**1957**

**Operation Strikeback**

After World War II, many things changed in the way the Navy anticipated fighting a war at sea. Now the threat came from an old ally, the Soviet Union. Having a large navy with nuclear capable weapons, there was genuine fear of what might happen if the Soviets decided to expand its communist reach. Of particular interest was the Soviet's largest perceived threat – the submarine. NATO, the North Atlantic Treaty Organization, was a group of allied nations working together to counter Soviet aggression. The naval forces of these nations held a number of exercises to get ready in case of a Soviet strike. In USS Iowa's last deployment prior to her 1980's reactivation, she participated in a very large NATO exercise called Operation Strikeback.

Operation Strikeback was a major naval exercise of the North Atlantic Treaty Organization (NATO) that took place over a ten-day period in September 1957. As part of a series of exercises to simulate an all-out Soviet attack on NATO, Operation Strikeback was tasked with two objectives. Its initial objective was the deployment of NATO's naval forces (designated the “Blue Fleet”) against other NATO forces attempting to simulate an “enemy” navy that featured a large number of submarines (designated the “Orange Fleet”). Its other objective was to have the Blue Fleet execute carrier-based air strikes against “enemy” formations and emplacements along NATO's northern flank in Norway.

Operation Strikeback involved over 200 warships, 650 aircraft, and 75,000 personnel from the United States Navy, the United Kingdom's Royal Navy, the Royal Canadian Navy, the French Navy, the Royal Netherlands Navy, and the Royal Norwegian Navy. As the largest peacetime naval operation up to that time, military analyst Hanson W. Baldwin of the New York Times characterized Operation Strikeback as “constituting the strongest striking fleet assembled since World War II.” It was the most ambitious military undertaking for the alliance to date, involving more than 250,000 men, 300 ships, and 1,500 aircraft operating from Norway to Turkey.

Faced with the overwhelming numerical superiority of Soviet Union and Warsaw Pact military forces, NATO embraced the concept of the nuclear umbrella to protect Western Europe from a Soviet ground invasion. This strategy was initially developed in January, 1954 by the then-Supreme Allied Commander Europe General Alfred Gruenther. “We have... an air-ground shield which, although still not strong enough, would force an enemy to concentrate prior to attack. In doing so, the concentrating force would be extremely vulnerable to losses from atomic weapon attacks... We can now use atomic weapons against an aggressor, delivered not only by long-range aircraft, but also by the use of shorter range planes, and by 280 mm. artillery... This air-ground team constitutes a very effective shield, and it would fight very well in case of attack.”

This strategic concept reflected the American strat-
egy of massive retaliation of the Eisenhower administration as set forth by Secretary of State John Foster Dulles. “We need allies and collective security. Our purpose is to make these relations more effective, less costly. This can be done by placing more reliance on deterrent power and less dependence on local defensive power... Local defense will always be important. But there is no local defense which alone will contain the mighty land power of the Communist world. Local defenses must be reinforced by the further deterrent of massive retaliatory power. A potential aggressor must know that he cannot always prescribe battle conditions that suit him.”

NATO Military Command Structure

With the establishment of NATO’s Allied Command Atlantic (ACLANT) on January 30, 1952, the Supreme Allied Commander Atlantic (SACLANT) joined the previously-created Supreme Allied Commander Europe (SACEUR) as one of the alliance’s two principal military field commanders. Also, a Channel Command was established on February 21, 1952 to control the English Channel and North Sea area and deny it to the enemy, protect the sea lanes of communication, and Support operations conducted by SACEUR and SACLANT. The following key NATO military commands were involved in a series of alliance-wide exercises, including Operation Strikeback, during the fall of 1957.

Operational History

As part of the response to a theoretical Soviet attack against NATO on all fronts, Operation Strikeback would test the capabilities of Allied naval forces (Blue Fleet) by tasking them to destroy the enemy
The navy (Orange Fleet) and its huge submarine fleet, protect transatlantic shipping, and undertake sustained carrier-based air strikes against the enemy positions.

Beginning on September 3, 1957, American and Canadian naval forces got underway to join British, French, Dutch, and Norwegian naval forces in eastern Atlantic and northern European waters under the overall command of Vice Admiral Robert B. Pirie, USN, the Commander of the U.S. Second Fleet, acting as NATO’s Commander Striking Fleet Atlantic (COMSTRIKFLTLANT). While en route, the U.S.-Canadian naval forces executed Operation Seaspray, a bilateral naval exercise to protect Blue Fleet’s vitally-important underway replenishment group (URG) from enemy submarine attacks.

Operation Strikeback itself began on September 19, 1957, involving over 200 warships, 650 aircraft, and 65,000 personnel. They included the battleships Iowa and Wisconsin. To provide a more realistic simulation of protecting transatlantic shipping, over 200 merchant marine vessels, including the ocean liners Queen Mary and Ile de France, also participated as duly-flagged target ships for the exercise. Blue Fleet hunter-killer (HUK) groups centered around the carriers Essex, Wasp, and Tarawa, as well as submarines and land-based anti-submarine patrol aircraft, executed Operation Fend Off/Operation Fishplay to identify, track, and contain the breakout of the enemy Orange Fleet's submarine force along the Greenland-Iceland-UK gap (GIUK gap).

Operating above the Arctic Circle in the Norwegian Sea, the Blue Fleet, which included the new U.S. supercarriers Saratoga and Forrestal, launched carried-based air strikes against enemy positions in Norway. Time magazine provided the following contemporary coverage of Operation Strikeback. “From somewhere southeast of Greenland came the crackle of an urgent radio message: ‘Being fired on by Orange surface raider, Inchcliffe Castle.’ With that alert from a famed but fictitious merchant vessel, simulated hell broke loose in the North Atlantic. Out to punish the “aggressors,” a six-nation Blue fleet totaling nearly 160 fighting ships began steaming toward Norway.
In the Iceland-Faeroes gap, 36 Orange submarines, including the nuclear powered Nautilus, lay in wait. The U.S. destroyer Charles R. Ware was “sunk”; a “torpedo” slowed down the carrier USS Intrepid, and HMS Ark Royal had a hot time beating off the assaults of Britain-based Valiant jet bombers. But by early afternoon, Blue carrier planes got through to make dummy nuclear attacks on Norway’s ports, bridges and airfields."

On an interesting turn, into the midst of this earnest make-believe, strayed a Russian trawler - a real one. The Russian, being overtaken, had the right of way and held it, passing diagonally through the entire NATO fleet as the big ships refueled and moved beyond her.

Following the conclusion of Operation Strikeback, U.S. naval forces conducted Operation Pipedown, involving the protection of its underway replenishment group; while en route back the United States.

SACLANT, Admiral Jerauld Wright, USN, described Operation Strikeback as being “remarkably successful” while also noting “there is considerable scarcity of both naval and air forces in the eastern Atlantic.” Wright’s Eastern Atlantic allied commander, Vice Admiral Sir John Eccles, RN, also noted, “I am not in a position to criticize political decisions, but I say this as a professional man with over 40 years’ experience — I cannot carry out my task as given to me at the moment without more forces. In recent years the submarine has, without any doubt at all, gone a very long way ahead of the devices with which we are presently equipped to sound and destroy it.”

Particularly significant was the performance of nuclear-powered submarines with the U.S. Navy’s first two such vessels, the USS Nautilus (SSN-571) and USS Seawolf (SSN-575), participating in Operation Strikeback. According to naval analyst-historian Norman Friedman, Nautilus, “presented a greater threat than all 21 snorkel submarines combined,” during Operation Strikeback. They made 16 successful attacks against various naval formations while maintaining effective on-station tactical and high-speed pursuit capabilities. Nautilus cruised 3,384 nautical miles with an average speed of 14.4 knots. In addition to the Nautilus, the Seawolf departed New London on September 3, for Operation Strikeback. Before
she surfaced off Newport, Rhode Island, on September 25th, Seawolf had remained submerged for 16 days, cruising a total of 6,331 miles. Recognizing the need to meet this Anti-submarine warfare (ASW) challenge, the following actions were taken:

- Task Force Alpha was created by the U.S. Navy to develop improved ASW tactics and technology by integrating carrier-based ASW aircraft, land-based patrol aircraft, refitted destroyers, and hunter-killer submarines.
- NATO Undersea Research Centre was established by SACLANT on 2 May 1959 in La Spezia, Italy, to serve as a clearinghouse for NATO’s anti-submarine efforts.

Operation Strikeback was the final deployment for the battleships Iowa and Wisconsin until their re-activation in the 1980s by the Reagan Administration.

In addition to Operation Strikeback, which concentrated on its eastern Atlantic/northern European flank, NATO also conducted two other major military exercises in September, 1957, Operation Counter Punch involving Allied Forces Central Europe on the European mainland and Operation Deep Water involving NATO’s southern flank in the Mediterranean Sea.

The PAO Reunion
Brad Goforth

“We’re getting a bunch of the guys together. Can you come?” That was the question posed by Sr. Chief Jim Baron in January. The idea was to attend the Iowa Memorial Service on April 19th and then recreate a photo taken of the same group aboard Iowa in 1989. It would be fun getting the old crew together again.

Of course, the answer was yes.

April 18th, late in the evening, my daughter and I climbed into my car and began the six hour journey from Charlotte to Norfolk. This wouldn’t be a leisurely trip. April 19th actually was on Easter weekend, so we would have the long trek back the next day. My daughter wanted to go because the last time these guys had seen her, she was just three years old.

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Original 1989 photo. (USN)

Tim Sweeney, Wes Burton, Jim Baron, Larry McKern (back) and Robert Sabo

-operation Strikeback saw the dawn of missiles in the US Navy (USN)
April 19th was cold and wet. We all managed to get to Iowa Point, and as we rounded the tent, there they were.

It was evident that age had played its part on all of us. There was a lot of grey. But there is something about having been together for a period of time. We all immediately began to get back into the sayings and mannerisms we had used when we together some 25 years ago. Baron still had his dry humor, Burton still uses his hands a lot when he speaks. Klotzbach, Murphy, McKern, Sweeney and Sunshine along with our photographer, Bob Sabo, added their part to the mix. We all fell back into making snide comments about things that happened around us - just like we had before. Each was still the same guy I had the pleasure of serving with, yet a little older and wiser than they had been so long ago.

After the ceremony arrangements had been made to go aboard USS Wisconsin to take the picture. We got aboard, but the person who was going to get us up to the top of turret three was not there. We all looked at each other, and as one said, “screw it, we’ll go anyway.”

Picture several middle aged (and older) men crawling around Plexiglas shields up the front of turret three in the rain along that narrow little ladder on the turret face. None of us were as thin as we had been, but we were determined.

We made it. The photos were taken. We also found out that two of our number were actually aboard USS Iowa at the same time having their own mini reunion.

The photos were taken, but now we had to get off the turret. Fortunately, the doors that were locked to us getting up, we open from the other side. Unfortunately, the Wisconsin staff members didn’t seem to understand what we were doing. We were stopped several times, but we didn’t care. We visited the photo lab, and SITE-TV. They were in the same places. Returning to the regular tour areas, we were happy to find that the PAO office was also in the same place. We spent an hour or so just sitting in the spaces and remembering the old days and the times we had.

Brad and Sallie Goforth, Doug Klotzbach, Larry McKern, Peter Sunshine and his son, Ben. (Sabo)

Taking matters into our own hands. (Sabo)

The 2014 PAO Photo . Larry McKern, Wes Burton, Jim Baron, Tim Sweeney, Brad Goforth, Douglas Klotzbach, Peter Sunshine, Michael Murphy and Robert Sabo. (Sabo)

Swapping sea stories - as usual. (Sabo)
It is remarkable how the years fall off when old friends get together. For that short length of time, we were the old team again. We were able to share what had happened over the 25 years and get reacquainted again. Sabo, Sunshine and I brought family members. Life continues. The guys could not get over seeing the little girl they had met now all grown up. My daughter recently told me they have all become friends on Facebook. For a short time, she too, experienced that spirit we formed while aboard the ship.

The bonds are still there. I hope that someday we can all get together again aboard our ship and take that picture again where it all began. Knowing these men and seeing what they have achieved, both together and apart, makes me proud to have served with them.

Medal of Honor

Captain Albert Harold Rooks

Albert Harold Rooks was born in Colton, Washington, on December 29, 1891. He entered the United States Naval Academy as a midshipman July 13, 1910, and was commissioned in the rank of ensign upon graduation on June 6, 1914. During the next seven years, among them the First World War years of 1917–18, he served in several ships, including USS West Virginia (ACR-5), USS St. Louis (C-20). He commanded the submarines USS Pike (SS-6), USS B-2 (SS-11), USS F-2 (SS-21), and USS H-4 (SS-147).

Captain Rooks posthumously received the Medal of Honor for “extraordinary heroism, outstanding courage, gallantry in action and distinguished service in the line of his profession as Commanding Officer of the USS Houston during the period of 4 to February 27, 1942, while in action with superior Japanese enemy aerial and surface forces.” During this period Houston survived six air attacks and one major naval engagement, doing considerable damage to the enemy while being heavily damaged herself in one air attack and in the naval engagement. Captain Rooks died on the bridge as a result of enemy-inflicted wounds and went down with his ship after her courageous fight against overwhelming odds.

Citation

For extraordinary heroism, outstanding courage, gallantry in action and distinguished service in the line of his profession, as commanding officer of the USS Houston during the period 4 to 27 February 1942, while in action with superior Japanese enemy aerial and surface forces. While proceeding to attack an enemy amphibious expedition, as a unit in a mixed force, Houston was heavily attacked by bombers; after evading 4 attacks, she was heavily hit in a fifth attack, lost 60 killed and had 1 turret wholly disabled. Capt. Rooks made his ship again seaworthy and sailed within 3 days to escort an important reinforcing convoy from Darwin to Koepang, Timor, Netherlands East Indies. While so engaged, another powerful air attack developed which by Houston's marked efficiency was fought off without much damage to the convoy. The commanding general of all forces in the area thereupon canceled the movement and Capt. Rooks escorted the convoy back to Darwin. Later, while in a consid-

Continued page 16
April 19, 1989, left many impressions on a lot of people. We lost forty seven good men that day. Many think those forty seven were the only victims aboard USS Iowa on that fateful day, but in reality, there were several thousand – specifically, the over 1,500 men aboard the ship and their families.

We all remember the day. It was spring. The sun came up on a calm sea and there was a nice breeze blowing on the deck. There was an admiral and his staff aboard and we were all set for another gun shoot to get ready for exercises the next day. I was the PAO aboard, standing just above the bridge with a visiting staff member, who was anxious to see what the big guns could do. Only a short time later, we were all chilled to the bone when the explosion occurred. Explosion is not the word for it. For most of us, it was actually a great hissing sound, and I remember watching as the black “bloomers” from the front of the guns flew through the air followed by a dark orange smoke. The rest of the great structure remained exactly the same. General quarters sounded. I remember wondering what had happened and who might have been hurt. It actually took a few seconds for it all to sink in. Looking down at the carnage below, I knew it would not be good.

Over the next several hours a number of things were etched into my mind. Yes, we had lost some of our shipmates, but I also saw the reaction of the rest of the crew. I watched as the fire fighting teams swarmed onto the deck to fight the blaze within the turret and save the ship. They were joined by several other groups of men who came from their battle stations to add another hose to the effort, trying to cool the guns from the outside in order to prevent the ammunition, still in the guns, from going off. It was needed. The paint on the outside of the turret was blistering up despite the thickness of the steel. If the ammunition had gone off, those men might have been the first to be injured.

I saw the damage control teams fighting to extinguish the blaze, working feverishly to get their people and hoses up from the main deck through a 3’ by 3’ opening nearly twenty feet above them. Despite the choking smoke and heat, they managed to get up there. Without regard for their own safety, they fought their way into the turret, vainly hoping that they might be able to rescue their shipmates. When they became too overcome to continue, others stepped up to go in again. The wardroom was turned into a giant sick bay. The corpsmen and the doctors brought in those overcome by heat or smoke, to relieve their suffering and get them back on their feet. Even the Damage Control Assistant had to be taken in. But once revived, he went back out keep the effort going.

Down in the engine rooms, LCDR Kimberlain watched as smoke began to fill the engineering spaces. He called out to his men, explaining that unless they could keep the generators running and the ship moving, the ship might be lost. To a man, they remained at their stations. Some ran up to berthing compartments and retrieved the emergency escape breathing devices (EEBDs) and placed them over their
heads so they could keep their equipment running.

Through it all, I watched as our Captain coordinated the efforts from the bridge, making the decisions necessary to keep his ship afloat and the rest of his crew alive. I remember him leaning out of the bridge windows, talking to the people on deck directing the efforts, adding his own recommendations and urging his men on.

It took over an hour to get the fires out. Then came the task of getting our shipmates out of the turret. Some had been brought out during the fire fighting, but the rest remained behind. Despite the intense heat still radiating through the thick armor on the turret, our crewmen went back in. Slowly, painfully, but with great care, our fallen shipmates were removed from their now blackened work space. The toll on those men going back in was the hardest. The damage control teams had concentrated on getting the fires out. This team saw the complete damage and loss. This was more personal. Words cannot describe what they saw or felt. I know it scarred them deeply.

Yet, the job was done. This time, the wardroom was turned into a place to prepare our fallen shipmates for their final trip home. The effort was slow, and took most of the day.

Our next task was to figure out exactly who had fallen. Since the gun shoot was done when the ship was not at general quarters, there might have been other observers in the gunhouse to see what went on inside the giant turret when the guns were fired. This was normally allowed since the observer would be outside of the actual gunrooms, watching through the windows. Also, because so many men were assisting with the effort and moving around the ship, it was difficult to get an accurate tally of who was left aboard. The final tally went into the night, with names being called out to verify if they were, indeed, among the living or the dead. We were criticized for this, but we were also determined not to cause undue grief for any family.

When it was over, I saw how much it had taken from the crew. Walking through the messdecks and around the ship, I saw the exhausted faces of every crewmember. Some were in tears, sitting or standing to one side. Their friends did what they could to comfort them. Others, smoke blackened and weary, sat silently, as if trying to take in the enormity of what had happened to them, their ship, and their friends. When some finally saw a missing friend come into their space, they embraced each other and wept openly.

But one image that stayed with me was that of Captain Fred Moosally. Through the afternoon and evening I saw him go through his ship, compartment by compartment, to comfort his crew. He went into every space, thanking each man for his effort, reaching out to them to offer a word of support or to place his hands on their tired shoulders. I saw crewmen come to him in tears. He responded by placing his arms around them and whispering to them, letting them know they had done everything they could possibly do. It was as if he imparted his own strength to each member of his crew. To a man, they responded. The next day he did it again after a helicopter came to remove our fallen shipmates. This became our only day of grieving.

On the morning of the third day, the Captain came on the 1MC. After a few words to his men, he said we had a job to do and we needed to get to it.
Despite the pain, the emotions, and the lingering feeling of exhaustion; with his words, we all went back to work and brought our ship home. The investigating team came aboard the next day.

There were other moments. When the explosion occurred, I sent my photographers and videographers out to document everything that happened. Robert Sabo, whom I consider one of the best photographers around, documented everything, with some of the most dramatic photographs I have ever seen. Steve Burba videotaped several hours of footage. All of it went to the investigators to help with their efforts. Everyone from my department pitched in. We came up with the idea of making a standardized message that each crewman could send home, letting his family know he was okay. We sent those out the night of the explosion. Unfortunately, the navy communications had these at such a low priority that they weren’t received until two days after the ship got back home.

When we arrived in Norfolk, the frenzy began. There were over 30 satellite trucks on the pier to document our arrival. The families of our fallen shipmates were there to see where their son had given his last. We manned the rails with black armbands to show our own respect. Nothing could prepare us for the outpouring of emotions that day, but we brought those families aboard before anyone else. Even when our own families came aboard, the emotions were difficult, at best. Unfortunately, there would be no closure.

Almost immediately, there were some who wanted to turn this tragedy into their own personal agenda. Within a week, all PR on the incident was shifted to Washington, DC. We had little say on what was put out or reported. From the beginning, it seemed that all some wanted was to find out what had happened and who to blame. A number of people were eager to jump in front of a camera to say what they felt or to get attention. After the memorial service, there was a time when we allowed the media to come aboard. I remember a woman standing beside turret one trying to get the attention of the media representatives. We were told she was a family member of one of those killed, trying to get interviewed. We had to ask her to leave the ship. We were told of some people hanging around in local bars talking to sailors, trying to get information so they could do their own investigation. This lasted for months. We had one young man who went home on leave and told his local media that people “smoked all the time in the magazines.” It turned out he had never been in one. It seemed every day someone was going to the media trying to get their own 15 seconds of glory. We even heard of one person who bragged about how many media interviews they had done each week. Despite all this influence and distraction, the investigators had to do their work. But with all this going on, it is easy to see how they could be influenced.

The Navy psychiatrists said we would not be able
to deploy as scheduled. They said over half the crew would need therapy within a few weeks. Iowa deployed on time. Only about a handful actually left the ship. If anyone doubted that we had a good crew, they could look at what we did. Yet, the crew continued to be haunted by the investigation and some people back home. Someone circulated the word that Iowa was a floating deathtrap. Families wrote their sons that they should desert the ship. We asked the crew members to write home and let people know what it was really like aboard the ship. Soon those letters stopped. The media reported that the investigation was looking into poor training. We provided the inspection reports documenting that our men were fully trained. The media reported that the maintenance wasn’t being done properly. We provided the inspections and records showing that it had been done. In each case, the reporting was traced back to someone who called a reporter to “leak” the information to the media. It seemed to never end.

At one point, we were queried by Washington about people “looting” the effects of our fallen shipmates (another rumor). As Iowa came back into Norfolk from a very successful deployment, an investigation team, led by a rear admiral, came aboard to get to the bottom of the “looting scandal.” In fact, the “looting” was when someone in engineering berthing (500 feet aft of the turret two berthing compartment) left his paycheck on his rack and when he came back, it was gone. The check had been immediately cancelled and another written. To our knowledge, no one ever tried to cash it.

Even after the investigation ended, the problems continued. No one was satisfied with the outcome.

Hearings were held in the Senate and House, and a call went out to reopen the investigation. The CNO did just that.

Finally, after a year of going back and forth, the investigation was put to rest. The official outcome was that no actual cause of the explosion could be found. Sandia Labs had determined that the “most likely” cause was some unstable powder which may have been caused by over ramming.

The crew hoped that this would be the end of it all, but within a year a book was published reporting that the explosion was the end of a long list of bungles by the Captain and his crew. A made-for-TV movie followed. Once again, the crew of Iowa was dragged through the dirt by someone trying to benefit from this tragedy. In the end, the author and publisher were sued. It was documented that the book had been filled with falsehoods and it was withdrawn from publication. Unfortunately, the damage was done. USS Iowa was to be decommissioned. No one heard about the lawsuit or the outcomes. Both the book and the DVD can still be found on Amazon. Even Wikipedia still quotes from the book.

One of the crew most affected was
Captain Moosally. He not only endured the loss of some of his crew, but personally tried to help the rest of the crew through the tragedy. He was the face of Iowa. He was the one who had to stand in front of the cameras. He was the one who did all he could to watch out for his crew. He was also the one many blamed. There were many who said he was incompetent and a poor leader. They played up his past experience on the Naval Academy football team insinuating he was just a “dumb jock.” He was the one who used his own funds to sue the author and publisher of the book. He had almost single-handedly kept the ship and crew together. In the end, he became the head of Lockheed Martin’s Shipbuilding Division. He was personally responsible for designing and building the Navy’s new Freedom Class littoral combat ships. Not bad for a “dumb jock.” The loss of his crew still hurts him deeply.

The explosion aboard Iowa was a terrible tragedy, both for the families and the crew. As we pass the 25th year since that day, it is good that we remember the 47 men who gave their lives on our ship. But let us not forget the rest of the crew and their families who endured not only the pain of that day, but the continued torment and harassment of the few who thought more of themselves and their own agendas than the feelings of the people they hurt.

In the end, Iowa’s crew is still here. It is like that speech during the memorial service:

“For we are the crew of Iowa. Permanently fused, like the steel of the ship we sail. Our sides are strong, our towers high and our course is set. We are the Iowa. A part of every rivet, every plank and every line. We are the ship. She breathes through us, and she lives as a part of us. As long as she sails the seas we will be a part of her, a part of the Iowa spirit.”

Despite it all, the crew held together and did its job – just as our fallen shipmates would have done. Iowa is now a permanent part of our American naval history. She is a living reminder of what all Iowa crewmembers did from her beginnings in the 1940s until today. When you go aboard her, you will still find members of her crew, caring for their ship and keeping the Iowa spirit alive. They too deserve to be remembered.
April 19th, 2014

Comments at the 25th Annual Turret Two Memorial

Aboard USS Iowa in San Pedro, CA
By David Canfield

Twenty five years ago today, on the morning of April 19th, 1989, this ship – the USS Iowa – was conducting gunnery exercises near the island of Vieques, Puerto Rico. At 9:55 am on that fateful morning our ship and our lives were rocked by an explosion in the center gun of turret two. In that moment, 47 of our shipmates… fathers… brothers… husbands… sons… our friends -- were taken from us.

Today we gather to honor the memory of these men, and also to cherish the bonds that their loss created between us; bonds which were forged in the flame of that terrible morning so many years ago.

Today is a solemn day for many of us… but we must look beyond the searing tragedy of April 19th and recall to the happy times that we had with our shipmates, friends, and loved ones. Today it is our challenge -- and I might say our duty -- to look back on all of the days we had which were not April 19th.

This date, and the tragedy of turret two is not the complete story of the Iowa 47, rather their story is told in all the days that were not April 19th. Let us not allow the explosion in which these men died, to take away from how they lived.

Today we remember, and yes we still mourn. But more than that, we also celebrate the lives of these heroes. Heroes some may ask? But I say heroes indeed. For none of these men were conscripts. They all volunteered to serve and their service and their sacrifice stands as a beacon reminding us all of the depth of character and goodness of those who choose to put others before self and who dedicate themselves to the protection and service of this great country.

These great men: the Iowa 47, will never be forgotten. As our presence here today testifies, their legacy will live on not only in the annals of naval history but also in the lives of so many that they touched.
Saving Iowa’s Gun?

The guns you see aboard USS Iowa today are not the ones she started out with. According to records, those guns were changed out sometime in the late 1950s. One has been located at St. Julian’s Creek, VA. That one, number 270, was the first 16”/50, Mk 7 gun ever produced. It is joined there by the guns from USS Missouri which were aboard during the surrender of Japan. The rest are from USS New Jersey.

Efforts must be taken to prevent those guns from being scrapped as they were in Hawthorn, NV. The Pacific Battleship Center is currently raising funds to get the gun back aboard USS Iowa. Go to www.pacific-battleship.com to help out.
Fate of the 16"/50 Mk 7 Guns That Were Stored at Hawthorne, NV

The threat to the eight 16"/50 Mk 7 guns presently stored at St. Julien’s Creek is real. The ones that are not transferred to new homes will suffer the same fate as these guns did recently at Hawthorne, Nevada.
erable American-British-Dutch force engaged with an overwhelming force of Japanese surface ships, Houston with HMS Exeter carried the brunt of the battle, and her fire alone heavily damaged 1 and possibly 2 heavy cruisers. Although heavily damaged in the actions, Capt. Rooks succeeded in disengaging his ship when the flag officer commanding broke off the action and got her safely away from the vicinity, whereas one-half of the cruisers were lost.
Iowa’s Secret Weapon – Radar

Brad Goforth

In a recent conversation, a veteran officer reminisced about the time he was invited aboard USS Iowa to see something that was “amazing to behold.” He was taken deep into the ship into a guarded room. The officer in charge warned him not to speak about what he was getting ready to see. Entering the dark room he saw a glowing instrument. On its screen he could see every ship and every detail of the few miles surrounding the ship. It was radar. From early detection to fire control, USS Iowa was one of the first ships to fully integrate the new marvel. It set the stage for naval warfare for decades to come.

From 1934 to 1936, experiments by the Naval Research Laboratory (NRL) were being carried out by Robert M. Page. In 1935, he and a small group of scientists at NRL began testing a 60 MHz pulsed radar to detect aircraft. Initially, pulses from the high powered transmitter caused “ringing” in the receivers, which swamped the echo signals returning from objects nearby. But by 1936, NRL engineers had built a 28 MHz pulsed radar which detected aircraft 10 miles away, and by the end of 1936, a new radar operating at 80 MHz was detecting aircraft 38 miles away. Research continued and by 1938, they were ready to place one of the new radar sets aboard a ship. In Dec. of that year, the 200 MHz XAF radar was tested aboard the USS New York. It was able to detect aircraft up to 100 miles away. The Radio Corporation of America (RCA) worked closely with NRL to develop the sets and manufacture them.

A new model, the CXAM radar, developed after the XAF unit, worked at 400 MHz and was put into production. RCA built and delivered 20 CXAM sets in 1940. These sets were installed on the battleships California, Texas, Pennsylvania, West Virginia, North Carolina and Washington, on aircraft carriers Yorktown, Lexington, Saratoga, Ranger, Enterprise and Wasp, on 5 heavy cruisers, 2 light cruisers, and the seaplane tender Curtis. The CXAM performed well during WWII.

The United States Army Signal Corps also started developing radar as early as 1930. In 1937 the test radar unit was delivered from RCA. Based on this test unit, in 1940, the SCR-270 became available for coastal defense and it was first deployed in Panama in the Fall of 1940 as an early warning for the Air Corps, Pursuit Squadron. 18 units were built by the Army Signal Corps Laboratory for training purposes. By June of 1941, a total of 85 sets had been delivered by Western Electric. A total of 794 were produced between 1939 and 1944.

In October 18, 1940, the Radiation Laboratory at the Massachusetts Institute of Technology (Rad Lab) with L.A. Du Bridge as its technical director was set up with the prime purpose of developing radar for the war effort. It had three primary goals:
1. Develop a 10 cm Aircraft Interception (AI) radar.
2. Develop a gun laying radar.
3. Aircraft navigation. In March 1941, a 10 cm radar was tested on a B-18 bomber.

In its 6 years of existence, over 2.1 billion dollars were spent on the development of radar. This was about as much as was spent on the development of the atom bomb.
Early American Radar Efforts

The British were developing and building long-wave radar systems while the Americans were pursuing similar technology in parallel, if in a much more leisurely fashion. The Americans were generally focused on short wavelengths at first, but the difficulty of generating signals of adequate power at such frequencies gradually forced them to longer wavelengths.

Robert Page’s demonstration of a pulsed radar system in December 1934 had been just that, a demonstration, and though it had successfully picked up an echo from an aircraft target, that was about all it had done. Page realized he had his work cut out for him, with the task made all the more difficult by the limited funding available to the Depression-era military. Page managed to struggle into early 1936 by robbing another NRL program for funds, but that couldn’t be done indefinitely, so he lobbied with the House Naval Appropriations Committee and got a grant of $100,000 for his work. Page was aided by the fact that in the spring of 1935, Rear Admiral Harold G. Bowen had been appointed to head the Navy’s Bureau of Engineering, which oversaw the NRL. Admiral Bowen was a believer in NRL research and very interested in the lab’s radar work.

Page was joined in his radar development effort by Robert Guthrie, with Page working on the receiver system and Guthrie working on the transmitter. By April 1936, they had developed a workable pulsed radar system that could pick up aircraft targets at a range of 8 kilometers (5 miles), and they quickly increased the range to 27 kilometers (17 miles).

Admiral Bowen was impressed with the demonstration and assigned the radar effort top priority. Taylor then told Page that he needed to design the radar so that it used the same antenna for both transmitter and receiver, and insisted that a shipboard demonstration be conducted as quickly as possible. The ability of a radar system to focus on a target is partly a function of antenna size: the bigger the antenna, the tighter the focus, and this is true for both transmit and receive. Instead of having two small antennas, one for transmit and one to receive, it made more sense to have a single larger antenna for both functions. The problem with this configuration was that a radar receiver has to be sensitive to pick up faint echoes from a distant target, and if a single antenna was used, the powerful transmit pulse was fed directly back into the receiver, possibly damaging it. Page developed a device that he named a “duplexer”, a clever arrangement of transmission lines that provided a high resistance against the transmit pulse to block it from being fed back to the receiver, while providing a low resistance to the return echo.

A prototype naval radar operating at 200 MHz was demonstrated on the destroyer USS LEARY in April 1937. The radar used a Yagi antenna mounted to a deck gun for steering. The radar worked well enough, but it lacked power and range, and Page and Guthrie went back to the drawing board, working to get an operational prototype radar, codenamed “XAF”, ready for demonstration by September 1938.

RCA and Bell Laboratories were both given a demonstration of the Navy radar effort in mid-July 1937. RCA was familiar with radar concepts, since an
RCA engineer named Irving Wolff had been tinkering with radar technology through the 1930s. Wolff had demonstrated a continuous-wave system in 1934 and a pulsed system in 1937. RCA wanted to build XAF for the Navy, but also wanted to build their own design, the “CXZ”, and include it in the trials. The Bell Labs people were too unfamiliar with the technology to promise any help, but they were given much to think about.

The trials began in the Caribbean in January 1939, with XAF mounted on the battleship USS NEW YORK and CXZ mounted on the USS TEXAS. The naval officers involved with the trials were tremendously impressed, with aircraft spotted at a range of 77 kilometers (48 miles) and vessels at 16 kilometers (10 miles). Night destroyer attacks were thwarted, shells could be tracked in flight, and the radar was even used for navigation by ranging peaks on nearby islands. Since CXZ proved unreliable under operational conditions while XAF was sturdy, the Navy ordered RCA to build 20 XAF sets to NRL specifications. These sets were put into operational use as “CXAM” on battleships and carriers.

CXAM proved extremely useful. It included a switch to allow it to change its pulse repetition frequency (PRF), allowing an operator to detect ghost echoes. Switching the PRF did not change a return from a true target, but it did cause a ghost target to jump to a new position on the display. Later on, this feature also allowed CXAM to be used for secure communications: the switch was changed to a telegraph key, and two CXAMs could be used to trade Morse code messages over line-of-sight distances, with the narrow beam and relatively high frequencies making eavesdropping difficult.

CXAM would be refined into the excellent “SK” set by the addition of a rotating antenna and PPI, instead of an antenna directed by the operator onto targets for ranging by an A-scope. The SK, nicknamed the “Flying Bedspring” for the appearance of its antenna, was the US Navy’s standard early-warning radar through World War II. The antenna featured a 6-by-6 square array of dipoles, 4.6 meters (15 feet) on a side. Peak power was 330 kW, an order of magnitude greater than its XAF ancestor, with a pulse width of 5 microseconds.

The Navy also built similar 200 MHz sets. The “SC” used much the same electronics, but was fitted with a smaller antenna featuring a 6-by-2 array of dipoles, 15 feet tall and 5 feet wide, giving it a narrow horizontal beam. It was for use on destroyers. The “SA”, with an even smaller antenna, was used on destroyer escorts and other small vessels, such as minesweepers. The SK family proved surprisingly reliable for such a new system, and would remain in general service all through the coming conflict.

US Centimetric Shipboard Radars

While centimetric radars had been the Rad Lab’s priority effort, radars for other platforms were not ignored. Bell Labs had developed a longwave fire-control radar, initially known as the “CXAS” and then the “FA” or “Mark 1”, and then the improved longwave “FB” or “Mark 2”. These radars were basically just rangefinders.

The Mark 1 was built in small numbers. The Mark 2 was on the drawing board when the magnetron came along. Since the design of the Mark 2 was modular, the design team found it straightforward to adapt it to centimetric wavelengths. This exercise produced a 750 MHz surface fire-control radar, the
“Mark 3” or “FC”, with horizontal lobe switching to give it a horizontal targeting capability; as well as a 750 MHz anti-aircraft fire-control radar, the “Mark 4” or “FD”, which added vertical lobe switching. Both these radars were in production by late 1941. They were eventually linked to the vessel’s gun gyroscopic stabilization systems to improve targeting in rough seas.

The Mark 4 proved to have difficulty determining the altitude of low-flying aircraft, due to reflections from the surface of the water. This led in 1943 to the “Mark 12”, which was essentially an improved Mark 4, coupled to a smaller X-band height-finding radar, the “Mark 22”, mounted alongside. The Mark 22 had an “orange slice” antenna, in the form of a curved, narrow, elliptical grid mounted with the long axis vertical, to focus the radar beam in a narrow horizontal fan. As with its British equivalent, the antenna nodded to sweep the sky for targets. A land-based version of the Mark 22 was also built, known as the “AN/APS-10” or “Little Abner”, named after the hillbilly in Al Capp’s popular comic strip who liked to sit in his rocking chair. The British also used the AN/APS-10 as the “AMES Type 60”.

The next level of sophistication involved addition of “electronic steering”, in which adjusting the relative phase of the waveforms supplied to array elements shifted the direction of the beam without mechanically moving the radar. A radar using electronic steering is known as a “phased array radar”.

Bell Labs used this approach to build a new X-band surface fire control radar, the “Mark 8” or “FH”. The Mark 8 had a very unusual appearance. It was based on an antenna element known as a “polyrod”, which was a pipelike microwave waveguide with a polystyrene plug in the end. The Mark 8 featured an array of 42 polyrods, organized as 14 rows of three. Signal phase to each triplet of polyrods was controlled by mechanically switching electronic delay elements into the output signal path. If the signals were sent in phase to all the triplets, the beam went straight out forward. If the signals were delayed from one end of the row to the other, the beam was diverted in the direction of the delay.

The Mark 8 provided increased accuracy, with a beam width of 2 degrees that could be swept over a 30 degree arc, and a 0.4 microsecond pulse width to provide tight range accuracy. Of course it did not provide height information. A high peak output power of up to 20 kW gave it excellent range, and it also featured a plan-type display that made it much easier to locate and pinpoint multiple targets in the radar’s field of view.
phased array technology predated the war and had already been implemented in certain German longwave radars, the Mark 8 was the first microwave phased-array radar. A derivative of the Mark 8 with an auxiliary height-finding radar, designated the “Mark 14”, was introduced late in the war. (Note: phased array radars became popular again in the 1980s with the AEGIS system. The MK 8 was the first navy radar to use this electronic steering of the beam.)

The fire-control radars were mounted on top of turreted “directors” that could be rotated towards the direction indicated by long-range search radars. The radars would be linked to the guns through a “ballistic computer”, or analog tracking system, fitted in the interior of the ship. The Navy learned to use their surface fire-control radars to indirectly pinpoint ground targets during the island-fighting campaigns. Prominent land features were identified from aerial reconnaissance photographs, the features were ranged with radar, and the ranges were used to obtain a position fix for the ship. It was then relatively simple to map out ground targets for fire. The scheme worked in day or night, and all but the worst weather.

The US Navy stayed with the long-wavelength search radars such as the SK through the war, but such devices had their blind spots. However, the Rad Lab’s work with the experimental S-band centimetric radar on the destroyer SEMMES went very well, and the NRL turned it into an operational set, the Raytheon “SG”. The first operational SG set was installed on the cruiser USS AUGUSTA in April 1942, and was in action by the fall of 1942. The SG featured a rotating elliptical parabolic antenna, producing a beam 5 degrees wide and 15 degrees high, along with a PPI scope. The SG was gyroscopically stabilized to ensure level scanning in rough seas. It gave naval radar operators a neat electronic map of their surroundings, and its usefulness was so obvious that it was an instant hit, successful beyond the
expectations of its designers. A warship commander could use SG to see 360 degrees all around his ship in the dark and in the fog, identifying shorelines, tracking other ships in a convoy, and spotting intruders such as enemy submarines.

SG did have a limitation relative to the longwave CXAM. For one, it was really optimized for surface search and was not good at height finding. Another S-band set, the “SM”, of which more is said later, was developed and fitted on aircraft carriers as a complement to the SK, where it was used for height-finding and close-range fighter direction.

Another limitation of the SG was that it did not have a switch to change the PRF for sorting out ghost echoes. This would lead to an unusual naval action off the Aleutians on the dark hours of the morning of 26 July 1943, when a US Navy surface force spent about a half hour bombarding empty ocean. Intelligence had reported that there was a Japanese force in the area, and atmospheric conditions had allowed ghost echoes to be returned from local islands at unusually long range, probably from a phenomenon known as “ducting” in which the radar beam bounced back and forth between a low and a high atmospheric layer.

Given that US Navy crews had good reason to fear getting into a shootout with the Imperial Japanese Navy (IJN) at night -- night actions were an IJN specialty and the Japanese were murderously skilled at them -- it was no great surprise that they opened up on the targets even though the returns were intermittent. Some of the radar operators got suspicious when they realized that the echoes didn’t seem to get any stronger as they closed range, and that the returns from the impacts of American shells were stronger than those of the presumed targets. It is unclear if the switch was ever added to the SG, but it appears that it was a feature with some later sets.

A lighter variant of the SG designated “SF” was built for destroyers, and a similar coastal defense set designated the “SCR-582”, with a PPI and a 1.2 meter (4 foot) dish, was put into production and used for harbor defense. The SCR-582 proved very successful during the American campaign in North Africa, and was also updated in the field to act as an air-defense radar. Although the SF program had been focused on design of a microwave radar that could be carried on the smallest vessels, the SF still turned out to be too big, and so further work was done on an even lighter S-band radar that emerged as the “SO”. It was mounted on torpedo boats, landing craft, and other small vessels in a thimble radome.

It took some time for the US Navy to learn how to make use of radar. Not only was the technology new and unfamiliar, but many US Navy officers had a peculiar complacency, believing in staggering obliviousness to the evidence that the IJN was a pushover.

The Japanese weren’t informed of this fact. On the night of 8 August 1942, a Japanese surface force am-
bushed an American-Australian force supporting the invasion of Guadalcanal in the Solomons. Although the Allied force had radars, even an SG, and the Japanese had no radars, the well-trained Japanese hit the Allied force near Savo Island, sending four cruisers to the bottom and chewing up a fifth with no serious harm to themselves. Only their timidity prevented them from remaining into the day to finish off the landing force.

Longwave airborne warning radars like CXAM (and, on shore, the SCR-270) did help in further actions off Guadalcanal, though the lack of both experience and IFF was a great hindrance. In the meantime, the US Navy learned how to make use of radars and incorporate them into training exercises.

They put this knowledge into use off of Cape Esperance on Guadalcanal on the night of 11 October 1942, when a US surface force sank a Japanese cruiser and three destroyers, for the loss of one American destroyer. This was a more significant win than the simple trade-off in kills would have suggested, since the tradition of Japanese invincibility in night naval actions had finally been broken.

The US Navy continued to refine their skills with radar, reaching a peak of sorts on the night of 24
October 1944, when a US Navy surface force jumped a Japanese fleet that was trying to sneak through the Surigao Strait to attack the American amphibious force landing on the Philippine island of Leyte. The US Navy all but annihilated the Japanese force at little loss to themselves.

Of course, US aircraft carriers made heavy use of radar, becoming something like floating radar centers, with a half-dozen different types of radars. The early “radar plot room” gradually evolved into something like a floating version of the RAF filter room, the “Combat Information Center (CIC)”, also known as an “Aircraft Direction Room” to the British.

The CICs evolved individually, with different carrier crews devising their own schemes, some using horizontal tables to track the battle action, some using vertical transparent screens on which staffers wrote in mirrored writing to track air actions. By the end of the war, a CIC could have 50 staffers, with the ship or fleet commander residing over the battle at the center of a web of radars and communications links.

Where was Iowa Hit?

Brad Goforth

Over the years people have talked about Iowa's hit on turret two during the second world war, but few actually know where the actual hit occurred and that there was actually a second hit aboard the ship during the same action. The following was reported in “Operational Experience of Fast Battleships; World War Two, Korea, Vietnam,” published by the Naval Historical Center in Washington, DC in 1989. It was compiled and edited by John C. Reilly, Jr., from actual after action reports.

On 18 March 1944, Iowa, New Jersey, and two destroyers attacked bypassed Mille Atoll. Two hits from Mille's coast defense guns caused Iowa minor damage; the scar from one can still be seen on the side plate of Turret II.

Upon arrival off Mille, bombardment commenced as planned. Effective counterfire from shore batteries was experienced after closing to the 15,000 yard track line. As a result, the original bombardment plan, which contemplated final phase on the 10,000 yard track line, was abandoned. The final phase was fired outside 20,000 yards. The task group returned to base on March 19.

At 0704, USS Iowa opened fire on enemy installations on Mille Island with her main battery at a distance of approximately 20,000 yards. During the period from 0704 to 0906, USS New Jersey and Iowa alternately bombarded in accordance with the Task Unit 50.10.1 Bombardment Plan. The range was then closed to 15,000 yards, and firing resumed with both 16” and 5” batteries. At 0907, enemy coast defense guns commenced firing at the screen and battleships. Counter battery fire, employing full main battery and 5” battery salvos, was immediately started. At 0940, Iowa received a hit 18” above the top of the barbette on the left side plate of number 2 turret, believed to be about 6” caliber. At 0951, the Commander, Task Unit 50.10.1 gave verbal orders to fire the main battery only at times prescribed by the Bombardment Plan, but to continue using the 5” battery for counter battery fire. At about 0956, Iowa took another medium caliber hit in the hull, port side, frame 134, about four feet below the main deck. No fires resulted from either hit. Moderate damage was sustained. At 1000, according to the plan, a cease fire occurred, and air groups from USS Lexington commenced their first strike. During the time between 0929 and 1007, approximately 20 shells were reported to have hit the water within a radius of 300 yards from Iowa, both shorts and overs. The last two of these shells landed close aboard to starboard when Iowa was retiring, at a distance of 20,000 yards to the nearest land.
Iowa still had her planned allowance of main battery bombardment ammunition remaining for use during the second firing period. New Jersey was directed to leave formation and operate independently while Iowa resumed bombardment. At 1315, Iowa opened fire with her main battery on enemy shore installations at a range of 20,000 yards. During the last phase of the bombardment, no activity by shore batteries was observed. At 1359, Iowa ceased firing and hauled off to the west. New Jersey rejoined the formation. At 1400, the Lexington air group commenced its second strike, according to the schedule. During the second strike, two particularly violent explosions were observed on Mille Island.

Iowa reported that the projectiles which struck Turret 2, about 18” above the barbette, detonated on impact. Fragments entered the left pointer’s sight port, demolishing the pointer's telescope, Mark 66. Another fragment entered the left rangefinder port, breaking the glass in the left end window of the Mark 52 rangefinder (the long range turret rangefinder). About 20 feet of the watershed and gas shield on the left side of the turret was torn off. The STS splinter shield around 40 MM Mount #1 on the starboard side of the first superstructure deck was heavily sprayed with fragments, but the shield was not pierced and none of the crew was injured.

Turret 2 was trained on the port beam. The shell apparently came from abaft the port beam. It marked the plate 18” above the top of the barbette and 5’ below the left trainer’s sight port. Fragments that broke through the sight port injured two men inside the turret. Fragments also tore up sections of the first superstructure deck planking, gouging it out. Three fragments were driven down through the planking and the steel deck (10 lb. plate) into the officers’ rooms below. The largest of these holes through the plating was about 4” in diameter. Another hole, about 1” in diameter, permitted passage of a fragment that was driven through the upper half of the writing desk in stateroom 103. Other fragments hit against the conning tower foundation at frame 84 (25 lb. STS) but only scarred the surface. A fragment also deflected the top of the davit stop. Damage to the turret did not interfere with operation, but exposed the roller path to the effects of weather. The pointer's telescope in the turret was ruined.

The second hit having a base plug of 4.5” struck and penetrated through the “P” strake (25 lb. STS) at
From John Rider:

The photo at the end is Jake Cowen and Roger Gaines in 1st div berthing.

Thanks John!

Disclaimer:

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