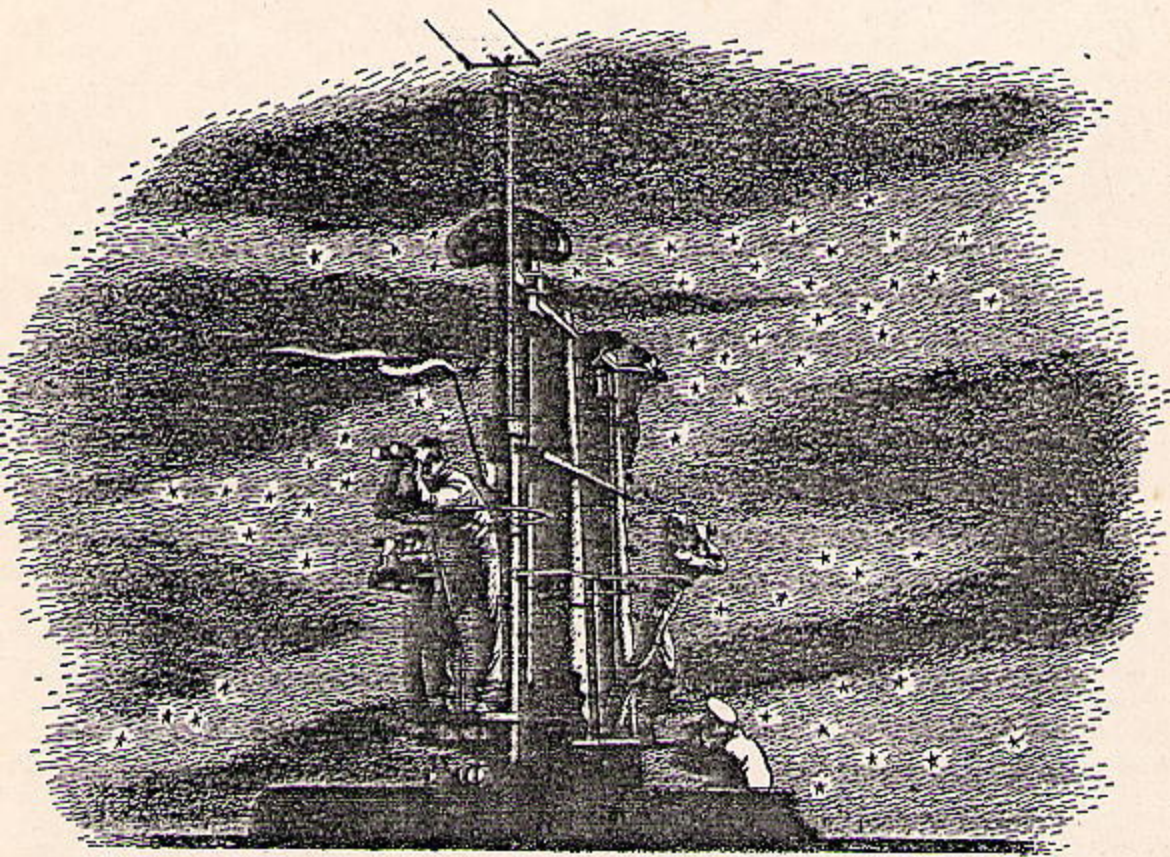


by Robert L. Underbrink

*Illustrations by Fred Freeman*



## *"Your Island Is Moving at 20 Knots!"*

Shortly before midnight on the night of 28 November 1944, the USS *Archerfish* (SS-331), on patrol about a hundred miles south of Tokyo Bay, flashed an urgent message to Submarine Headquarters at Pearl Harbor: "... AM PURSUING LARGE AIRCRAFT CARRIER ..." Unknowingly, the *Archerfish* had come upon the *Shinano*, the world's largest aircraft carrier. Still incomplete and presenting an inviting target for the increasing frequency of B-29 attacks, the *Shinano* had been forced to make a nighttime, desperate dash from the port of Yokosuka to the sanctuary of Japan's Inland Sea.



The keel of the battleship *Shinano* was laid down in May 1940 at the Yokosuka Navy Yard. She was to be the third of the *Yamato* class, the largest battleships ever constructed. The *Yamato* was completed late in 1941 but, by the time the *Musashi*, second of the class, was completed in August 1942, Japan had suffered the catastrophic loss of four first-line carriers at the Battle of Midway. It was aircraft carriers, not battleships, that were now desperately needed. The Naval Ministry hurriedly revised the design of the half-completed *Shinano* to convert her to a hybrid-carrier. Since the *Shinano* was designed to supply fuel and ammunition to aircraft from other carriers, she herself would carry less than 50 planes. To meet the target completion date of February 1945, construction of the carrier was given top priority. Behind a wall of wood and secrecy, thousands of workers rushed the completion of the monster warship.

Installation of her 18.1-inch guns was cancelled, and large sections of armor plate were removed. While the *Yamato's* main belt of armor was 16 inches thick, the *Shinano's* protective shield was reduced to 6.4 inches. Her underwater hull, supposedly "torpedo-proof," was identical to the *Yamato's*. As protection against aerial bombs, much of the *Shinano's* huge flight deck, 838 feet long and 130 feet wide, was covered with three inches of hardened steel. Two hangar decks were located below the flight deck, then came a second sheet of armor four inches thick. The double layer of armor protection required special engineering and substantial reinforcement of the vessel's structure.

Each of her two elevators was provided similar protection, greatly increasing their weight. The larger elevator, located near the bow and designed to handle attack planes, weighed 180 tons. The after elevator, designed to handle fighter aircraft, weighed 110 tons. Engine room ventilators and hoist tubes for bombs and torpedoes were also protected by armor plate.

While all this activity continued at Yokosuka in 1943 and 1944, the *Archerfish*, a 1,500-ton fleet-type submarine, had been built and had gone to war. Her keel had been laid in Portsmouth, New Hampshire, in January



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1943, and she had been commissioned on 4 September 1943. Following the voyage through the Panama Canal, the *Archerfish* steamed out of Pearl Harbor on her first war patrol on 23 December.

For a time, bad luck seemed to dog the *Archerfish*. Her first patrols amounted to too much bad weather and no targets. Other U. S. submarines had, of course, been active in the Western Pacific which probably explained why suitable enemy target vessels were becoming increasingly hard to find. Finally, on the *Archerfish's* third patrol in June 1944, she attacked and sank an 800-ton enemy frigate. On her fourth patrol, she rescued a Navy fighter pilot.

When the *Archerfish* departed Pearl Harbor on her fifth war patrol on 30 October 1944, the submarine had a new CO—Commander Joseph F. Enright, 34 years of age and a graduate in the Class of 1933 at the U. S. Naval Academy. The new skipper was not overly pleased with his assignment, which amounted to lifeguard duty for the crews of B-29 bombers attacking the Japanese homeland. While he and his men realized the importance of rescuing Army Air Corps crewmen who had ditched in the Pacific, they wanted a piece of the action.

One week later, while the *Archerfish* was on station off the island of Honshu, the *Shinano* was commissioned at the Yokosuka Navy Yard. Captain Toshio Abe took command, a large portrait of Emperor Hirohito was hung on the flying bridge, and limited quantities of stores and ammunition were taken on board. The majority of the *Shinano's* 1,900 officers and crew had reported for duty the previous month.



When American B-29s based on Saipan made their first major attack in the Tokyo area on 24 November, the Japanese realized that the *Shinano* was in grave danger. The Naval Ministry ordered the uncompleted warship to the Inland Sea, that relatively well-protected body of water lying between the islands of Honshu, Shikoku, and Kyushu. Far from the Tokyo target area, the Inland Sea offered a safe anchorage for fitting out the big carrier.

The move meant that the *Shinano* would have to make a sea voyage of roughly 300 miles down the coast of Honshu. And much of the area was known to harbor U. S. submarines. To reduce the risk, the Japanese Navy took every precaution. The voyage would be made at night. Three destroyers would provide escort, and the entire trip would be made at high speed.

The *Shinano* and her three destroyers stood out the entrance to Tokyo Bay in the late afternoon on 28 November 1944. Since construction would be completed at Kure, more than a hundred workmen from the Yokosuka Navy Yard accompanied the vessel. By nightfall, the ships were racing southwestward at high speed.

For the *Archerfish*, the 28th had been uneventful. Having been released from her life-guard duty early in the morning, she conducted a submerged patrol in an area south and west of the entrance to Tokyo Bay. Since the radar had not been operating at peak efficiency, and it was not needed while the craft was submerged, it had been dismantled for repairs during the day. The radar officer and his men were still working on the instrument when the *Archerfish* surfaced at dusk. Though the sky was overcast, light from the moon occasionally broke through the clouds and visibility was good for about 15,000 yards.

At 2048, the radar operator reported to the bridge that the instrument was back in operation; he also reported a target at 028° true, range approximately 25,000 yards. The bridge watch was unable to see the target, but Iamba Shima, a tiny island, was in sight at about 058°.

Lieutenant (j.g.) John Andrews, Officer of the Deck, indicated that the radar was apparently picking up the island. He surmised

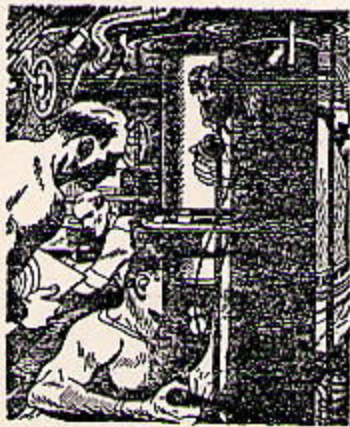
that the radar repair crew had replaced the bearing circle about 30 degrees removed from its proper position, and he suggested the instrument be corrected. The next report from the somewhat irritated radar man: "Your island is at 028° and moving at 20 knots."

The OOD hit the "Battle Stations" alarm. Minutes later, radar reported they were on to "something big and fast," and the plotting party determined the direction and speed of the target. Cranking up all four big diesels to 18 knots, Enright made course to intercept.

On first sighting, the long, flat silhouette was assumed to be a tanker. But, within the hour, the target was identified as an aircraft carrier with a single escort vessel steaming down the coast of Honshu. Using a zigzag pattern, the enemy was following a base course of 210° true.

With the sky partially overcast and the north horizon dark, Commander Enright planned to cross the carrier's track and make a surface attack from the starboard side, away from the moon. The appearance of a second escort, on the starboard beam, caused Enright to revise his plans and to attempt to gain a position ahead for a submerged attack.

Moving at flank speed, the *Archerfish* took two hours to reduce the distance, and, even





then, the situation appeared hopeless. Off the carrier's starboard bow—but well off the track—the *Archerfish* strained to keep up the pace. At 15,000 yards off the target's beam, the submarine was still too far off the track for a submerged approach. The *Archerfish* was, in fact, hard pressed to keep up with the fast-stepping carrier force. Luckily, the enemy's zigzag maneuvers reduced his effective speed. By maintaining a steady 210° base course under maximum power, Enright struggled to keep his position. But it was a maddening chase. Though *Archerfish* was pounding her heart out, the enemy flotilla slowly, ever so slowly, drew ahead.

Range to the nearest destroyer was only about 6,000 yards. When the carrier flashed a red signal light, Enright feared they had been spotted, and he ordered his lookouts below. He soon called them back, however, when the enemy ships continued to ignore—or failed to detect—the submarine.

Though Commander Enright detected only three destroyers, one on either bow and a third on the starboard quarter, he assumed another escort vessel was hidden by the carrier.

With the moon breaking through the overcast from time to time, the enemy force continued zigzagging on a 210° base course,

maintaining a speed of 19 to 20 knots.

Following a careful surveillance from the bridge, Commander Joe Enright hurried below checking on the plot, the radar scope, and the torpedo data computer. With the latest calculations clearly in mind, he returned to the bridge.

Shortly after 2300, the enemy ships swung west, radically changing to a course of 240°. Though this narrowed the range somewhat, the submarine was still unable to attack.

When Enright realized the submarine was falling behind, he called for and got more power. But, both he and his "black gang" knew the four nine-cylinder main engines could not run indefinitely at such overloads.

Half an hour before midnight, Enright radioed Pearl Harbor: "FROM *ARCHERFISH* TO COMSUBPAC AND ALL SUBMARINES IN EMPIRE AREAS AM PURSUING LARGE AIRCRAFT CARRIER FOUR DESTROYERS POSITION LAT 3230 N LONG 13745 E, BASE COURSE 240, SPEED 20."

About 30 minutes later, the enemy carrier force made another course change to the west—new course 270°. Commander Enright immediately shifted to an identical course and coaxed a few more turns from the already overloaded engines. "From here on," he recalls, "it was a mad chase for a possible firing position. His speed was about one knot in excess of our best, but his zig plan allowed us to pull ahead very slowly."

Although the *Archerfish* continued the flying chase for two-and-a-half hours, it was problematical whether the submarine could get into an attack position. If the enemy carrier continued on its course of 270°, Enright would have no chance. At 0241, he radioed a second contact report to Pearl Harbor.

Then, 19 minutes later, the Japanese made a radical course change to the southwest. The big carrier and her three escort vessels were heading straight toward the *Archerfish*. This was the big break everyone on board had prayed for. The submarine quickly crossed the track. Enright changed course to 100° and ordered his submarine to periscope depth for the attack. At a range of approximately 12,000 yards, the submarine eased into position off the target's starboard bow.

As Commander Enright sighted the carrier through the periscope at a range of 7,000







Archerfish positions

Shinano and escorts

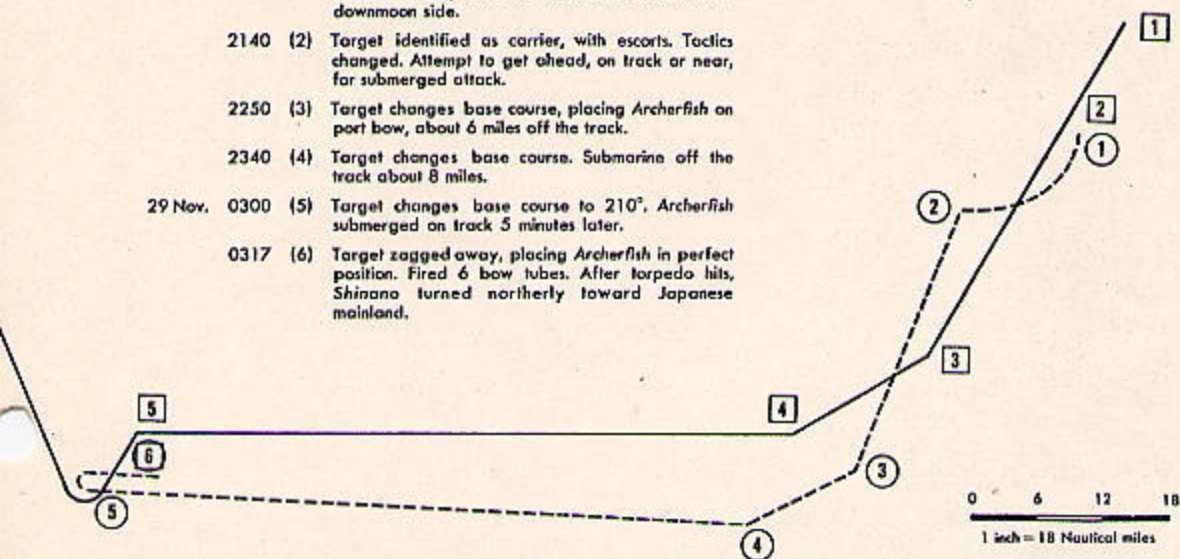
Archerfish track is dashed line. Speed 17-18 knots all on the surface except last 12 minutes, then submerged at 3 knots.

Shinano track (base courses) is solid line, speed 18-20 knots reduced by zig-zagging to 17-19.

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#### Local Time

- 28 Nov. 2048 (1) Archerfish sights target. Believes it to be unescorted tanker. Tracks, then starts surface attack from downmoon side.
- 2140 (2) Target identified as carrier, with escorts. Tactics changed. Attempt to get ahead, on track or near, for submerged attack.
- 2250 (3) Target changes base course, placing Archerfish on port bow, about 6 miles off the track.
- 2340 (4) Target changes base course. Submarine off the track about 8 miles.
- 29 Nov. 0300 (5) Target changes base course to 210°, Archerfish submerged on track 5 minutes later.
- 0317 (6) Target zigged away, placing Archerfish in perfect position. Fired 6 bow tubes. After torpedo hits, Shinano turned northerly toward Japanese mainland.



Plot and commentary by Captain Joseph F. Enright, U.S. Navy (Retired)

yards, he decided the target would come too close. He swung 10° to the left giving himself "a small starboard angle on the bow and range 3,500."

The fire control party had a perfect set-up. Lieutenant Dave Bunting on the Torpedo-firing Data Computer (TDC) checked and double-checked his solution for course, speed, and range. The plotting party, under Ensign Gordon Crosby, had accurately solved the target courses through the night permitting the Archerfish to select the base course and gain position. Lieutenant Tom Cousins, the diving officer, took the ship under quickly, smoothly, and accurately maintained proper depth. The Archerfish was ready for the kill.

For a few moments Enright feared the escort off the carrier's starboard would interfere with his attack. Fortunately, the destroyer approached the Shinano to receive a blinker

message passing "nicely ahead" of the Archerfish at 400 yards. And when the sonar man tracking this nearest destroyer reported, "No pinging. He isn't on us." the skipper knew they were in the clear.

Commander Enright was not quite satisfied with his firing position, but the 72,000-ton aircraft carrier—growing bigger by the minute—was rapidly closing the range. Then, just before he gave the order to fire, the Archerfish got her second big break: Shinano zigged away about 30°. Instead of being too close, Enright found himself in perfect attack position, 70° starboard track, range 1,400 yards—and a broadside target 800 feet long.

The skipper reported the target had zigged away "to his left," and Bunting fed the 30° change into the TDC. When Bunting reported "Ready," Enright gave the order to fire. At approximately 0316, the first of a



six-torpedo salvo left the bow tubes. The Mark 14 torpedoes, set at ten feet, were spread from aft to forward to rip the carrier all along the starboard side.

All was quiet in the *Shinano*. Though the aircraft carrier was proceeding through hazardous waters, watertight doors on and above the armored deck were open. And many hatches below the steel deck were open for access to machinery spaces. Most of the officers and crew were asleep. The assistant damage control officer had just finished an inspection of the ship and was relaxing in the damage control station in the island.

The *Archerfish* was waiting. The overcast had broken and under a bright full moon Enright saw the first torpedo smash into the *Shinano* just forward of the stern—47 seconds after leaving the tube. Enright observed and heard the second torpedo strike home ten seconds later, and, he remembers, "a large ball of fire climbed his side." The second hit was about 50 yards forward of the first.

With the first two torpedoes observed hits, another four in the water—and an enemy destroyer less than 500 yards away—there was no need for further observations. Anticipating a rough battering by the escort vessels, Enright ordered the submarine deep.



As the ship went down, the men thought they heard four more properly spaced explosions. They congratulated themselves on making a perfect score.

Though the enemy destroyers went after the *Archerfish*, they were neither accurate nor persistent. The attack lasted only 20 minutes and none of the 14 depth charges damaged the submarine. Apart from the exploding depth charges, sonar reported loud breaking-up noises lasting nearly an hour.

When the torpedoes from the *Archerfish* smashed into the *Shinano*, there was shock and disbelief. Convinced that the carrier could withstand three or even four torpedo hits, Captain Abe and his officers were slow, fatally slow, to react to the emergency. Only four of the six-torpedo salvo from the *Archerfish* actually struck the big carrier. But, four were quite enough. The three hits forward totally defeated the ship's torpedo defense system. The *Shinano* immediately assumed a 10° list to starboard. The forward fireroom on that same side flooded instantly, and there were no survivors. Three additional firerooms began flooding and all efforts to control the incoming water were in vain.

The newly commissioned ship was manned by an almost completely untrained crew. Discipline was bad, organization worse—and the presence of navy yard workers and civilian technicians added to the chaos. Many of the civilians, dressed similarly to officers and enlisted men, refused to obey orders.

The carrier was so new that her watertight security had never been tested, and because of the hurried construction, the over-all quality of workmanship was poor. Many holes in bulkheads and decks, for running cables and pulling pipelines, had not been sealed. Fire main and drainage systems were not in operation because the majority of the pumps had not been delivered before the ship departed Yokosuka. Gasoline handy billies were available, but no one knew how to operate them. Though some portable hand pumps, of limited capacity, were placed in use, they had little effect. A few water bucket brigades were organized, but the men soon drifted away.

With the *Shinano* still moving at slow speed, progressive flooding, from damaged to undamaged compartment, continued, and the



list to starboard gradually became more pronounced. Ninety minutes after the torpedoes had ripped the hull, the Chief Engineer flooded three firerooms on the port side. This checked the list for a short time, but had no permanent effect. By that time it was too late for counter-flooding measures. Following the loss of all power at about 0600, the great hulk lay dead in the water. Pandemonium reigned. As dawn broke, crewmen and civilians began abandoning ship.

The *Shinano* was clearly doomed. With the Captain's approval, the assistant damage control officer removed the Emperor's picture from the bridge, wrapped it carefully, and transferred the portrait by line to a destroyer alongside.

The carrier had a heavy list when the escort vessels removed the crew. But the giant warship died reluctantly, and it was not until nearly 1100 on the morning of 29 November 1944, that she capsized to starboard, rolling bottom up. Displaying her enormous rounded

hull and four large bronze propellers, the ship remained for several minutes in an upside down position. Then, with a great shudder and a rush of air, the warship went down by the stern. Captain Abe and more than 400 officers, crewmen, and civilian workers perished with her.

It was not until near the end of the Pacific war that the ship sunk by *Archerfish* was identified as the aircraft carrier *Shinano*. The Allies had known of the two monster battleships, the *Yamato* and the *Musashi*, but the existence of a third such warship was shrouded in mystery. Having taken four years to build, the third and last of the superwarships was destroyed on the second day of her maiden cruise.

When Commander Joe Enright and his men in the *Archerfish* torpedoed and sank the "Phantom Carrier," *Shinano*, they downed the largest ship ever sunk by a submarine. They may also have broken the heart of the Imperial Japanese Navy.