

## **Recent Discoveries**

### ADMIRAL KIMMEL AND THE QUESTION OF SHALLOW WATER TORPEDOES

by  
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The most extensive damage received by the Pacific Fleet's capital ships on December 7<sup>th</sup> was inflicted by aerial torpedoes dropped from the Nakajima Type 97 torpedo bomber, known in the West as "Kate." In employing their Type 91 aerial torpedoes the Japanese had had to correct the tendency of the torpedoes, when dropped, to plunge too deep in the water before ascending to their programmed attack depth. The water depth at Pearl Harbor was 30 feet, except in the channels, where it was 45 feet. The successful British aerial torpedo attacks at Taranto, Italy, on 12 November 1940 had been made in depths of 84 to 90 feet, with a few runs made at 66 to 72 feet depths. (The Japanese studied the site and took photographs, but said after the war that Taranto had had no influence on their own tactics for Pearl Harbor.) Unless some modifications were made to the Japanese torpedoes it was certain that they would dive uselessly into the muck at shallow Pearl.

The principal expedient devised by Japanese engineers to prevent that happening was the attachment of extended wooden fins to the four metal directly horizontal and vertical tail fins of the torpedo. The four other tail fins were left as they were. When the torpedo was dropped by an aircraft, the function of the wooden fin extensions was to "catch" the surface of the water and thus retard the torpedo's plunge, before breaking away. Similar, though smaller, breakaway wooden fins were affixed to two anti-roll stabilizer fins that protruded from the aft upper body of the weapon. After an initial, relatively shallow dive, the modified torpedo assumed a specifically programmed depth, usually 13 to 20 feet, the latter depth designed to place its 452-pound warhead below a warship's armor belt. Once launched, the torpedo became an independent, self-propelled submarine, with guidance system, engine, propellers, rudders, and hydroplanes, which steered itself to immolation against the pilot's target. The minimum run underwater required to arm the contact pistol (detonator) was about 650 feet, which was well-suited to Pearl Harbor's narrow waters. In tests of three such Modification torpedoes, one hit bottom at 39.3 feet, but the other two made successful runs to target. On that basis the Japanese estimated that, out of the 40 drops planned for Pearl Harbor, 27 torpedoes would hit home. (In the actual attack, there were 36 successful drops, of which 25 scored hits; 11 missed, malfunctioned, or bore into the muck; four met unknown fates.)

Still one more refinement was required, and that was finding what should be the pilot's correct altitude, airspeed, and trim for making the drop. Sometime during the period 11-13 November 1941 the answers were found--20 meters (66 feet) off the deck at 100 knots and with trim set to place the torpedo in the water at 17-20 degree incidence. It was a tactic worked out just in time, since to make an aerial torpedo attack at Pearl Harbor on 8 [7] December, carriers would have to depart by November 26 [25].

Why did Admiral Kimmel not have his battleships protected against such attacks by torpedo baffles, i.e. nets, extended out from and down ships' hulls? There were

reasons. First, the nets would interfere with ship movements inside the harbor, and their time-consuming removal would substantially delay an emergency sortie out the channel. Second, such nets had not been provided the Fleet and Pearl Harbor had no facilities for manufacturing them. The third and most important reason was that Kimmel and his staff had been informed by the Navy Department in Washington that any aerial torpedoes known to exist in the world's navies would dive steeply and bury themselves in the muck before hitting their targets. Chief of Naval Operations Admiral Harold R. Stark wrote to Kimmel on February 15<sup>th</sup>, 1941:

Consideration has been given to the installation of A/T [anti-torpedo] baffles within Pearl Harbor for protection against torpedo plane attacks. It is considered that the relatively shallow depth of water limits the need for anti-torpedo nets in Pearl Harbor....

A minimum depth of water of seventy-five feet may be assumed necessary to successfully drop torpedoes from planes. One hundred and fifty feet of water is desired.

In the Congressional hearings of 1945-46 Kimmel was asked to read aloud an additional passage from Stark's letter:

KIMMEL. (Reading:) As a matter of interest the successful attacks at Taranto were made at very low launching heights at reported ranges by the individual aviators of 400 to 1300 yards from the battleships, but the depths of water in which the torpedoes were launched were between 14 and 15 fathoms.

THE CHAIRMAN. That is 90 feet?

KIMMEL. Yes, sir.

Stark's letter acknowledged the need for deployment of a light and efficient net that could quickly be laid out and removed, and expressed his hope that such a net would become available "in the near future." But no such net was made available before December 7<sup>th</sup>, indicating, we may assume, Stark's continuing view that torpedo bombers should be of no concern at Pearl.

Arriving by Clipper, Stark's letter was read by Kimmel on 8 March; after which, as the CincPac routing sheet shows, it was read by his staff, one of whom, Gunnery Officer Captain Willard A. Kitts, made the notation: "From considerations listed in letter, it appears Pearl Harbor does not need nets."

On June 13<sup>th</sup> a second communication from CNO Stark advised Kimmel and his staff that an aerial torpedo attack was "likely" only in water that was 60 to 75 feet deep. It bears repeating that Pearl's water was only 30 to 45 feet deep. Thus, in this matter the Navy Department's bond of trust with its Pacific Fleet commander was reassuring.

But my research in Naval Attaché reports from London--documents in the National Archives at College Park, MD, that stand outside the usually consulted Pearl Harbor collection--reveal that Stark's operations people knew in *July* 1941 that the Royal Navy Fleet Air Arm had made a fin modification to its 18-inch Mark XII aerial torpedo that enabled it to be dropped in water as shallow as *24 feet*. Use of the shallow water torpedo had been made in Royal Navy air attacks on various Italian harbors in the Mediterranean during 1940 and the first month of 1941.

This was extraordinary new information: namely, that shallow water torpedoes were possible, that they existed, and, what was more, that they had been proved effective in battle. This knowledge, which was in the hands of the Navy Department five months before the Japanese attack on Pearl Harbor, was *withheld* from Admiral Kimmel. Had it been sent forward alarm bell would have sounded insistently in Kimmel's staff offices.

But the knowledge was deep-sixed--until found by an historian 60 years later.

Shamefully, when, in October 1945, Admiral Kimmel, while preparing his testimony before the Joint congressional Hearings that began that year, asked to see intelligence reports of British aerial torpedo developments prior to December 7, he was denied *even then* the 1941 description of the shallow water Mark XII.

What the British had accomplished, the Japanese could accomplish, too-and did. But it was Kimmel who would be hung out to dry for Washington's failure to understand that fact, and to communicate it to Hawaii.

Where now is the dereliction?