

# ***Catapult Armed Merchantmen***



## ***Desperate Men Often Attempt Desperate Deeds***

***Preface:*** World War II's 'Battle of the Atlantic' was the longest and largest military campaign in history. It lasted from September 1939 until May 1945. Throughout this period of time, German forces tried...ultimately in vain...to disrupt the shipment of war supplies and foodstuffs to Great Britain and Russia.

Britain required a million tons of imported goods a week in order to survive...and to fight. Convoys of heavily laden merchant vessels left North America almost daily to try and satisfy these needs. German U-boats and other forces on the sea and in the air coordinated attacks to prevent Allied convoys from reaching port.

The convoys were escorted by warships, but in the early months of World War II, the number of naval vessels available for this duty was very limited. In addition, ground-based Allied air support could not cover the middle of the Atlantic.

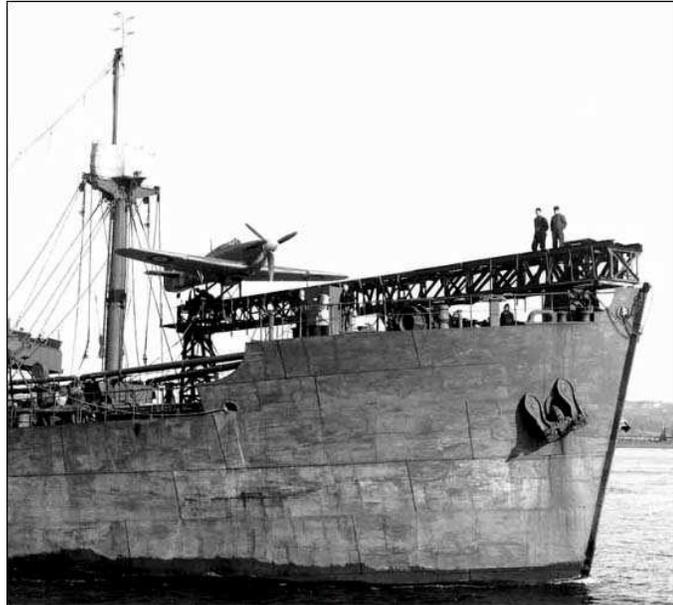
German long range patrol planes frequently sought out approaching convoys in mid-ocean and radioed their position to U-boats, which then attacked at night and on the surface, under conditions when detection was most difficult. Their successes were initially devastating, leaving Britain near starvation.

During the course of the war, the Allies lost 3,500 merchant vessels and 175 warships. Nevertheless, the Battle of the Atlantic was ultimately won by the Allies, once a sufficient number of naval escorts, including aircraft carriers to close the mid-ocean air defense gap became available. The Germans lost 783 U-boats, thanks in part to defensive tactics first put into practice by the British.

One desperate measure initiated in 1941 was an innovative, albeit short-lived program designated as Catapult Armed Merchantmen (CAM).

**CAM Ships:** A number of British merchant vessels were fitted with a rocket or cordite propelled catapult system, capable of launching a single Royal Air Force fighter. The primary purpose of this concept was to enable convoys to scare off...or shoot down...long range enemy patrol planes.

Catapults were fitted on the bow of a number of cargo vessels. Ships thus configured could launch...but could not recover...their embarked fighter aircraft.



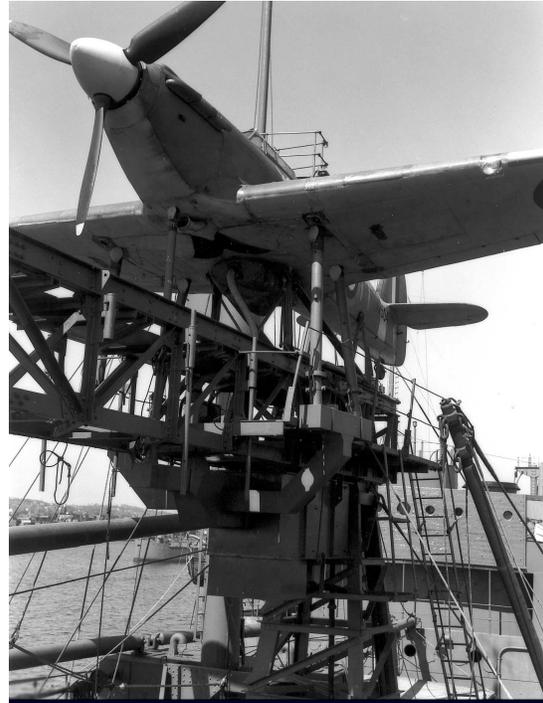
CAM Ships were usually placed at the head of the port side column of convoys, a position which allowing them to maneuver into the wind for aircraft operations when necessary without disrupting the rest if a convoy's alignment. Once a fighter had been catapulted into the air, the pilot's only recourse in mid-ocean was to bail out at the end of his mission. The plane would be lost, but naval vessel escorting convoys were quite successful at plucking a downed pilot from the sea.

Most of the merchant vessels selected for conversion were of a very large class of standardized British tramp steamers mass produced in the early 1940s and commonly referred to as 'Empire Ships'. The word Empire was used as the prefix in the name of each of these ships. They were 425 feet long, with a loaded displacement of 10,000 tons and capable of attaining ten knots at full power.

This aerial view shows why the catapults had to be installed to one side of a ship's centerline. Such a location was clear of the forward hatch and its cargo handling gear. The port side was usually selected so that a catapulted aircraft could bank away from other ships in convoy.



**Catapults & Aircraft:** The catapults were complex devices perched precariously high on a ship's bow, as this image indicates. Nevertheless, there is no record of any failures of a catapult under combat conditions. In addition to an RAF pilot, each catapult equipped vessel carried a cadre of aircraft and catapult maintenance personnel.



Two types of aircraft were employed, but a modified version of the Hawker Hurricane fighter, designated as a Sea Hurricane Mk IA, predominated. Primarily, the changes involved removing their landing gear and replacing it with catapult attachment points on their airframes. About 250 older aircraft that had previously served in front line RAF squadrons were utilized for their intended, final 'one-way' missions.

**CAM Crews:** The pilots and maintenance crews assigned to the CAM Ships dubbed these aircraft 'Hurricats'. The RAF formed the Merchant Ship Fighter Unit (MSFU) in May of 1941, which initially consisted of all-volunteer pilots and ground crew members. Following training on a shore-based catapult, using aircraft that still had landing gear; they were assigned to catapult-fitted ships.

These military personnel were required to sign ships articles right along with a vessel's civilian crew and thus came under the authority of the ship's civilian master. The ship's chief engineer was assigned responsibility for the upkeep of the catapult, and the first mate acted as the Catapult Duty Officer, responsible for firing the device when authorized by the vessel's skipper.



When danger was suspected, a pilot would sit in the cockpit of his aircraft with engine idling to lessen response time. Often already seasick, the heaving motion of a ship's bow surely didn't make his wait very pleasant.

**Operations & Results:** Starting in the summer of 1941, some thirty-five cargo ships were modified to become CAM Ships. They ultimately made a total of 175 voyages. The program was terminated in June of 1943. By that time, escort carriers and their aircraft had begun to routinely accompany and protect convoys, effectively eliminating the mid-ocean air defense gap.

Twelve of the CAM Ships were sunk through enemy action. Only eight catapult launches at sea were made in response to the threat of enemy aircraft. More often, when a CAM Ship had safely reached its destination, its embarked Hurricane was off-loaded. Fully exposed to the wretched weather in the North Atlantic throughout a long voyage, the relatively fragile aircraft usually required shore-based maintenance including the removal of sea salt residue from flying surfaces and engine intakes before being reassigned to another catapult-equipped vessel.

Six enemy aircraft were shot down by the Hurricanes, all of which were subsequently lost at sea except one. The pilot of the sole surviving airplane that had made a combat sortie at sea was able to reach a friendly airfield. The rest ditched near the convoys they were protecting. One of these RAF pilots drowned after being injured during his bail-out. The rest were picked up unharmed.

The first merchant vessel fitted with a catapult was sunk by a U-boat in early June 1941; before the RAF was ready to assign an aircraft and crew to her. Soon after her loss, a half dozen other ships were fitted with catapults and sent to sea, carrying RAF aircraft and crews to participate in convoy protection duties.

Although the number of enemy aircraft shot down was minimal, the CAM Ships and their aircraft greatest contribution to the war effort was deterrence. The Germans quickly learned that flying their relatively slow patrol bombers over convoys was far riskier when a CAM Ship was encountered...or even suspected to be present. At least two British ships were fitted with dummy catapults and inoperable aircraft.



Thus deprived of detailed information about course, speed and position of Allied convoys, U-boats' successes were drastically reduced. It was one of the numerous and now mostly forgotten desperate measures employed by the Allies in the winning of the Battle of the Atlantic. Winston Churchill, in his post-war memoirs said:

*"The 'U-boat peril' was the only thing that ever really frightened me during World War II."*



**A Personal Insight:** As is often the case in war, the time spent by the majority of RAF pilots assigned to duty aboard CAM Ships largely consisted of waiting for something to happen. Tim Elkington, shown here onboard a CAM Ship during World War II was a member of this unique 'club'. The whistle included in this vintage image was a part of his survival kit.

A few years ago, at his son's request, Tim recorded his memories of being an RAF aviator before during and after his brief tenure as a CAM Ship pilot. Following are excerpts from Tim's written recollections:

*"It was 1942. I had only recently returned from Northern Russia, where we left our Hurricanes for the Russians, and was enjoying my squadron's conversion to Spitfires in Northern Ireland. Then, to spoil the euphoria, I was posted to MSFU, the Merchant Ship Fighter Unit, which provided the pilots for the CAM Ships. And so back to Hurricanes I went, albeit one modified to Sea Hurricanes.*

*"Someone must have misread my Service record, because the requirement for the task was '... it is of paramount importance that pilots in MSFU must be first class chaps in combat, because they operate on their own and on them, and them alone, may depend the safety of many hundreds of thousands of tons of merchant shipping and cargo, which form the life-line of this country. They must be reliable and keen, have tact and initiative, and be able to engage the enemy after long periods of inactivity.'*

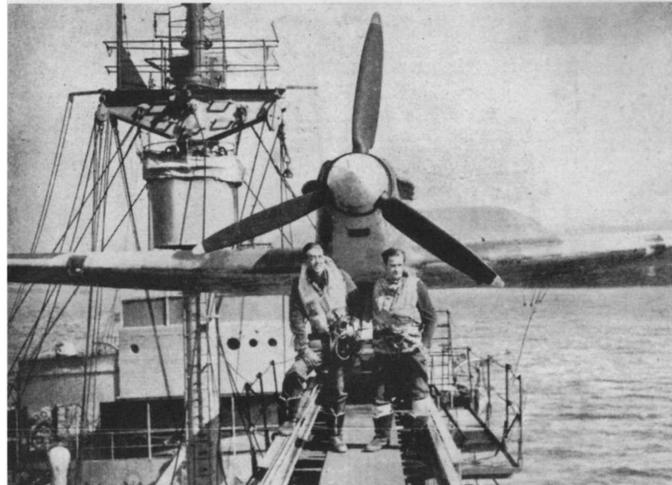
*"I'm very glad that I failed to realize then the enormity of this responsibility! Added was: 'They must also be good sailors.' I was never happy in a large, heaving vessel!*

*"The RAF pilots and Royal Naval Fighter Direction Officers with whom we sailed and who were our operational controllers made up a truly vibrant and, at times, an eccentric unit.*

*"Strangely, the full nature of a defensive launch, especially on the Arctic route, never dawned on me. Our training included three launches from a ground catapult, air to air firing, dinghy drills in a local swimming pool, and range tests on our allotted aircraft. I found that I could get 400 miles out of mine, which was necessary to know when considering a possible destination airfield, and thus avoiding the need for ditching at sea or off-loading by use of a dockside crane.*

*"Looking back in my log, I note that my ground catapult launch speeds were only around 58 mph, but enough to allow a safe climb away. In later trials, I reached 70 mph. In one second! We hoped, of course, that our ship's speed would assist our launch.*

*"I was extremely fortunate in that I only completed one round trip to Canada - and that I was not called upon to launch other than on return to the UK to save unloading time in port. The main discomfort was boredom. Thankfully, our ship's crew was great company, although we found our Captain a bit dour in running a dry ship even when out of attack range.*



*"We filled in time playing darts, card games, whittling model aircraft, eating remarkably good food and talking by signal lamp with the other CAM ship pilot. Our two ships kept a bit ahead of the outer columns so that we could quickly turn into wind for launching, and so had direct line of sight between us.*

*"I cannot understand how we have let the Morse Code fade out of our lives. It can be life-saving. An example: while helping out by standing watch on the ship's bridge, I believed that I saw a mine ahead of the escort cruiser. I flashed a warning and the ship swerved out of line, coming back with 'TU', or Thank You!*

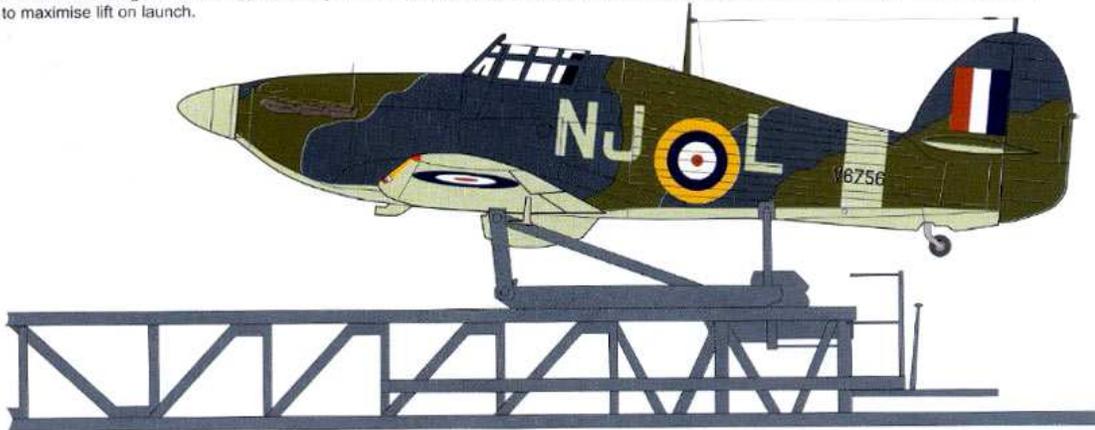
*"As to food, the gourmet dish was a sandwich of the two ends of a freshly baked bread loaf, smothered in butter, eaten on duty on the bridge. In Canada, we were hugely well received, despite the over-enthusiastic behavior of some of our predecessors. The local Council in Dartmouth, Nova Scotia, allowed us alcohol in the Club at a very favorable rate. But the greatest thrill was nights without the blackout that we had been subjected to for two years.*

*"Nothing to do with Sea Hurricanes, but the nicest gesture was from a member of Eaton's store, who took me out BBQing on the beach - etc. Only as I left did I find out that she was using her boyfriend's car! But I was able to thank him at a final get-together supper with their whole family.*

*"Soon after, I was very grateful for a posting back to my old squadron, shortly before I was due to sail on the fateful PQ-17 convoy to Russia."*

**Historical Note:** Convoy PQ-17 consisted of 35 merchant ships...including the CAM Ship *Empire Tide*...and a large number of Royal Navy escorts. Formed up in Iceland, Convoy PQ-17 headed for one of the northernmost Russian ports on the Arctic Ocean in mid-1942.

Sea Hurricane Mk I, V6756, NJ·L of the Merchant Ship Fighter Unit, aboard Catapult Aircraft Merchant (CAM) Ship *Empire Tide*, late 1941. Extra Dark Sea Grey and Dark Slate Grey upper surfaces, in the A Scheme pattern, with Sky undersurfaces. 49 inch Red/Blue upperwing roundels; 35 inch Red/White/Blue/Yellow fuselage roundels, and approximately 50 inch Red/White/Blue underwing roundels. 24 inch x 27 inch fin flash. Sky spinner and rear fuselage tail band. Approximately 24 inch high Sky codes. The aircraft were loaded into the cradle at an angle of 5.25 degrees in order to maximise lift on launch.



When threatened by several German surface units, the convoy's escorts raced off to face the attackers as the civilian ships scattered. Left unprotected, 24 of the 35 of the merchant ships were subsequently sunk by an overwhelming number of German aircraft or U-boats that took advantage of the resulting situation. The freezing waters of the Arctic claimed the vast majority of the sunken merchant ships' unfortunate crews.

Knowing it was fruitless to launch a single aircraft against such a force, the master of the *Empire Tide* nevertheless skillfully saved his ship and its crew by taking innovative evasive measures that included hiding amongst ice floes. She was one of the lucky eleven that made it safely to port.

A year later the CAM Ship *Empire Tide* extracted a small measure of revenge when her aircraft was catapulted in defense of another convoy and shot down a German patrol plane. It was one of the last catapulted-assisted launches from a merchant ship during World War II.

The British aviator who accomplished that rare feat was plucked from the ocean wet, but otherwise unharmed.

*Bill Lee*

June 2015