a submarine. And later in an interview with the skipper, I asked him, "Skipper, how accurate are these Trident missiles?" And he said this, "We can leave the west coast and head for Pearl. Half way to Pearl we can launch a Trident missile. It will travel back across the Pacific, across the entire United States and it will drop in the middle of Shea Stadium in New York."

Now, at this time the Russians were bragging about their giant V-2 intercontinental ballistic missile which they said could be fired from Russia and it would travel across the Atlantic and strike any city on the American east coast. But what they didn't say was this: If that missile came within ten miles of its intended target the Russians considered it a hit. And what they didn't know was this: If they had fired just one of those missiles toward our shores, it would never have reached land before *every major city* in Russia would have come under direct missile attack from not one, but two of our submarines from two different directions.

A few years ago when the movie, The Hunt for Red October, came out, a Phoenix theater put on a special showing one morning for those of us of the submarine community. When the picture was over, a captain who was Division Commander of the submarine division in San Diego, took the stage and gave an interesting talk about the capabilities and the need for our submarines. And when the talk was over he had a question and answer period and he took

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questions from the audience. The first question he received was this: Captain, what impact did the Walker spy testimony have on the security of this country? And the audience was *stunned* by his answer. The Captain said, "The Walkers probably did the biggest favor they could ever do for this country." * But then he explained.

*Editor's Note: It should be noted that this quote does not express any wide felt opinion among knowledgeable observers. The Walker treachery cost the U.S. very dearly and could have been disastrous if war had broken out during that time.

When the Russians learned what our submarines could do and had been doing right under their noses for forty years, that was the start of glasnost.

It wasn't political diplomacy or the Russian's depleted economy that caused the collapse of the Soviet Union as a military power and brought an end to the Cold War and the threat of World War III. It was our submarines. To a submariner there is no such thing as enemy controlled waters.

Our submarines also contributed significantly to the battle for Iraqi freedom. Twelve submarines engaged in that war. And of the 800 Tomahawk missiles which were fired, the very first ones were submarine launched as were one third of the total missiles fired.

But the publicity today is focused more on the technology of our submarines. They are masters of stealth and deception and surprise; they can launch Tomahawk and Trident missiles; they can deliver Navy Seals and unmanned vehicles and mines to shallow waters; and they can deploy world wide for months at a time. And to potential adversaries such as China and North Korea, our submarines are the restraining force that keeps the peace in those areas.

But there is one part of the story we seldom hear about. And that is the men whose dedication and courage and ability and sacrifice have made all this possible. More than 3600 men gave their lives to our service in World War II. Two more boats were lost with all hands in the Cold War. And so today as we pause to celebrate the many achievements of one of our navy's most distinguished and elite groups, let us remember the heroism and the sacrifice of those shipmates who have gone before us. May their sacrifice be an inspiration to all submariners to remember our shipmates and preserve our honored submarine tradition.

A PRESENTATION TO UVA MIDSHIPMEN

by Commander George K. Fraser, JR.

S ubmariners living in the area of the University of Virginia, in and around Charlottesville, VA, made an unusual presentation to the Midshipmen's Battalion of the UVA Naval ROTC on Friday, 8 April 2005. Their action originated almost a year ago following the annual ROTC awards ceremony at Mr. Thomas Jefferson's Akademical Village. At that time, it was noted that the Midshipmen's Wardroom housed a number of worthy books and other reading material, mostly having to do with professional or historical Navy topics. Although the table in front of the overstuffed leather lounge displayed a coffee table book entitled, <u>The</u> <u>Brownshoe Navy</u>, no similar volumes could be found that expounded on the history or the merits of life in the Silent Service.

Accordingly, local retired submariners obtained a copy of the Naval Submarine League's 2002 book, <u>United States Submarines</u>. The title page of this wonderful treatise on life and service in the Submarine Force was inscribed as follows, above the title:

Presented to the University of Virginia NROTC Battalion for use in the Maury Hall Midshipmen Wardroom. The undersigned, proud members of the Submarine Service who now live in the Charlottesville area, hope that young Cavaliers will find information and inspiration in this volume that may ultimately lead them to a rewarding career in the Silent Service.

Eleven submariners with service in fifty submarines and afloat submarine staffs signed their names and a list of their submarine service below the title. Service represented mostly Cold War years, although one signatory served in DENTUDA during WWII. Signatories included:

CAPT. Jack McNish, USN (RET) CAPT. Joseph C. Dobes, USN (RET) CAPT. Anthony H. Hastoglis, USN (RET) CAPT. George W. Greene, USN (RET)

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CAPT. John W. Renard, USN (RET) CAPT. Jerry E. Jones, USN (RET) CDR. George K. Fraser, Jr., USN (RET) CDR. Norman S. Gutzler, USN (RET) Mr. F. Daniels Butterfield Assoc. Prof. Patrick O. Riley Mr. Richard C. Bryan, LT, USNR (WWII)

The book was given to the Midshipman Battalion Commander, Midshipman I/c Peter D. Andrews, by CDR George K. Fraser, Jr., for use by all members of the Battalion. CAPT Jack McNish, CAPT Anthony A. Hastoglis, and Mr. Dan Butterfield all accompanied George Fraser at the ceremony, representing all retired submariners in the Charlottesville region.

At the same time, CDR Fraser presented Midshipman Andrews with the Naval Submarine League's annual Frederick B. Warder Award for Outstanding Achievement, in recognition of his demonstrated superior, sustained performance in a difficult and challenging academic and operational environment. Midshipman Andrews, a chemical engineering major, will be attending nuclear power training followed by Submarine School following his commissioning in May of this year.

Other awards to UVA NROTC Midshipmen and to members of the other service ROTC's will be presented at a joint awards ceremony scheduled for 26 April 2005, when Midshipman Andrews' award was originally scheduled to be presented..

The joint presentation of <u>United States Submarines</u> and the Frederick B. Warder award was scheduled to coincide with a briefing for the NROTC Battalion about the Submarine Service, to acquaint them with details of submarine operations, life and career paths. CAPT Michael T. Poirier, USN, from the Office of the Secretary of Defense, Program Analysis & Evaluation, gave a highly informative briefing that might well have convinced several of his listeners that the Submarine Service was an attractive option for their future career choices. CAPT Poirier was previously Commanding Officer of USS TOLEDO (SSN 769) during both phases of the recent Iraq war, and participated in several Tomahawk missile launches.

EARLY SUBMARINE TRAINING from the files of Capt. Charles W. Styer, Jr., USN(Ret.)

UNITED STATES NAVAL ACADEMY ANNAPOLIS, MARYLAND

Sir:-

January 8, 1901

 Referring to Navy Department's letter #247611-HHW, of the 3rd instant, in regard to instruction of cadets and enlisted men on board HOLLAND, I have the honor to inform the Bureau that thirteen officers are being instructed in HOLLAND, and that a plan has been prepared for the instruction of cadets of the first class.

2. The present crew of HOLLAND is especially well fitted to assist in this instruction, and it is strongly recommended that they be retained as the fixed crew of the boat during any instruction that is to be given, and that such enlisted men as the Bureau desires to have instructed be sent here from time to time, to remain until they are proficient in the care and handling of submarine boats. It is very essential that the present crew of the boat be retained during this period of instruction because during the runs it is impossible for the officer in command of HOLLAND to look after the management of the engines and the other appliances of the boat while he is in the conning tower directing the run, and it would be inadvisable to have new men take the places of the four who now make up the crew, during these periods of instruction.

- The construction of HOLLAND is such that not more than three passengers can be carried on submerged runs and not more than six on surface runs.
- HOLLAND will sail today on her trial run to Norfolk and return, and will be convoyed by STANDISH. Several officers are going along on STANDISH for instruction and observation.

Very respectfully,

/s/Richard Wainwright Commander, U.S. Navy Superintendent

The Chief of the Bureau of Navigation, Navy Department, Washington, D.C.

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DISCUSSION

COUNTERPOINT TO BOOK REVIEW

by Mr. Norman Polmar and Mr. Kenneth J. Moore

The Editor's review of our book <u>Cold War Submarines</u> contains two statements that we would question: First, the editor states that "there is an obvious anti-Rickover bias throughout that part of the Polmar/Moore history which deals with the U.S. Navy's submarine evolution." We intentionally ensured a balanced approach to that issue. Portions of the manuscript were read by several submarine officers, and the entire manuscript by a few; they included several flag officers. None observed that the book contained an anti-Rickover bias.

Second, the editor states that Rickover "always won the argument." That is certainly not correct. Rickover opposed singlescrew nuclear submarines; he lost that argument. Rickover opposed the quieting effort of the THRESHER class; he lost that argument. Rickover opposed providing vertical-launch missile tubes in the LOS ANGELES class (he wanted to build a new, large-reactor SSGN); he lost that argument. Rickover wanted to build additional NR-1 type submersibles (not the hull designation one); he lost that argument.

The list continues and is quite long. And, the Submarine Force and the Navy might have been *better* at various points in time if he had *lost* more arguments. For example, Rickover's steadfast refusal to believe that the Soviet Union was constructing titanium-hull submarines delayed the improvements to U.S. torpedoes to counter deep-diving submarines. This list also continues.

But the reader of <u>THE SUBMARINE REVIEW</u> is urged to read Cold War Submarines and to make his or her own conclusion.

RESPONSE TO COUNTERPOINT

by Captain James C. Hay USN(Ret.)

N orman Polmar and K.J. Moore, the authors of <u>Cold War</u> <u>Submarines</u> which I reviewed for the October 2004 issue of this magazine, have provided a *Counterpoint* (published in this issue) to my review of their book. Their counter is to two statements which they question. My response is in regards to those questions.

They first question my position that they exhibit an anti-Rickover bias which detracts from the objectivity of their conclusions about the development of US submarines during the Cold War. They maintain they ensured a balanced approach and got concurrence from several submarine officers, including Flags. I do not doubt that approach. It is always best to get outside review. Therefore: I tried to back up my initial qualitative opinion of bias, based on what I perceived to be a negative tone, or emotion of narrative, with a quantitative look at was written. Again, it is what one might expect from a good nuke. To the best of my accounting there are 43 separate index citations for Rickover. Almost all place him, or those he trained, on what is written to be the wrong side of the argument. As one can see, the rigor in the analysis rests on the validity of the assumptions; however, that is probably the point to the whole issue under discussion here. There seems to be plenty of people who believe that US submarines could have, and should have, been better if only their advice and belief schemes had been followed. That general school of naval philosophy probably was best expressed by Admiral Zumwalt when he wrote to the effect that everything wrong with the Navy can be summed up in one word-Rickover. As one review of his book illustrated, that comment did more harm to ADM Z's reputation than ADM R's. The mechanism here is the same.

All of that brings us to the second question raised by Norman and KJ. The review did **not** say that Rickover "always won the argument". We all know better than to believe that. The authors cite several examples and others could cite several he should not have lost. That, in itself, would be an excellent subject for discussion. What I wrote is that it is very difficult to believe that Rickover was always wrong and yet always won. That's the perception I was given by the ultimate conclusion of the Polmar/Moore book as to the relative value of US and Russian Cold War submarines. It was a

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quote from a Russian design engineer which the authors' must have felt best expressed their summation of the subject:

"We had competition in submarine design. You (in Rickover) had Stalinism!"

(See page 334 in Chapter 20, Soviet versus U.S. Submarines)

I stand by the review. The authors' obvious anti-Rickover bias degrades the objectivity of their observations and conclusions.



MORE ABOUT THE BOOK REVIEW

by Captain John P. Prisley, USN(Ret.)

have some comments on your excellent review of <u>Cold War</u> <u>Submarines</u> in the October 2004 issue of <u>THE SUBMARINE</u> <u>REVIEW</u>.

I tend to align with Norm and KJ, having known and worked with them for a number of years, and aware of many of the issues they raised in the book. You are correct, there are probably no other two American writers who know as much about both the Soviet/Russian and US Submarine Forces.

Point One: What I consider as a basic bit of data—the USN was, and likely still is, behind much of the rest of the Submarine World in Submarine Battery technology (despite the recent release of information on the new type of battery coming to our boats next year!). This is a Rickover legacy, since he never allowed R&D funding that mattered on batteries.

Point Two: Another piece of basic data—the USN was and may still be behind Russia, France, Germany, and Japan in submarine hull metallurgy. The Soviets were building the C, V, and Y hulls out of their equivalent of better than HY100 steel in the 60's! All have since been using HY130 equivalents! Again, a Rickover legacy—he refused to adquately fund R&D in steel development.

Point Three: Despite the Politically Correct stand of the Rickover and Post-Rickover submarine leadership, a valid and compelling case was and can still be made for some combination of nuclear and non-nuclear submarines in our Navy. Again, Rickover would not allow R&D in any form of non-nuclear propulsion. Accordingly, the rest of the Submarine World (Russia, Sweden, Germany, France, and Japan) is building non-nuclear submarines with Air Independent Propulsion (AIP) systems. Most of these boats can maintain a quiet patrol of a month or so without operating conventional diesel engines-in other words-very quiet boats! Such boats would provide superior littoral platforms for ISR and combat, as well as valid and vital non-nuclear targets for ASW! This would be done at less than a half of the cost of SSNs! We could have maintained a much more flexible and capable submarine building and repair shipyard inventory by building such boats and could have responded to the requests of at least two nations to build some for them-essentially allowing writing off a major part of our own R&D costs! The party line was that we could not do so without revealing

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our super quiet technology to others! That was a false premise then, and more so now, for rafting and machinery quieting is SOP in all foreign subs. According to the *party line* now, we don't have the ability to design and build non-nuclear submarines! If this wild statement is correct, we are in deep trouble indeed!

Point Four: The Submarine Force dug itself into a deep political hole in ramming through what resulted in the three *super* SSNs at outrageous price, and now seem to be about to lose force level because of the extremely high cost of VIRGINIA. There is no doubt that these submarines are potent and highly capable, but can only be in one place at a time, and presently represent *overkill* against all known potential enemies.

Point Five: Although not Politically Correct, I believe that China represents our most likely future enemy at sea, even before a resurgent Russia. The strength of the Chinese Navy will be numbers of *good enough* boats, and numbers of less capable boats, yet operational, to outnumber us by more than 2 to 1. When combined with mining, the new Chinese Navy represents a very real future naval threat which our SSNs will find a major challenge.

On balance, the authors did represent one point of view, but the other side of the discussion has already been made repeatedly by our Submarine leadership, and through venues like the annual Sub League symposiums, where the superior people who man our boats are seen and heard! The problem again is that each superior platform can only be in one place at a time. The enemy can trade 1 or even 2 for 1 for longer than we can accept! I submit once again, that we should be considering and funding R&D on both nuclear and non-nuclear boats for different missions.

Editor's Note: The question of funding for submarine reactor systems R&D will be addressed in an article about the first decade, appearing in the next issue of <u>THE SUBMA-RINE REVIEW</u>.

BEWARE OF MAGRUDER GUNS:

by RADM Jerry Holland, USN(Ret.)

Rear Admiral William J. (Jerry) Holland is an adviser and consultant on command, control, communications, computers, intelligence surveillance, and reconnaissance (C4ISR) matters, submarine warfare, and nuclear weapons policy for a number of individual clients, government agencies, and policy organizations. He retired after 32 years of naval service, including 13 years in command of nuclear submarines, submarine squadrons and group, and the Naval Submarine School. He edited <u>The United States Navy</u> (Washington, DC: Naval Historical Foundation, 2000).

In his otherwise excellent overview of the current state of ASW in the United States Navy and his prescriptions for its improvement (see <u>Anti-Submarine Warfare in the 21st Century</u>, in the October 2004 issue of <u>THE SUBMARINE REVIEW</u>), Lieutenant Commander Tim Ketter offers a number of questionable propositions. To sailors who have served in conventionally powered submarines, these propositions seem to stem from a lack of experience and understanding of the limitations of such propulsion and from an over-zealous advocacy of the importance of ASW.

"When operating on batteries or in congested shipping lanes they are extremely difficult to detect." True, but all submarines are hard to detect in shipping lanes and are found in the open ocean only incidentally unless cued. With mobility limited by the capacity of the battery, conventionally powered submarine are much more difficult to maneuver and remain stealthy in crowded waterways. In turn, the need to conserve the stowed energy limits the ability to move away from datum, a fatal defect when facing helicopter ASW forces.

"Battery improvements over time have resulted in shorter recharge times, greater efficiencies in maintaining a charge, and miniaturization has allowed a greater number to be installed." This is probably true for advanced batteries available in the West but not universally applicable. High quality big batteries are not readily available in the Third World or the open market. Batteries have a finite lifetime and require regular and careful maintenance to maintain their capacity. How many submarine batteries in the world get this maintenance and care is problematical.

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"These improvements have significantly reduced a diesel submarine's exposure time during battery recharge operations, historically the time when they are most vulnerable." Probably true where the improvements have been made in batteries but significantly implies a greater change to the condition than seems warranted.

But the breath taker for old battery boat sailors is Lieutenant Ketter's statement that, "Air Independent Propulsion systems currently under development by many countries threaten to make the diesel submarine nearly equal with nuclear submarines regarding submerged endurance."

AIP does not provide more than minimum headway, two or maybe three knots. It handles the hotel load and not a very big one at that (303kw).

The overriding and pervasive demands of husbanding the battery capacity are lost in LCDR Ketter's description of the modern conventionally powered battery boat. The nature of and concern for this single factor drives every decision on such a submarine. The limits that battery capacity put on the ship's operations, not just mobility but timing of snorkel operations, cannot be overstated. While AIP adds stealth, it does not add mobility. With modern sensors, once a datum is established on a diesel powered submarine, his position is essentially fixed for hours.

As Lieutenant Commander Ketter correctly observes, only submarines can challenge American dominance on the sea. The importance of ASW to the United States outweighs all other facets of our maritime position but receives decidedly less attention than many other demands on the Navy's resources. Those who argue for a greater attention to ASW in resources, training and operational training run the danger of coming to believe our own propaganda. In doing so, there is a danger of being intimidated by a threat of our making, e.g. caught in the muzzle of Magruder Guns.¹

There is a difference between intelligence, estimates and advocacy.

Advocates must describe the situation in the most abject terms. Lawyers are advocates and so are admirals. When the advocacy overwhelms the intelligence, strategic mistakes and tactical failure can follow.

Any submarine can be dangerous but so can any bayonet. Bringing the instrument to bear remains the issue. We must not fool ourselves as to the limits of our potential adversaries or credit them with abilities that are not real.

ENDNOTE

1. In 1862, General John B. Magrader, CSA with 10,000 men and few cannon was charged with delaying the advance on Richmond of McClellan's Army of the Potomac of 55,000. Constructing elaborate field works, he "armed" them with wooden logs cut to simulate cannons. General McClellan, who in advocating he be given more forces accepted the largest estimate of the size of the forces opposing his, took a month preparing his assault on these Confederate fortifications. The delay allowed the Confederates to gather their armies from all over Virginia and North Carolina to defeat McClellan.

THE SUBMARINE REVIEW

THE SUBMARINE REVIEW is a quarterly publication of the Naval Submarine League. It is a forum for discussion of submarine matters. Not only are the ideas of its members to be reflected in the REVIEW, but those of others as well, who are interested in submarines and submarining.

Articles for this publication will be accepted on any subject closely related to submarine matters. Their length should be a maximum of about 2500 words. The League prepares **REVIEW** copy for publication using Word Perfect. If possible to do so, accompaning a submission with a 3.5" diskette is of significant assistance in that process. Editing of articles for clarity may be necessary, since important ideas should be readily understood by the readers of the **REVIEW**.

A stipend of up to \$200.00 will be paid for each major article published. Articles accepted for publication in the REVIEW become the property of the Naval Submarine League. The views expressed by the authors are their own and are not to be construed to be those of the Naval Submarine League..

Comments on articles and brief discussion items are welcomed to make THE SUBMARINE REVIEW a dynamic reflection of the League's interest in submarines.

Articles should be submitted to the Editor, SUBMARINE REVIEW, P.O. Box 1146, Annandale, VA 22003.

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SUBMARINE SEA STORIES

REVERSE PSYCHOLOGY

by Captain Jack O'Connell, USN(Ret.)

A bout 30 years ago I was Executive Officer of USS PICK-EREL (SS-524) operating in the Hawaiian area. We were involved in a lengthy ASW exercise as part of the U.S. ASW team, coordinating with ASW aircraft and surface ships. The opposition was three TANG—class fast attacks, masquerading as Soviet submarines for exercise purposes. Commander Hawaiian Sea Frontier (CTF 32) was the tactical commander for the exercise forces. The concept of operations called for the "U.S. subs" to get in a full battery charge during the day, then submerge about sunset and maintain a careful listening watch for enemy snorkelers. Any snorkeler during darkness was immediately classifiable as an enemy.

We were moved around from location to location during the exercise and wound up off Kauai during the final phase. One morning an Immediate message came in from COMSUBPAC directing PICKEREL to depart the exercise, make best speed to Pearl Harbor, meet our Division Commander at the sea buoy, embark him and proceed to Subic Bay in the Philippines. There was no explanation or details about the deployment.

Needless to say the message got our instant attention. The CO called a brief meeting of all officers and the Chief of the Boat, read it to us and told us to quickly ascertain whether there was anything in our storeroom ashore that we would need for the voyage. I was navigator as well as XO and I proceeded to the conning tower to lay out a track to the Pearl Harbor sea buoy. In five minutes we were on the surface, making full speed on four engines across the Kauai Channel, with everyone speculating about the orders and the radiomen scanning all the local radio stations trying to determine what had happened in the world to cause an immediate deployment of submarines. We sent a message to Commander Hawaiian Sea Frontier, info COMSUBPAC, referencing COMSUBPAC's message and informed him that we were departing the exercise pursuant to other orders. We also sent a message to our division commander requesting that his engineer bring a number of items from our storeroom out in the boat with the division commander.

We then got a nasty message from CFT 32 telling us in no uncertain words to get back in the exercise and stop fooling around.

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We readdressed that to COMSUBPAC and asked him to get CTF 32 off our backs since we were "riding to the sound of the guns," and kept on our way back to Pearl Harbor.

During all this activity I had reverted to my XO role, and was besieged with my wife she, my dog it reasons why individual sailors should be sent ashore in the boat when we reached the sea buoy. Needless to say there was no room for that and before long all hands were speculating on a liberty call in Subic Bay. Exaggerated stories of fabled liberties in Olongapo City began to circulate. Morale, that had plummeted when the deployment order arrived, went sky high. We were going to West Pac.

Half way back to Pearl Harbor a message from COMSUBPAC came in to solve the mystery. There had been, unbeknownst to us, a high level command post exercise in progress. It extended from the Joint Chiefs of Staff in Washington, to the theater commanders and Pacific Fleet operational commanders, of which COMSUBPAC was one. All the messages connected with the command post exercise carried a special exercise heading to identify them as exercise related. Our message, that triggered us to immediate action, was one of those. Unfortunately, the drafter and checkers left off the exercise identifier. It went down to the communications center and was put on the submarine broadcast in error.

We took that aboard, turned and headed back to the exercise. The CO got on the IMC circuit and explained the situation to the crew. However, I can still remember the forlorn face of one of the lookouts, as he turned to me on the bridge and said, "XO, you mean we aren't going to get liberty in Subic?"

MORE ON THE MK48 PROGRAM & CBS

by Captain Ralph Enos, USN(Ret.)

aptain O'Connell's letter, <u>Déjà Vu All Over Again (THE</u> <u>SUBMARINE REVIEW</u>, January 2005), about the infamous CBS Reports broadcast of March 1970 on the Mark 48 Program, brings to mind an interesting coda to that story.

The late Walt Dedrick, while he was Mark 48 Program Manager, told me of the sequel to that broadcast. It seems that CBS had a tickler system that a year after a broadcast they would follow up on a story by making inquiries as to the present status of the subject matter. So, in March 1971, the Navy got a call from Mike Wallace inquiring how was the Mk 48 doing? Walt was designated by the Navy to handle the inquiry. He determined that CBS had been incensed by the Navy's stonewalling the previous year's inquiry, and had deliberately put together a program that made the ASN look silly. Walt decided that the Navy had a pretty good story to tell, and that cooperation with CBS was a better way to operate than stonewalling. So he told them everything unclassified that could be told, invited them down to Cape Canaveral where the Mk 48 shoot out was being held, took them to the shops where the torpedoes were being prepared, took them on board the firing submarine in port, and in short divulged all that could be told. Yes, the Navy had some problems with the torpedo, but these were under control, and he showed them how the Navy was controlling them. In the process he learned that Mike Wallace had been a LTJG in the Navy during WWII, and had served in a Pac Fleet tender. The result was that the CBS people were impressed with the Navy's intelligent approach to the Mk 48's problems and broadcast a brief update to the story of a year earlier that the Navy now had its Mk 48 problems under control.

A year later, the CBS tickler system brought the same inquiry: "How's the MK 48 doing?" This time, Walt was now Program Manager of the Mk 48 and he offered CBS the same opportunity to tour the program, which by then had achieved IOC and was in much better shape than two years before. Apparently CBS declined the offer, and said nothing about the Mk 48 on the air.

In March 1974, I relieved now RADM Walt Dedrick as Program Manager. I recall receiving one notice from CHINFO regarding a CBS inquiry on the Mk 48 Program. Inspired by Walt's example, I offered the same cooperative approach, but I don't think they took

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it. They were traumatized by the March 1970 CBS Reports broadcast as well as was everyone else who's knowledge of the Mk 48 program derived from the show. To the end of my tenure as Program Manager, I continually faced the inaccurate perception that the Mk 48 Program was a boondoggle of high cost, inadequate performance, and grossly behind schedule. As Captain O'Connell duly notes, "The Mark 48 torpedo went on to conclude a highly successful operational test and evaluation cycle, and became the world's premiere antiship and antisubmarine torpedo." How much easier it would have been if the Navy had decided to cooperate with CBS in 1969-1970, rather than stonewall. Of course, there's always the possibility that CBS didn't want to cooperate in the first place. BOOK REVIEW

CRY FROM THE DEEP

The Submarine Disaster That Riveted The World And Put The Russian Government To The Ultimate Test By Ramsey Flynn HarperCollins Publishers, 2004 304 pp - \$25.95, ISBN 0-06-621171-9

Reviewed by CAPT C. Michael Garverick, USN (Ret.)

The loss of the Russian submarine KURSK has had a significant impact on the Submarine Forces of the world for two important reasons. First, political factors interfered with the ability of the military to marshal the forces needed to attempt to rescue the men affected by this unfortunate disaster. Second, it identified a deteriorating technical capability to effect submarine rescue even if timely notification was not a factor.

Ramsey Flynn invested considerable personal capital in researching the failures cited above and provides a complementary analysis to the timeline reported by Robert Moore in his <u>A TIME TO DIE</u>, previously reviewed in the October 2003 issue of <u>THE SUBMARINE</u> <u>REVIEW</u>. The book focuses on the individuals involved in the KURSK tragedy and provides credible scenarios that show the intense distrust of the military and political leadership at this time in the Russian government transition.

Flynn was able to obtain interviews from many of the principals as well as family members of the crew to craft his story. The reliance on the timeline in Moore's book provides a common thread and allows the readers to recall their own reactions to what was going on while Flynn tells a fascinating story of submarine life and political intrigue. The result is a very readable story for which the author and publisher took the time to obtain a technical review from RADM Tom Evans, USN (Ret.) and contains 41 pages of reference notes.

The book's title comes from the content of the note that was found on the body of Lieutenant Dimitry Kolesnikov written to his wife that confirmed that there were survivors on board after the disastrous explosion. Flynn focuses on the families of these sailors and highlights the conflicts that you would expect to see in those who experience a tragedy of this magnitude. He also spends a lot of time researching the media surrounding the event and identifies

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inconsistencies in the reported details as well as outright lies.

If there is a fault in what is reported here, it is not in what is recorded, but rather what is missing. Given the access to the principals involved in marshalling the forces needed to start a recovery operation, the delay, and the negotiations leading to what response would be permitted by the United Kingdom resources that were sent to the scene in good faith. For example, consider the dialogue between Admiral Skorgen in Norway and Admiral Popov aboard PETER THE GREAT. Flynn was able to interview both of these officers armed with the facts and yet does not get sufficient information to give the reader an understanding of why these two men who had met before could not be truthful with each other.

Another instance of what is not reported is the conflict that prevented the superior resources of the United Kingdom submersible to be deployed upon arrival to see if they could determine if there was life aboard. Instead, the Russians insisted on using their inadequate submersibles, endangering both the submersibles and their crews. A related understandable omission is the assessment that another submersible had viewed the KURSK and made a classified report to the Russians on its status early in the disaster. It would be interesting to know what was reported and to whom, and why it was not acted upon in a timely manner.

What was not reported was the lack of prosecution of the report cited in Moore's book, and referenced by Flynn, of the effects of the explosion at the time of the disaster on the Russian missile submarine KARELIA that caused the Captain to consult with the flag officer riding his ship about the incident. The delay, by Admiral Popov, in initiating a search for KURSK when she did not report or launch her weapon significantly affected the start of any recovery operations.

Flynn's discussion of the political response to this tragedy is fascinating. The distrust of the military and political leadership is illuminating and yet expected. The infighting within the military as to who was going to speak to whom and the discussion of why reports were delayed are interesting but certainly do not forgive the military from their responsibility for ordering proper rescue operations.

The discussion with the various family members gives the reader an insight to Russian civilians that we have not enjoyed since the Cold War ended. The lack of support for the Russian military has been in the news for some time and Flynn gives us insight into the impact of the lack of pay and proper support capabilities on their Submarine Force. He offers an analysis into relationships and family conflicts that colors our understanding of the participants in this tragedy that were not available from the press.

In his final chapters, Flynn unfolds his title theme, the deceit promulgated by the Russian government throughout this disaster on their people through the release of Kolesnikov's note. He builds the case that had timely notification been made, there was ample time for proper resources to be obtained and a rescue attempted. However, as Moore points out, there was no reasonable capability available within Russian military resources and there was a definite delay in getting international resources on the scene.

My second point of the impact of this book is that our submarine rescue capabilities are decaying and we are not well equipped to respond to this type of disaster with the current resources available. Fortunately, this message has been heard, and help is on the way. A renewed interest in submarine rescue capabilities is already funded and new equipment is now being delivered to our submarines. A recent contract has been awarded for the construction of a diving tower. Saturation diving capabilities, like those used to raise KURSK, are available from private industry. Perhaps we will see the resurgence of these diving capabilities in our Navy and have them available for such a time as the KURSK disaster.

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DSF SELECTS 28 NEW SCHOLARS

The Dolphin Scholarship Foundation is proud to announce the selection of 28 outstanding high school and college students as the 2005 Dolphin Scholars. The selection board consisted of several members of the military and civilian community which included Kristin Munns, President of DSF; CDR Vernon Parks, COMSUBLANT Executive Assistant; MMCM(SS) Kirk Crawley, CMC of the Submarine Learning Center; Ann Petro, submarine officer wife; Paulette Victory, Maury High School Scholarship Counselor; and Mary Wigginton, Director of Financial Aid, Christopher Newport University. The recipients were selected from 248 eligible and complete applications, based on three criteria; academic proficiency; financial need; character and all-around ability. Each Dolphin Scholar will receive \$3000.00 per year for up to four years of undergraduate studies. Of the 28 selected, 21 were high school seniors and 7 were college students; 7 male and 21 female. 10 sponsors were active duty, 13 retired, and 5 discharged. 19 of the sponsors were from the enlisted community and 9 were officers. Congratulations again to the new 2005 Dolphin Scholars!

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