

CAPTURE OF THE U-505

J. David Rogers

One of the more bizarre aspects of having served as a naval officer aboard submarines is that, for many of us, the U-505 was usually the first submarine we ever saw or boarded! That is a typical wardroom joke aboard subs, and was true for me as well. I visited the U-505 in 1961 at age 7, and it was the only sub I had ever seen up close prior to joining the Navy! As an adult I would eventually visit World War II era fleet subs open to the public at Pearl Harbor, San Francisco, Charleston, Philadelphia, Fall River, and even a Soviet Romeo class sub in Long Beach. There aren't any modern era nuclear powered subs to visit because these are scuttled in deep ocean areas because of the radiation hazards.

The capture of U-505 was certainly unique in the annals of naval history. It was the first warship commandeered by the US Navy since War of 1812, and the only vessel captured intact and towed home during World War II. It was cornered by an Antisubmarine Hunter-Killer Task Group 22.3 built around the escort carrier USS Guadalcanal. The Guadalcanal was a small aircraft carrier, only 498 feet long. Called "Jeep Carriers" by the Navy, all 50 units of the Casablanca Class escort carriers were built by Kaiser Shipyards over S-4 merchant hulls during a single year, in 1943-44. Their primary purpose was convoy escort, anti-submarine warfare, support of amphibious landings, and overseas transport of land-based aircraft. Escort carriers usually operated with five destroyer escorts when employed as ASW hunter-killer task groups. Task Group 22.3's escorts were: USS Pillsbury (DE 133), USS Chatalain (DE 149), USS Flaherty (DE 135), USS Jenks (DE 665), and USS Pope (DE 134).



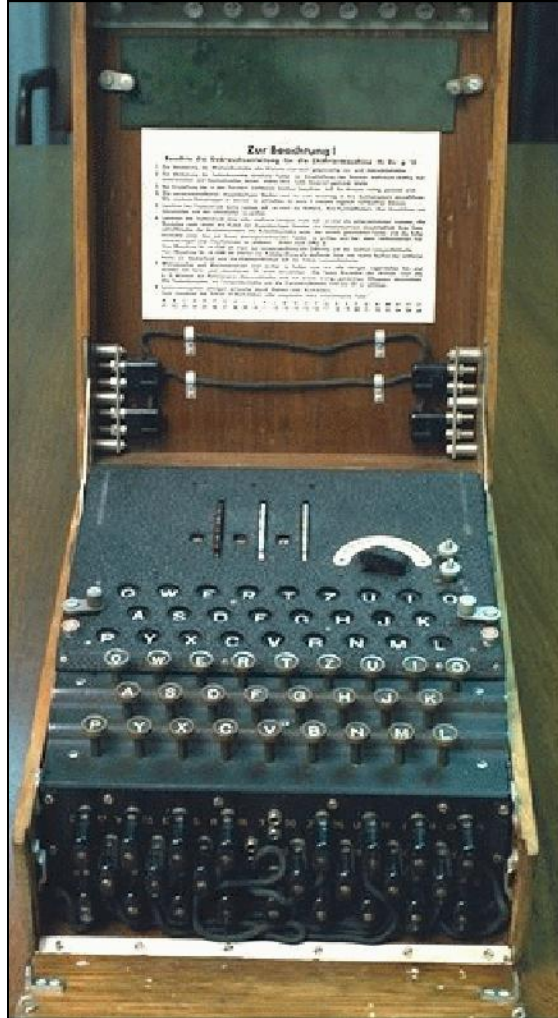
Navy Captain Daniel V. Gallery in 1944, when he commanded the Hunter Killer task group formed around the escort carrier Guadalcanal in the eastern Atlantic Ocean.

In the summer of 1944 Task Group 22.3 was commanded by Navy Captain Daniel Gallery (Annapolis Class of 1920), a native of Chicago. Gallery had three younger brothers, all of whom pursued careers in the Navy. William O. Gallery and Philip D. Gallery also rose to become Rear Admirals. The third brother, Father John Ireland Gallery, became a Catholic priest and Navy chaplain. Father Gallery became a prominent Chicago fixture in the post war years.

Dan Gallery was an aviator and commanding a small "Jeep carrier" hunting for U-boats in the South Atlantic wasn't in the newspaper headlines in 1943. Gallery was an innovative leader and, like any good career officer, recognized that he would only get one chance to command such a task group in combat, and that any career aspirations he had would hinge on his performance. He was out to do the best job possible. On several occasions earlier in the war (mid 1941 and late 1942) the Royal Navy and US Navy managed to land boarding parties on scuttled German U-boats on just two occasions, which enabled the Allies to steal the German's ultra secret Enigma code machines. The capture of the Enigma machines allowed the Allies to decode almost all of the German Navy's instructions to their deployed submarines, operating in "Wolf Packs," or groups that mutually supported one another along Allied shipping lanes. Decoding of secret German orders told British and American forces which submarines were being assigned to the Wolf Packs and their envelope dates of operation. This proved to be an insurmountable tactical advantage!

By mid-1944 when Dan Gallery's task group set sail out of the Canary Islands for the Cape Verde area, American naval intelligence (Group F-21 at 10th Fleet) could intercept German messages, but not the actual longitude and latitude coordinates assigned to each U-boat. This was because these location coordinates were encoded separately, using a newer Enigma device than we had recovered up until that time. So we knew the general area of assigned operations, but not the precise locations. Nevertheless, this information was passed on to our Hunter-Killer Groups, which were dispatched accordingly. So, NONE of these ASW forces were ever sent out on "random patrols", they were typically hoarded and only dispatched to specific target areas, based on the intercepted intelligence. It's awful to contemplate what MIGHT have happened had Admiral Doenitz not been so foolish about using the same Enigma Codes throughout the entire war for his general service message traffic!

With the area of assigned operations information and dates of operation, the Hunter-Killer Groups would usually employ HF/DF, or High Frequency/Directional Finding techniques, to locate the enemy subs' actual whereabouts. The subs would radio each other with contact information on passing ships, re-supply, fuel states, all sorts of routine message traffic. Our Hunter-Killer groups would quietly enter the prescribed shipping lanes, then have the escorts spread out and use HF/DF to gain any sort of contact vector. If two of the screening ships picked up the same transmission, two vectors could be drawn and a position fixed on the sea where the vectors crossed. Whenever such a fix was established, the Jeep Carrier would launch a patrol plane to scour the contact location to see if they could acquire visual contact with the enemy submarine.



The German Enigma cipher machine was originally patented in 1918 by Arthur Scherbius for commercial use, then adopted by the German Navy 1926. It was improved and changed numerous times before and during World War II. Between 100,000 and 200,000 of the 26 pound machines were manufactured, each light enough to be carried by a single person in a simple wooden box, as shown here. Only three of these were recovered by Allied naval forces during the Second World War.

Gaining visual contact was relatively simple during the daylight hours in World War II because these vessels were easily detected when cruising at periscope depth (less than 50 feet). That's because U-boats weren't really "submarines" in the modern sense; they were basically surface ships which could submerge for limited periods of time to gain the advantage of stealth (usually during attacks, when they were close to their intended targets). They were not designed to be submerged for more than 8 to 12 hours at a time, and submergence of 12 to 36 hours could prove fatal because of carbon dioxide build-up and the need for their diesel engines to take in fresh air. The Germans pioneered the use of retractable snorkels, which allowed their subs to remain just below the surface while running their diesel engines and recharging their batteries, but still vulnerable to detection by passing aircraft.



The 498 foot long Cassablanca Class escort carrier USS Guadalcanal (CVE-60) formed the flagship of the hunter-killer task group operating off Cape Blanco, French West Africa in early June 1944. They were on their way back to port when the U-505 was spotted by a FM-2 Wildcat fighter flying off the USS Guadalcanal.

Believe it or not, World War II submarines were faster on the surface than modern day nuclear-powered submarines! Most of their attack tactics involved lying low during the daytime to avoid aircraft spotting them, placing themselves in an advantageous position for a night attack, usually with a ready avenue of escape. A submerged sub could barely keep pace with most slow moving convoys (which usually transited the sea lanes at 9 knots or so). After nightfall, the sub would surface and set up for its attack on the surface, running 20-23 knots, usually, just over the horizon and, thereby, out-of-sight. After performing the "end run" the sub would set itself up for direct line-of-sight torpedo shots. The more daring skippers would set themselves up inside a convoy's presumed track, so they could bring their bow and stern torpedo tubes to bear on targets in opposing directions. The goal of the sub was to avoid detection at all cost and escape in all the confusion and noise of a successful attack on multiple targets. Ambient noise (rough seas, ocean current mixing, ship's screws, or explosions) were always advantageous to a sub's escape, which was usually detected by sound (passive) or sonar (active).



The nerve center of the Hunter-Killer ASW task groups was the Combat Information Center, or CIC, aboard the flagship jeep carrier, shown here. Position fixes were noted with wax pencils on the transparent circular plotting board, at left. This assumed the position of the carrier at the center and used the ship's radars for ranging to potential targets, based on information fed from its own aircraft and screening escorts. Discovering an enemy submarine within the perimeter of the hunter killer task group was a terrible failing, but that is the situation that presented itself to Task Group 22.3 on June 4, 1944.

On April 9, 1944, Gallery's Task Group had sunk the U-515 after a long running battle, the end of which saw the sub surface so her crew could abandon ship. Gallery's escorts pulled up alongside the stricken sub and pulled the German sailors from the water, while the sub slowly sank. In the wake of this incident Gallery recognized that the submarine could have been boarded and taken as a war prize if a team of trained experts knew how to close the covers on the sea strainer and de-arm the scuttling charges. No one had ever done this successfully, but Gallery began formulating a plan to train up a boarding party within his task group, using what information they could glean from the captured German crewmen. Gallery knew that if he could recover the latest Enigma Coding Machine from a German submarine it would be of great value in the war effort, so, despite the low probability, he prepared his forces accordingly.



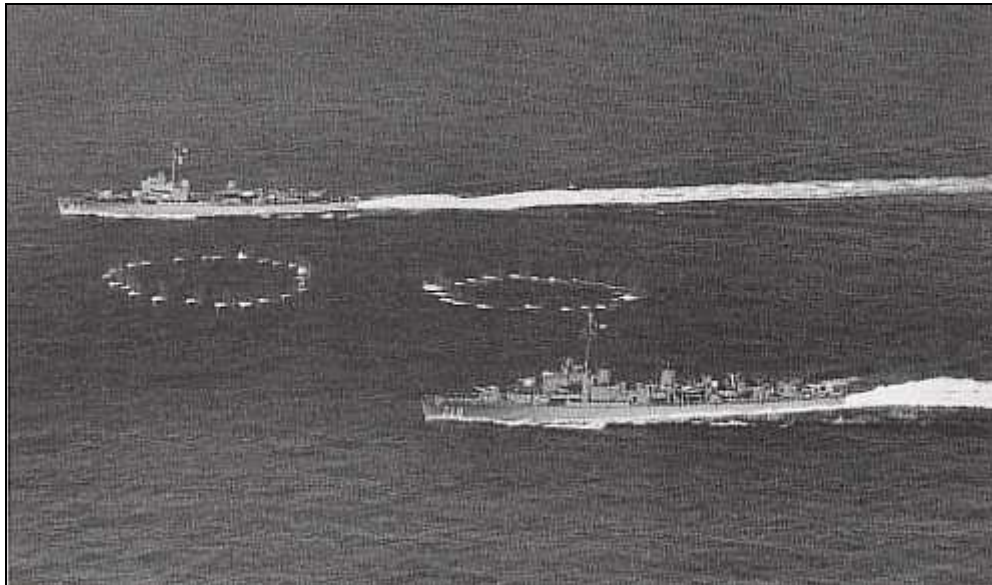
World War II era submarines were basically designed as surface ships that could submerge for short periods to attack and escape undetected, usually against high value targets. Powered by diesel engines driving twin screws, they were capable of exceeding 20 knots when surfaced, allowing them to outrun some destroyer escorts, and most frigates, corvettes or sub chasers. Submarines would set up for convoy attacks by dashing about on the ocean's surface, then only submerge to attack as targets came within visual range. Submarines were extremely vulnerable to detection by aircraft during daylight hours, and it was the introduction of patrol aircraft attached to convoys which largely brought about the defeat of the Axis submarine menace.

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In May 1944 Gallery's task group had been unsuccessful in establishing any sub contacts in their assigned area or operation. Running low on fuel, by June 4th they had turned around and were headed for a refueling stop at Casablanca in Morocco when one of the Guadalcanal's fighter aircraft spotted the sub running on the surface a few miles from the Task Group. The destroyer escorts were vectored to the contact and when they got within 1000 yards, U-505 fired a torpedo at the Guadalcanal, which passed beneath the USS Chatalain (DE-149). The Chatalain was only about 800 yards from the sub when it began its attack. After the torpedo firing the carrier and other elements of her screen took evasive action, and the Chatalain soon acquired active sonar contact and attacked with hedgehogs on their first pass (see photos). Hedgehogs were small contact depth charges, shot in a circular pattern around a contact in front or to the side of an attacking ASW escort (see photos). The Hedgehog's explosive charge was not usually sufficient to sink a sub, but could damage vital parts.



The Hedgehog was the first stand-off shipboard anti-submarine weapon. The warhead was propelled up to 250 yards by an impulse charge of smokeless powder. The explosive charge consisted of 30 pounds of TNT, or 35 pounds of Torpex. The hedgehogs were loaded on cylindrical bars called spigots, shown here, with six hogs in each cradle, and four cradles in the firing projector.



American destroyer and destroyer escort firing adjacent circular patterns of 24 hedgehogs. These ships usually carried 240 hedgehogs, sufficient for 10 launches, with reloading taking about 3 minutes. Hedgehog attacks were intended to wound a submarine, not necessarily sink it. Much heavier depth charges stored on the escort's fantails were capable of sinking enemy submarines.

After the initial attack with hedgehogs, the Chatalain closed on the sub's position and attacked with depth charges, causing minor leaks in the engine room. The aircraft overhead immediately reported oil leaks and the sub appeared to be circling, her rudder jammed or out of control. At this juncture the crewmen in the sub's engine room panicked and rushed into the control room, reporting that the sub's hull was cracked and the boat was sinking. Thinking that the boat was mortally damaged, the sub's commander, Oberleutnant Harald Lange, with only one choice, to blow the main ballast tanks, surface, and abandon ship. Many of the crewmen had little confidence in Lange, who had recently taken command when their previous skipper committed suicide. A minute later the circling aircraft reported the sub blowing her ballast tanks, indicating that she was surfacing.

It was at this critical moment that Dan Gallery's contingency planning paid off. Instead of going for the standard knock-out blow, the task group was commanded to "*ready boarding parties*", which they had been practicing. Gallery then ordered that the surfacing sub be raked with small arms fire, employing nothing larger than 20 mm machine guns, to avoid causing mortal damage to the sub. Gallery hoped the small caliber rapid fire would cause the Germans to panic and surrender swiftly, and, thereby, prevent the sub from being scuttled properly. The machine gun fire had the desired effect, killing one German sailor and wounding Oberleutnant Lange, as well as the executive officer. It was standard German procedure to set explosive scuttling charges with timer detonators and to scuttle their subs before abandoning ship, to prevent its falling into enemy hands. As the crew abandoned ship, Lange ordered that the ship be scuttled by taking the cover off the sea strainer, which was standard procedure, along with setting scuttling charges. Thinking that the sub's hull was cracked, nobody set the scuttling charges, thereby setting the stage for the vessel's unexpected capture as a war prize. The slowly sinking submarine circled erratically at five or six knots, with only its bow and coning tower breaching the surface (see photos).



Crewmen of the U-505 abandoning their surfaced submarine, taken from the attacking aircraft before the American boarding party arrived. Note German sailors in the water. Of her 60-man crew, only one was killed and the other 59 became prisoners of war.



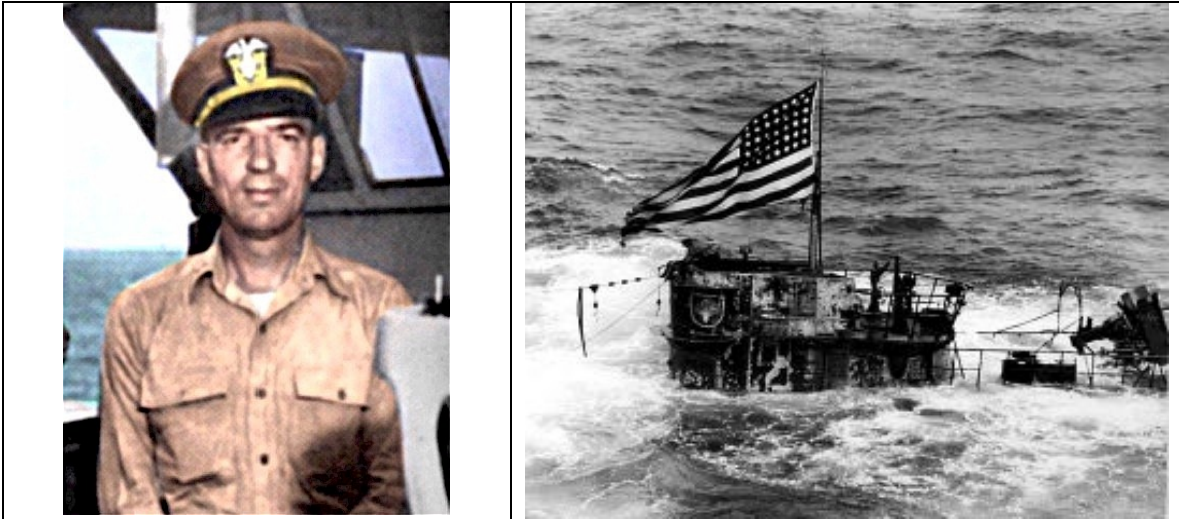
The American boarding party from the USS Pillsbury approaches the abandoned U-boat, which is obviously floundering.



The initial American boarding party led by LTJG Albert David of the USS Pillsbury on the bridge of the U-505. Note how 95% of the sub's hull lies below water.

An armed party from the USS Chatalain actually arrived first, which secured the Enigma machine and all the loose charts lying about the conning room. Then the trained boarding party arrived from the USS Pillsbury (DE-133), which had been assigned the task of studying plans of various classes of U-boats provided by 10th Fleet intelligence so they might prevent a scuttled U-boat from sinking. It was commanded by a "Mustang officer," LTJG Albert L. David (1902-45) of Maryville, Missouri. LTJG David had been a veteran enlisted man aboard destroyers since 1919, who was commissioned during the war. LTJG David boldly led his boarding party, fully aware that the U-boat might momentarily sink or be destroyed by scuttling charges normally set by German crews. He plunged through the conning tower hatch and, with his small party, exerted every effort to keep the ship afloat and to assist the succeeding and more fully equipped salvage parties in making the U-505 seaworthy for the long tow across the Atlantic. He was awarded the

Medal of Honor posthumously, having died prematurely in September 1945. The U-505 was a Type IXc U-boat built back in 1941, so it was not a "state-of-the-art" U boat, but still an enormous war prize. The boarding party found that the sub was damaged in her stern area, but that her engines were still running and no explosive charges appear to have been set, so hasty was her abandonment and general belief that she would sink anyway.



Navy Lieutenant Albert L. David (left) of Maryville, Missouri led the trained boarding party from the USS Pillsbury which boarded the U-505 and secured it from sinking, for which he was posthumously awarded the Medal of Honor. The image at right shows the boarding party breaking out the national ensign from the captured sub's bridge.



The destroyer escort USS Pillsbury comes alongside the U-505 to render assistance to the boarding party. Numerous attempts to bring the floundering submarine under tow failed.

The real treasure was the intact Enigma Decoding Machine (see photo), with all of its rotors, code books, and even notebooks containing decrypted messages. The Allies now possessed a German submarine that remained under her own power, slowly circling. The USS Pillsbury repeatedly tried to snag the sub and bring it under tow, but was unsuccessful, getting rammed three times and leaking below the water line. Another boarding party was sent out from the flagship Guadalcanal with a designated "salvage crew" headed by Commander Colby G. Rucker, an engineering duty officer. Despite the capture there still wasn't enough working knowledge of U-boats and German engineering to secure the prize, make her seaworthy, and take her under tow as a war prize.



The salvage crew led by Commander Colby G. Ruker works to get the captured submarine trimmed and suitably operational to tow her back across the Atlantic Ocean as a secret war prize.

It was at this stage that the story took another lucky twist. Several Polish American sailors were recruited to see if any of the 80-odd German prisoners might be Polish, and if so, one of those individuals might be coaxed into cooperating in an effort to save the sub from foundering. After some racial profiling, one prisoner was selected, and he turned out to be Polish! At this juncture a desperate Captain Gallery offered the man *"the best education after the war"* and enticed him to cooperate, which he did. The Polish sailor told the Americans how to turn on the ship's bilge pumps and showed them the German's secret acoustic torpedoes, which proved a most valuable prize (a facet of the action that is seldom discussed because it was classified at the time and for many years thereafter).

After securing the sub's watertight integrity, pumping her bilges and restoring her trim, she was taken under tow by the escort carrier Guadalcanal. The salvage crew disconnected the diesel engines from the electric motors driving the sub's twin screws. Then they towed the sub and allowed the sub's screws to free-wheel. The turning of the sub's screws then charged the sub's batteries, and some electrical power was thereby maintained aboard the captured submarine during the tow. This was a critical detail in the successful tow of the sub. When American Chief of Naval Operations Admiral Ernest J. King was informed that Gallery was taking a captured U-boat under tow he was furious, fearing that the Germans would discover this fact and change the codes on all of their Enigma decrypting machines. Cooler heads prevailed, however, and a number of King's aides discussed how the captured prize might be towed and stowed away where it would not be discovered. Gallery was ordered to tow the U-505 1700 nautical miles, across the Atlantic Ocean to Port Royal in Bermuda, where the sub was hidden with great secrecy till the end of the war. Port Royal harbored little Allied naval activity and was not believed to be frequented by German agents.



Positioning the U-505 to take her under tow, as viewed from the fantail of the USS Guadalcanal (CVE-60).



U-505 under tow by the escort carrier USS Guadalcanal in late June 1944, bound for Port Royal in Bermuda. The freewheeling of the sub's twin screws generated electricity aboard the sub, crucial to its control. A TBM Avenger patrol bomber is coming in to land on the Guadalcanal's flight deck.

Captain Gallery became a notable hero from the incident, and the entire Task Group was awarded the Presidential Unit Citation, which was unprecedented. Gallery was promoted to Captaincy of the USS Hancock, an Essex class fleet carrier operating with the fast carrier task forces in the Pacific (and commanded by VADM John McCain, the present senator's grandfather). His command of the Hancock was also successful, and by war's end Gallery was promoted to Rear Admiral. Fortunately, Gallery was also one of the most prolific of the World War II admirals, writing 8 books and many pieces for the *Saturday Evening Post*. He retired around 1960 and died in 1977. While he was still on active duty (1956) he wrote a book titled

"*Twenty Million Tons Under the Sea*", which describes most of what's been related herein. Being an aviator, gallery describes the evolution of the U-Boat menace, the Navy's creation of Hunter-Killer Groups to combat the U-Boat menace, so the U-505 capture isn't described until Chapter 17. For many years the book was available from the Chicago Museum of Science & Industry, where the U-505 has been on display since 1954.



The U-505 was brought to the Chicago Museum of Science & Industry in 1954, through the efforts of RADM Dan Gallery and his younger brother, Father John Ireland Gallery, both Chicago natives. It was designated as a National Historic Landmark in 1989 because it was the first ship captured on the high seas by the United States since the War of 1812.

After the war, the Navy removed the long range periscope from the U-505 for testing at the Navy weapons lab in Point Loma. They planned to scuttle U-505 as a target ship. But, under encouragement of the four Gallery brothers, Chicago's Museum of Science and Industry asked for the boat, and the people of Chicago raised \$250,000 to have it moved and installed at the Museum in 1954 (see photo). So, this is a synopsis of the remarkable story of how a German U-Boat came to be on display in Midwestern America. It was even designated as a National Historic Landmark in 1989. A much later model U-Boat, U-995, is on display near Kiel, Germany. It is very similar to the Soviet Romeo Class submarines, which were the most prolific of any port-war class, in continuous production up thru 1972. Romeos trace their origins to the German diesel subs in production at close of the Second World War.



The U-505 is still on display at the Chicago Museum of Science & Industry. The 700 ton behemoth was moved to a new subterranean exhibit hall in 2004, which opened to the public in mid-2005, shown here.



LCDR J. David Rogers, USNR was commissioned as a Navy intelligence officer in 1984, following officer training with the Marine Corps in 1974-76. His formal education includes a bachelor's in geology and geophysics from California State Polytechnic University, and masters and doctorate degrees in civil and geological engineering from the University of California at Berkeley. Rogers served on the Tactical Training Team of Commander Patrol Wings Pacific between 1987-91, developing antisubmarine warfare (ASW) tactics. During this time he rode more than a dozen different submarines, studying shielding techniques. He retired from the Navy Reserve in 2002 and teaches geological engineering at the University of Missouri-Rolla.