

The Japanese surprise attack on Pearl Harbor on December 7, 1941, came as a double shock to the United States. The people were outraged at Japan's striking without a declaration of war. The U.S. Navy was also astonished that a nation it had long dismissed as being incapable of producing anything more than second-rate copies of Western weaponry could have wrought such havoc.

The most vivid American image of Pearl Harbor is probably that of the battleship *Arizona*, which suffered the greatest single loss of life during the attack. Her much-publicized destruction by a single, high-level bombing attack has given excessive credence to the modified 1,760-pound armor-piercing artillery shell as a viable weapon. In fact, her loss was a fluke. High-

level drops against the battleships *California* and *Nevada* missed their targets. Repeated drops against the paired *West Virginia* and *Tennessee* only yielded low-order detonations. They were equally ineffective against *Maryland*. The high-level units did not even attack *Pennsylvania* in dry dock, though she would have made a perfect target for such a weapon.

In actuality, the most extensive destruction to the U.S. Navy's battleships at Pearl Harbor was caused by Type 91, Modification 2 torpedoes.

After the war, the senior surviving Japanese officer involved in the Pearl Harbor attack, Commander Tadakazu Yoshioka, described his part in developing the torpedo and the special technique for launching it. Yoshioka, who had served at the First

Naval Technical Arsenal near Yokosuka, said the shallow water within the harbor presented the Japanese designers with their greatest challenge.

"From March 1938 to April 1939, I conducted experiments on how high aerial torpedoes could be dropped from planes and still work," Yoshioka explained. "In September 1941, once the attack on Hawaii was planned, we ran new tests. We could not get the torpedoes to work even when they were dropped from the height of 20 meters. Then I remembered the torpedo devices that were used successfully in the earlier tests. When we attached these devices and experimented further, we were able to score 100 percent efficiency on the torpedoes."

The 18-inch-diameter aerial torpedo used was modified by the Mitsubishi Arsenal at

# TORPEDOING PEARL HARBOR

The Japanese aerial torpedoes used on December 7, 1941, were technological marvels—but it still took the aircrews to get them to their targets.

By David Aiken

the arming impeller and was installed on the hangar deck. The bail flap was forced back by air pressure on launch to allow high-pressure air to flow to the gyro, unlocking it and spinning it up to speed. This short blast of air was then shut off. On entering the water, the bail unlocked the impeller for it to rotate for 200 meters to arm the torpedo.

The Model 2 torpedo initiated the use of separate gyro-controlled anti-roll flippers that helped keep it headed in the direction in which it was dropped and helped eliminate the underwater hook for shallow-water targets. The success of that modification became a feature on all later aerial torpedoes. In addition, aircraft maintenance crews attached silver-painted wooden vertical and horizontal stabilizers to the steel fins, and wooden extensions to the anti-roll flippers. These gave better control during the aerial drop and came off when the torpedo struck the water. The gyro-controlled horizontal metal fins were set in an “up” position on the hangar deck to aid with the proper hook upon entering the water.

Shigeo Moroki, the aircraft carrier *Soryu's* torpedo specialist, noted that the torpedo's depth mechanism had 10 settings with 2-meter intervals, and could be set on the carrier. *Kaga's* and *Soryu's* depth settings were at 4 meters, while *Akagi's* and *Hiryu's* torpedoes were set at 6 meters. The depth was controlled by a pendulum and hydrostat system. The initial up-down movement of the torpedo pendulum control settled to a small half meter of flutter during its 600- to 800-meter run. Motoki noted that a torpedo with a 4-meter setting might go as deep as six meters if launched too close to the target before the up-down flutter settled.

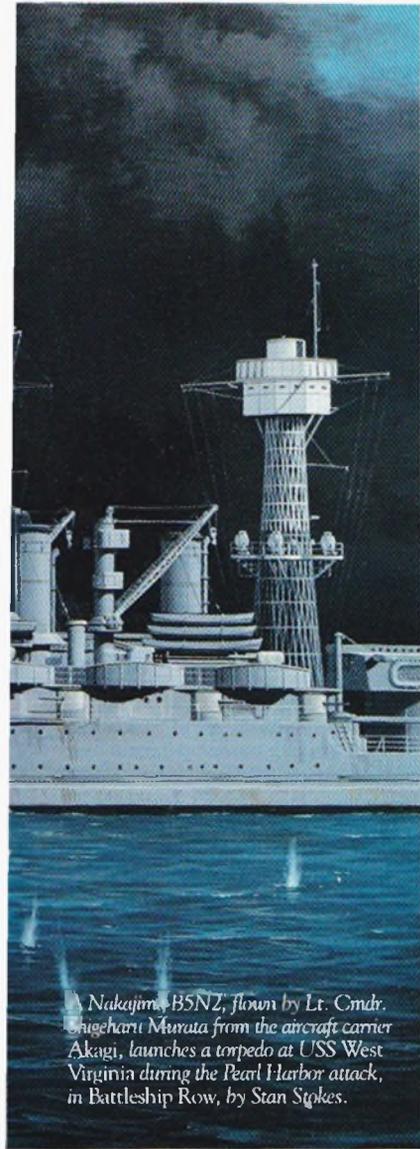
Torpedo classes began at the Kanoya and Omura air bases on October 31, 1941. Initially the *raigekiki* (torpedo aircraft) prac-

ticed with their flaps and landing gear down to lower their speed, but the danger of their stalling led to that method being discarded as too dangerous for combat. Altimeters did not work at the low altitudes at which the torpedoes were launched, so the pilot had to estimate his height by comparison of wingtip to water. Too high an altitude and the torpedo went deep to hit the harbor floor; too low and it would broach or skip on the surface and could break up. Even the most minor banking movement could send the torpedo in a different direction. The weapon was most effective striking a ship's hull at an approximately 90-degree line of impact. Penetration diminished as the angle changed. Therefore, the Nakajima B5N2 Type 97 torpedo-bomber pilots were the most highly trained of the attack force.

After the Japanese carriers launched their planes on the morning of December 7, the overall attack leader, Commander Mitsuo Fuchida, sighted Oahu's northern tip at 7:40 a.m., and shot a single “black dragon” flare to signal that the attack sequence would be “Surprise.” When the leader of the Mitsubishi A6M2 Type 0 Zero fighters, Lt. Cmdr. Shigeno Itaya, did not respond to the new formation, Fuchida fired another black-tipped, yellow shell directly at them.

Lieutenant Commander Kakuichi Takahashi, overall leader of the Aichi D3A1 Type 99 dive bombers, saw the second black plume arcing across the sky. Two flares meant “Surprise Lost” and his unit would lead the attack against airfields prior to ship attacks. Fuchida knew that smoke from such attacks on the airfield in the midst of the harbor might obscure the targets for his high-level and torpedo bombers. The silent signals had gone awry.

Fuchida led his unit in an unplanned westerly direction along the north shore due to clouds over the Ko'olau mountain



A Nakajima B5N2, flown by Lt. Cmdr. Shigenori Murata from the aircraft carrier *Akagi*, launches a torpedo at USS *West Virginia* during the Pearl Harbor attack, in Battleship Row, by Stan Stokes.

THE STOKES COLLECTION

Nagasaki from a Type 91, Model 1 torpedo, and was produced by the Kure Naval Arsenal. Called the Model 2, it was a straight-run, mechanical impact-fired, air-steam powered torpedo. The propulsion system used a freshwater bottle that was fed to a light oil mixture to make the steam. Salt-water was used to cool the torpedo motor. Described as an “800-kilogram” torpedo in Japanese records, its real weight was 1,840 pounds. Its black-painted, 46-inch warhead packed 452 pounds of explosive (60 percent TNT, 24 percent HND and 16 percent aluminum or zinc powder). The addition of four more tail fins gave it steadier travel in water, but also caused it to take longer to settle down from its up-down movement.

Unique to Japanese torpedoes was their Type 90 bail safety system, which straddled



Lieutenant Hirata Matsumura, leading the flights from *Hiryu* and *Soryu*, did not want to waste his torpedo on anything but a carrier or a battleship.

circled. By leading them to the west coast of Oahu, Fuchida had altered the tactics so that *Soryu's* and *Hiryu's* B5N2s would strike the aircraft carrier mooring sites on the northern side of Ford Island within the harbor before *Akagi's* and *Kaga's* torpedo planes could launch against Battleship Row on the south side.

At 7:49, Fuchida telegraphed the signal "TO," meaning "Charge," which gave control to his unit commanders. *Akagi's* *hikotaicho* (air group commander), Lt. Cmdr. Shigeharu Murata, was overall torpedo leader. Murata was easily identified by the three yellow stripes on his plane's tail. He wiggled his wings to signal his second-in-command, Lieutenant Hirata

Matsumura of *Hiryu*, to lead the *Hiryu* and *Soryu* units to the targets. Twelve of *Akagi's* B5N2s and a dozen from *Kaga* re-formed in a single line front to rear to the right of the string from *Hiryu's* and *Soryu's* eight apiece. The pilots were to spread the nose-to-tail

interval to 500 meters, but most of the planes were actually much farther apart.

*Buntaicho* (squadron leader) Matsumura, at the lead of the *Hiryu-Soryu* string, was flying directly above the Wai'anae mountain range. He had his radioman, Petty Officer 1st Class Sadamu Murai, view the northwest side of Ford Island with his binoculars. Murai was looking almost directly into the sun and could not determine the ship types.

The trail formation caused the squadron and flight leaders following Matsumura to lose communication with him. "*Soryu Buntaicho* Lieutenant Tsuyoshi Nagai suddenly increased speed and pulled up along the left side of my bomber," Matsumura later reported. "He urged me by hand signal to quicken the attack pace." Matsumura assented by wagging his wings. Eagerly, Nagai banked left and led his eight planes down the east side of the mountain range to an altitude of 150 feet. He passed so close to Wheeler Field that a gunner opened fire on the parked Curtiss P-40s.

At low altitude, looking into the sun, Nagai recognized the unarmed ex-battleship turned target ship *Utah* but saw no true targets on the northwest side of Ford Island. He then spotted a battleship moored next to 1010 dock, to the southwest. As Nagai banked slightly to the right toward this fat new target, Petty Officer 1st Class Juzo Mori, pilot of the plane directly behind Nagai, watched as *Shotaicho* (flight leader) Lt. j.g.

range. That allowed his forces to switch to the Surprise formation, but it changed the torpedo attack plan. In the Surprise sequence, the torpedo planes were to attack Pearl Harbor from four separate directions at the same time, while the rest of the force

## LIEUTENANT HARUO YOSHINO AT PEARL HARBOR

Who were the men who attacked Battleship Row at Pearl Harbor? In an interview with Jeffrey L. Ethell and Colin D. Heaton, Haruo Yoshino described his elation at being accepted at the naval academy at Eta Jima in 1938, because, "The navy was considered the elite of the military forces, and to be a pilot was the highest honor, the greatest role of the samurai to us." Of his training, Yoshino said: "Physically and mentally it was brutal. We were trained from young boys to believe in duty and honor above all else, and this was our philosophy. We were trained in the martial arts; heavy exercise and discipline. We lived and died for the emperor and our nation. To die in battle was the greatest honor, and this is something that many Western people never understood about us. Our training was extensive in mathematics, mechanics, geography, topography, navigation, physical training, and all of this for about two years before you were accepted into the preflight program.

"The instructors were allowed to beat you with fists, canes, anything for even the smallest infraction," he added. "I was once coughing during winter during formation, and the senior instructor, a sergeant, beat me across the head with a rattan cane, the same we used in kendo class, and knocked me unconscious. We were never expected to complain; this was a weakness. Many men broke down, and this would get them 'washed out,' as you would say." Yoshino recalled only 20 percent of those who started in his class graduating with him.

After qualifying to fly the Nakajima B5N2 torpedo bomber, he was assigned to the aircraft carrier *Kaga*. Prior to the Pearl Harbor operation, he said: "We had continuous briefings, going over aerial photographs, receiving weather reports and double checking our equipment. I remember the night before the attack all of us visited the [Shinto] shrine on board, even the captain and our flight commander. We prayed for victory and drank the ceremonial sake, even though almost all of us did not feel very good about what we were going to do. I could not sleep, I was too nervous, and I was not alone. Many of the men were nervous, but an excited kind of nervous. I noticed no fear, none at all. We did speak about the possibility of a surprise attack and the fact that it was not honorable. I know that many in your country will find this difficult to understand. This was my first combat, and many things go through your head during this time.

"It was the code we lived by, the Bushido of the samurai. It was not our way to go and assassinate, or to sneak up on your enemy. The Western people call it chivalry, but to us it was simply a matter of time-honored tradition. We believed that if you were to attack an enemy you should warn him; this was honorable. All of us, especially we officers, believed this, in order to set the example by our own sense of duty. In fact, we were informed that the United States was to have already been informed of our declaration of war at least one hour before we attacked, although naturally they would



This photograph of 92 B5N2 pilots and crewmen from Kaga was taken before daybreak on December 7, 1941, as the crew readied for the attack. By the end of the day, 15 of them would be dead (Takeshi Maeda Collection).

Tatsumi Nakajima led the last four planes in the formation off to the left to attack *Utah*. "How silly," Mori thought to himself. "Can't they see that two of those ships are nothing but cruisers? It would be a crime to waste torpedoes on them when the battleships are right there in sight a bit further on." But then Mori saw the two planes directly behind him break formation to follow Nakajima.

Nakajima's flight path was at an extreme angle to *Utah* and his torpedo passed forward

of the ship to hit the light cruiser *Raleigh*. At about the same time, his wingman, Airman 1st Class Karoku Fujiwara, flying to his right and rear, dropped his torpedo and struck *Utah*. On Nakajima's left and far rear, Petty Officer 1st Class Yasuo Sato and his wingman, Petty Officer 3rd Class Koji Kawashima, dropped their torpedoes. One hit the shoreline near the light cruiser *Detroit*. The other remains unaccounted for. Bringing up the rear, Petty Officer 1st Class

Masazumi Tadashi and Petty Officer 2nd Class Tadashi Kimura dropped their torpedoes. The first hit the shoreline aft of *Raleigh*, but the second hit forward on *Utah*.

Matsumura dropped altitude and passed a sugar mill at Ewa. Rising smoke from a hangar fire on Ford Island blocked his view of the harbor, so he and his wingman turned hard right and flew down the channel entrance to approach Battleship Row, as the *Akagi* unit was doing. The next two B5N2s,

not be informed of where and how we would do this. It was only later we learned that this had not happened, and the pride of victory was lessened in some way by a sense of shame for some of us.

"We flew around Kaena Point, which was marked on our maps, and we all had maps showing our routes and photographs of the battleships in the harbor. However, we were under the impression that some of the carriers would be there also. These were the top priority targets.

"Individual pilots in my group did not have particular targets to hit, but we were to follow on the lead aircraft, and as soon as we came within range we were to choose a target within easy reach of our torpedoes. The flight was broken up into two groups of 12 aircraft each, which would give us a good chance of hitting anything at anchor as we were flying abreast. This proved quite effective.

"When we flew over, it was not until we passed over the high ground and banked left into the channel that we saw there were no carriers. The battleships were marked as secondary targets if they were still there, which they were, so those were what we and the dive bombers went after.... It would be some years later that I knew for certain that I had dropped the first torpedo into the *West Virginia*.

"I flew over the channel and looked at my other pilots beside me, although I was out front more than the others. At first I was amazed that there was no anti-aircraft fire at that time. I remember thinking that if they had been aware of a state of war existing between our nations, why were they not prepared for the attack? As I saw a large ship in front, I dropped the nose and fell from 500 meters to about 10 meters over the water. I lined up the sight and when the silhouette spanned the sight I released the torpedo. The

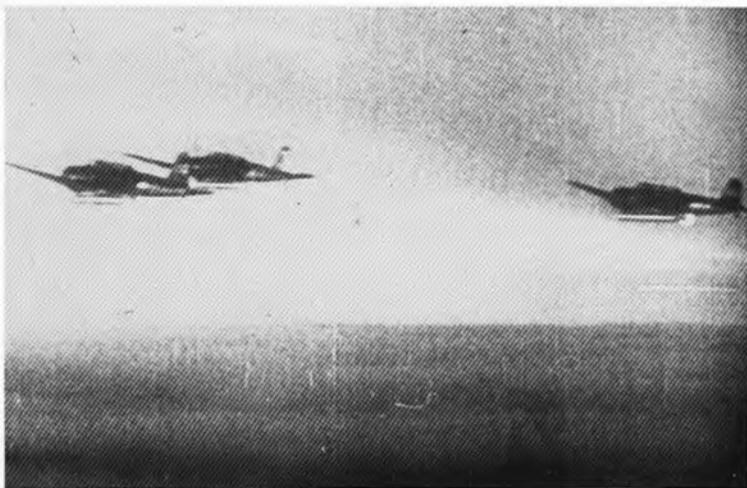
weight of the heavy torpedo leaving the aircraft made it jump up, but I put the nose back down to see if it was running true. I knew it would strike the ship, so I pulled up and cleared the superstructure of the ship. I banked right and climbed, circling to see how the other planes were doing. By the time I came back around to form up for the return flight to Kaga the Americans had begun firing everything they had into us. I saw three planes, all torpedo bombers, smoking, and one just blew up and crashed into the water. I had some tracer ammunition go past me, but I was not hit. I noticed that all of the members of my flight had been successful and had grouped together. But I noticed that of the 12 aircraft in the second flight, five were missing before we even cleared the harbor."

Upon returning to Kaga, Yoshino said: "There was great excitement. Just before we left the islands the second wave took off, clearing the deck for us. After we landed we each took our sake and had a drink. We felt we had earned it."

Prior to 1941, Yoshino only knew about the United States from Japanese-dubbed motion pictures. "All most of us knew was what we were taught in school—the *gaijin* concept, which is a term used for an uncultured people," he said. "I never felt any hatred for Americans, or anyone. I can say that after the war when I met many American veterans, many from Pearl Harbor, my respect grew immensely. I like Americans, and I feel sad that we had to go through such a thing as the war."

Yoshino added: "I would say that one must respect all people, never underestimate an enemy, and never forget that any enemy may become your friend."

Jeffrey L. Ethell and Colin D. Heaton



The only closeup of B5N2s taken during the attack shows a shotai (three-plane flight) heading for Oahu. The plane at right shows the wooden fins added to the aerial torpedo.

BII-306 piloted by Petty Officer 3rd Class Takuro Yanagimoto and Airman 1st Class Sunao Urata in BII-322, missed the turn as they fixed their attention on Nagai's approach to the battleship next to 1010 dock.

Just as *Akagi* leader Lt. Cmdr. Murata dropped the first torpedo onto Battleship Row on the south side of Ford Island, *Soryu*'s Lieutenant Nagai made his attack run. "His approach was perfect, for a small splash and white wake showed his torpedo was running straight toward the target," Mori recalled. "I'll make it two hits on that monster, I decided, and bore in behind him." Nagai's torpedo was still fluttering as it neared the target, which was in fact the paired light cruiser *Helena* and minelayer *Oglala*. It ran under *Oglala* to hit *Helena*.

"We had closed to less than 600 meters when it suddenly struck me that this was an odd-looking battleship," Mori said. "Then I realized it wasn't a battleship at all, but a cruiser. Nagai was as bad as Nakajima wasting his torpedo on such a small target." Mori decided to bank left toward Southeast Loch to attack a new target he spotted a little south of Battleship Row—the damaged *California*.

Lieutenant Hiroharu Kadono was junior *buntaicho* in the fifth *Hiryu* bomber, BII-327, marked with two blue command stripes similar to Matsumura's. He missed Matsumura's turn, and Yanigimoto and Urata fell in behind Kadono as he began a counterclockwise circle over the town of Ewa. *Shotaicho* Petty Officer 1st Class Toshio Takahashi, flying BII-321, and Petty Officer 2nd Class Toshio Kasajima had found themselves in the circle following Yanagimoto and Urata instead of Kadono's wingman, Petty Officer 1st Class Hachiro Sugimoto.

Kadono saw Nagai's torpedo hit and led the six *Hiryu* aircraft against the same

target, until he saw Mori peel off and then noted that the target was the paired *Helena* and *Oglala*, not a battleship. He and Sugimoto aborted their runs, but at that point, an American anti-aircraft (AA) shell passed through Kadono's cockpit from the left wing and hit the fuel line. His navigator, Chief Petty Officer Masaji Inada, wrapped a rag around the spewing fuel line and held it until they returned to the ship.

The next four B5Ns from *Hiryu* were not as observant of the target as Mori and Kadono, probably due to the AA fire, and launched their torpedoes toward *Helena* and *Oglala*. In the tail end, Kasajima saw that AA fire had caused Takahashi's torpedo to be launched incorrectly and it dived to the harbor bottom. Anti-aircraft fire from *Pennsylvania* or the destroyer *Shaw*, to his right, then focused on Kasajima. He



*Akagi*'s Lt. j.g. Jinichi Goto launched the second torpedo against Battleship Row.

made his drop at 200 meters, then immediately pitched up and to the right. At that point AA fire from *Helena* and *Oglala* struck his right wing. He later counted 29 holes in BII-326; one was about six inches in diameter.

One *Hiryu* torpedo hit the embankment under the dock and "sank" a power transformer station several feet below the ground. A third streaked toward *Helena* and *Oglala*, and is probably still stuck in the soil under 1010 dock. Two other *Hiryu* torpedoes hit the harbor bottom, where their still-running torpedo motors sent a froth to the surface.

"When we reached Hickam Field I asked my navigator if all of our aircraft followed us," Lieutenant Matsumura later recounted in frustration. "Petty Officer 1st Class Takao Shiro replied that he could only see my wingman, Petty Officer 3rd Class Yasumi Oku's plane, BII-302. I knew it was bad. Of course, I had nothing to do with it."

Like Matsumura, Shiro and Oku, Lieutenant Kadono and his wingman were heading toward Battleship Row, but by a slightly different path. In consequence, five B5N2s from *Soryu* and *Hiryu* plunged in the midst of the two dozen *Akagi* and *Kaga* torpedo aircraft as they headed for Battleship Row.

During attack planning the Japanese feared that anti-torpedo nets would ruin their attack, and confirmation had yet to arrive from the spy in the Japanese Consulate in Honolulu that none existed when their carrier planes took off. Lieutenant Commanders Murata and Fuchida had discussed the net problem. They agreed to torpedo the nets, and if that failed to eliminate them, they were prepared to crash their planes into them.

"As second *shotaicho* in AI-308," reported *Akagi*'s Lt. j.g. Jinichi Goto, "I positioned myself about 100 meters to the left rear of Lt. Cmdr. Shigcharu Murata's plane. At an interval of 500 meters, each *vaigelaki* of my *shotai* was thus also positioned about 100 meters to the left rear of the respective plane in Murata's *shotai*."

"We passed above Barbers Airfield (Ewa Mooring Mast Field) at 500 meters altitude. On the field many small airplanes were put in order, that I remember clearly. We kept going south and we made a left turn after coming over the ocean to approach Hickam Field from the southwest. At this point our altitude was 50 meters.

"After we passed the airfield and the factory area on Pearl Harbor base, we made about a 90-degree quick left turn before a bay where the sub base [Southeast Loch] was, then lowered to 20 meters, using my eyes rather than the altimeter, which was ineffective at such altitude," Goto continued. "Adjustment of speed (to 160 knots) and horizon was done by instruments.

When we headed for the row of battleships, altitude, speed and attitude of the plane were critical. Moreover, we were under a curtain of machine-gun fire. At this point we were able to see the row of battleships in front of our eyes several hundred meters away so that we had to launch our torpedo immediately."

Murata launched his torpedo at 7:57 Hawaii time and returned with one hit in his plane, AI-311. Goto's aircraft escaped damage. "The response of the U.S. Navy was outstanding," Goto exclaimed. "In spite of the surprise attack early on Sunday morning, Murata and I saw machine-gun bullets coming onto us before we launched our torpedoes!"

"*Hikotaicho* Murata launched toward the USS *West Virginia* and to his left and at almost the same altitude I launched toward USS *Oklahoma*," said Goto. "I viewed two big water poles raised up slowly from both ships almost at the same time."

Behind Murata in B5N2 AI-313 came his No. 2 wingman, Airman 1st Class Fujuki Murakami, also aiming for *West Virginia*, with Goto's No. 2, Airman 1st Class Kazuto Ikumoto, on his left wing aiming for *Oklahoma*. Neither plane was hit, but Goto's No. 3 plane ran into trouble. "The gunners of the U.S. Navy calmed down by this time and their aiming was getting accurate," Goto reported. "I guess that this is the reason Airman 1st Class Tomoe Yasue was hit as many as 21 times." Both Yasue and Murata's No. 3 wingman, Airman 1st Class Sadasuke Katsuki, were aiming for *Oklahoma* when Katsuki veered left into Yasue's path. One of them—probably Yasue—jettisoned his torpedo and climbed for altitude. Despite the hits to his plane and his near midair collision, neither Yasue nor his crew were wounded, and both he and Katsuki returned to *Akagi*.

As Mori pulled up from his torpedo run on *Helena* and *Oglala* and banked left toward Southeast Loch, approaching from his right came the second *Akagi* *buntai*, led by Lieutenant Asao Negishi in a long string formation. The bombers were to maintain a nose-to-tail interval of 500 meters, but most flew at intervals of 1,500 to 1,800 meters because many crewmen knew the potential to hit the huge water pole from a previous strike. That worked in favor of the *Soryu* and *Hiryu* aircraft as they flew into the stream of *Akagi* and *Kaga* bombers. It also worked in favor of the American gunners, as they were able to get better target acquisition.

Viewing the action against *Oklahoma* and *West Virginia*, Negishi chose a new target, *California*, off to the left from the main group of battleships. Both Negishi and his No. 2 wingman, Petty Officer 3rd Class Gunji Kaido, dropped their torpedoes. They almost hit a church launch from *California* crossing Southeast Loch from Merry Point.



PHOTOS: U.S. NAVAL HISTORICAL CENTER

**Top:** A column of water from Murata's hit on *West Virginia* towers beside the explosion of his wingman's torpedo (left) and another water column marking Goto's strike on *Oklahoma*.  
**Above:** Hit by anti-aircraft fire, Airman 1st Class Keigo Hanai's *Akagi*-based B5N2 (at center) departs Battleship Row, while a *Soryu* plane approaches from the right.

Mori was still en route to *California* when he saw ground and ship AA gunners focus their attention on Negishi's No. 3 wingman, Airman 1st Class Keigo Hanai. Hanai changed targets from *California* to the easier *West Virginia* because his navigator, Petty Officer 2nd Class Shigeharu Sugaya, was badly wounded; he died later that night.

Ignoring the AA fire, Mori struggled on. "If I could turn in time, maybe I could get it," he recalled saying to himself. "So I gave my sluggish plane plenty of rudder, and jammed the control hard over, and felt like a stunt pilot as it nearly stood on its left wing. For one split-second I was sure the wing would dip into the water, or that my heavily laden aircraft would stall out and

spin into the harbor." He yelled through the voice tube to his navigator: "Hold on, Kato, don't release! We're too close! We'll come around and do it again!"

Leading the final torpedo plane flight from *Akagi*, *Shotaicho* Petty Officer 1st Class Shigeo Suzuki took three hits to his B5N2, AI-307, as he tried to direct his *shoutai* to the easiest target, *Oklahoma*, but his two wingmen were briefly interrupted by two *Hiryu* aircraft—Matsumura's and Oku's. "We cut in the row of an *Akagi* unit to release the torpedo," Matsumura explained. "Then we were caught in heavy turbulence by the preceding attacker [Suzuki]. Our plane bumped so wildly that we could not aim at a target. Therefore we made a right

turn to retry." Behind Matsumura's B5N2 B11-320, Oku was able to launch his torpedo at *West Virginia*.

Slowed somewhat by the interruption from *Hiryu's* planes, Suzuki's second and third wingmen, Petty Officer 2nd Class Isao Tateyama and Petty Officer 3rd Class Kaoru Goto, continued their runs on *Oklahoma* without damage from AA fire. The second *Hiryu buntaicho*, Lieutenant Kadono, and his wingman, Petty Officer 1st Class Hachiro Sugimoto, also dropped on *Oklahoma*. Matsumura made his 360-degree turn and got in line just as *Kaga's* string of 12 bombers, which had trailed *Akagi's* by three miles, entered Southeast Loch. "After confirming that our torpedo hit the target [*West Virginia*], we headed to the rendezvous point," he said.

Following Matsumura's guidance, *Kaga Buntaicho* Lieutenant Ichiro Kitajima launched against *West Virginia* and escaped without damage. In the second plane, A11-312, piloted by Petty Officer 3rd Class Kashiro Yoshikawa, gunner Petty Officer 2nd Class Takeshi Maeda stated: "Lowering in altitude, we kept flying to the east along the south coast of Hickam Field. I rotated in my seat to the left where I found Diamond Head and noted our course to Pearl Harbor. I moved my gun to the left

and made some fire while passing over Hickam but could not hit what I aimed at as it was not in range.

"I could see many small and large naval vessels anchored at the east side of the harbor. We flew as low as 10 meters and launched the torpedo. Just prior to that very moment, the ship [*West Virginia*] had leaned toward the side [due to] the damage incurred from an earlier torpedo hit. Rapidly enlarging ripples, in a concentric circle over the crude oil-spilled water caused by the explosion of an earlier torpedo hit, came into view. There were some three launches frantically speeding around the scene also. At that time I heard a sound that my right wing was hit by a bullet.

"While I was accomplishing my task I felt no fear," Maeda concluded. "However, I still remember that I felt scared when my task was completed and was eager to return to our ship."

Hit four times by AA fire, the third *Kaga* bomber also aimed for *West Virginia*. The next *shotaicho*, Petty Officer 1st Class Shigeo Sato, changed to the easier target, *Oklahoma*, but was hit eight more times during his run. The B5N flown by Sato's No. 2 wingman, Petty Officer 1st Class Ichiji Nakagawa, was also hit eight times while following his guidance to drop on

*Oklahoma*, and its gunner, Airman 1st Class Mitsuo Kawasaki, was so badly wounded that he subsequently retired from the navy.

The third B5N2, piloted by Airman 1st Class Syuzo Kitahara, ran into the intense fire, and incendiary bullets hit vital fuel connections. Realizing the danger, he jerked the stick into his stomach and hit hard left rudder. Flames broke out, and Kitahara's gunner, Petty Officer 2nd Class Haruo Onishi, deciding against death by fire, jumped from the smoking plane without a parachute, tearing off his ring in the process, and hit the water in the pier area near the heavy cruisers *San Francisco* and *New Orleans*. He was pulled alive from the water but died of his injuries a few minutes later.

Kitahara almost hit a huge hammerhead crane in his attempt to gain altitude. The ground observers noted that smoke became flames as the bomber headed southeast, paralleling 1010 dock. To lighten his plane, Kitahara jettisoned his torpedo, which landed on the beach near the dry docks. The hydraulics failed and the landing gear began to lower. The plane seemed to aim itself "directly towards the front of the main hospital building," wrote Captain Reynolds Hayden, a doctor. At the last second, Kitahara stood up in the cockpit and let go of the controls. "It swerved left, struck the corner



Matsumura's navigator, Petty Officer 1st Class Takeo Shiro, photographed Petty Officer 3rd Class Yasumi Oku's torpedo hit on *West Virginia* (listing third from left). The frothing white water at right center is from a torpedo stuck in the harbor bottom.

of the laboratory building and crashed between the laboratory and Chief Petty Officers quarters," Hayden continued. "The two Japanese aviators in the plane were dead."

Both crewmen were dismembered from the crash. A Marine recalled that one early arrival at the crash site was so angry that he had one leg from a crewman "...and was beating it on the ground screaming that he was going to kill him; when he realized what he was doing, he stopped and pulled the boot off the foot and declared that he had the first souvenir of the war."

While Kitahara was going down, *Kaga Buntaicho* Lieutenant Mimori Suzuki led the last six torpedo aircraft into the waters of Southeast Loch—and found himself the next target of the warships' AA fire. His bomber was just above the submarine pen when a lucky bullet hit his warhead. The concussion from the resulting explosion knocked down sailors on the submarine dock. The plane's engine flew on, but Suzuki was instantaneously decapitated as everything forward of him disappeared. The plane hit the water near the southwestern tip of Kuahua Islet. The remains of Suzuki's plane, AII-356, were subsequently recovered, along with the body of his navigator, Chief Petty Officer Tsuneki Morita. One of the sailors charged with delivery of the body to the morgue wanted Mori's boots so badly that he sawed the swollen feet off to gain more time to get the boots off. Suzuki's B5N2, sans engine, gave the Americans their first look at Japan's first-line carrier-based attack bomber.

Petty Officer 2nd Class Kazunori Tanaka, flying on Suzuki's tail, was only hit twice in his attack on *West Virginia*. Meanwhile, *Soryu's* Juzo Mori had completed his 360-degree counterclockwise turn and entered the stream of *Kaga* bombers. Concentrating on *California*, Mori descended to 15 meters and dropped his torpedo. "It's running straight!" screamed Petty Officer 1st Class Toyonori Kato, as Mori banked right and reversed course. Then Kato yelled, "It's a hit! Banzai!"

The shock of Suzuki's midair torpedo explosion slowed the AA fire a little, giving *Kaga* pilot Petty Officer 2nd Class Kenichi Kumamoto a chance to see the undamaged battleships. With Mori ahead and to his left, Kumamoto deviated to his right, aiming for *Nevada*. He flew across Kuahua Islet and dropped the torpedo in the main channel. Battleship Row extracted revenge, how-



The battleship *Nevada*, undergoing repairs at Pearl Harbor Navy Yard in early 1942, displays the torpedo damage she sustained.

ever. As Kumamoto gained altitude his fuel tanks burst into flame. The crewmen were seen to pull back their canopies as the B5N came down just aft of its target. The drowned bodies of Kumamoto and his gunner, Petty Officer 2nd Class Nobuo Umezu, were later recovered.

Meanwhile, downed Petty Officer 2nd Class Isamu Matsuda swam and drifted with the current until he was spotted coming ashore at Ford Island just starboard of Tennessee. He was shot by a Marine from Ford Island, and his Nambu pistol and stopwatch were taken as his personal souvenirs.

Leading the final three *Kaga* aircraft, Petty Officer 1st Class Hirotake Iwata, in AII-324, described his approach: "The U.S. fleet in the harbor came to our sight and there we could see a tall water column occurred in the middle of the line of anchored ships.

"During the approach over Hickam Field we lost sight of the target because of smoke. Then I saw the *Oklahoma* and I aimed at it. When I approached at the distance of 750 meters, I launched the torpedo at the height of 10 meters. As soon as I finished, I pulled the control stick at full throttle and flew just over the mast of the target warship. The *Oklahoma* was already leaning and water was getting to the deck.

"At the same time, the *raigekiki* in front of me was seen to fly to the right, falling with a fire. Turning to the left, I looked

back and saw my number two wingman, Airman 1st Class Ohashi, who was hit while rising to the right, and then he was falling with smoke."

Mori saw Ohashi crash: "I saw one of our planes go down, his torpedo still unreleased. He was so close. Seemed as though I could touch him. Quickly, I realized where I was. He had been making a run on enemy battleships while I was moving directly away from them. Both of us were in the heaviest concentration of fire." Ohashi crashed just beyond Kuahua Islet in the main channel. His plane and torpedo have never been recovered.

Mori's bomber was then hit in both wings and the cockpit by groundfire. The seat cushion of his radioman, Petty Officer 2nd Class Junichi Hayakawa, caught on fire, and an incendiary bullet went beneath his flight uniform to burn a furrow up his back without breaking the skin. The groundfire damage caused Mori's right landing gear to fail, forcing him to belly land later next to a Japanese destroyer.

"My number three wingman, Petty Officer 1st Class Izumi Nagai, was puffing smoke, jettisoned the torpedo and then lowered toward the water," Iwata reported. A shell burst had destroyed the forward sway brace holding the torpedo, along with heavier damage to the plane. The torpedo was thus ripped from the plane to land in a pile of lumber on the dock near the destroyer *Bagley*. Rid of its weight, Nagai was able to gain altitude, only to glide across the harbor channel and crash just north of Fort Weaver.

"After I saw our torpedo hit the target," Iwata continued, "I could not see anything as we got into the smoke from the flying boat hangar at Ford Island. After I got safely back to the *Kaga* we investigated our plane and found four bullet holes, which we did not notice at all while we were in action."

Iwata dropped the last torpedo onto Battleship Row. A photograph taken at 8:06 a.m. during the high-level bombing on *Arizona* by *Kaga's* aircraft shows oil pouring from *Nevada*, from the second-to-last torpedo to be dropped. The absence of such oil pouring from *Arizona* proves that she was not hit by any torpedoes.

In the second high-level strike on the battleship, bombs dropped by aircraft from *Hiryu* bracketed the ship. One produced a water spout that crewman aboard the nearby repair ship *Vestal* mistook for a tor-

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# TORPEDOING PEARL

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pedo hit. This was only a millisecond before the explosion from another bomb in the same group destroyed *Arizona*.

A mere 11 minutes had elapsed since the ferocious attack began. For most of those involved, that was a lifetime. And for that host of men whose lives it had cost, it was literally an eternity.

*Helena* entered dry dock immediately and returned to duty in June 1942. *Raleigh's* crew worked fast and managed to prevent the cruiser from rolling over. Their brave efforts aided her quick return to duty in July 1942. *Oglala's* hull was split wide open from the hit on *Helena*, and was not fully repaired until February 1944.

Three torpedo hits sent *California* to the bottom, but she nevertheless came back to the fleet in May 1944. *West Virginia* almost capsized from nine torpedo hits, but returned to duty in July 1944. *Nevada* had only one torpedo hit, but it gutted the ship. She was run aground after the sortie and returned to duty in December 1942. In 1943, *Nevada's* No. 1 turret guns were replaced with those from *Arizona's* turret No. 2. She fired those guns in anger at Normandy on June 6, 1944, and would later support the American invasions of Iwo Jima and Okinawa in 1945.

*Oklahoma* never recovered from the nine hits she suffered. *Iwata's* final torpedo came in and exploded at the point when the ship was leaning, which kicked her over. She was sold for scrap after the war, but sank en route to the mainland.

*Iwata* bowed his head to relate: "In 1955 and again in 1992, I paid a visit to Oahu and called at the USS *Arizona* at Pearl Harbor. I prayed for both U.S. and Japanese sailors who lost their lives at that time."

There are still Japanese torpedoes in the harbor that are fully armed. One, which became stuck in the harbor to the left of *Oklahoma* (see photo on P. 52), was dredged up in May 1991, serving as a reminder that too many had died on that "date which will live in infamy."

*Utah* still serves as a cemetery. Message pennants are sent to all "defending ships still on duty" each Pearl Harbor Day that say, "All Ships: Well Done." The only response is globules of oil rising to the surface. □

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For 35 years David Aiken, a director for the Pearl Harbor History Associates, Inc., has researched the Pearl Harbor attack to locate, identify and recover the Americans and Japanese airmen missing in action. Further reading: *Day of Infamy*, by Walter Lord; *East Wind Rain*, by Stan Cohen; and *Broken Seal*, by Ladislav Farago.