HMS ARK ROYAL, a 22,000-tonner, had large hangars on two decks, three elevators. She boasted the largest wardroom in the Royal Navy. In war, her fighters downed or damaged more than 100 enemy aircraft, her bombers wrecked Sardinian airfields, hit Italian Navy.

Evolution of Aircraft Carriers

THE WARTIME EUROPEAN CARRIERS

"Experience with regard to the suitability of the present type of aircraft carrier must still be evaluated. Examination of enemy naval strategy in ocean warfare leads, however, to the clear recognition of the fact that aircraft carriers or cruisers with flight decks for use in warfare in the Atlantic definitely cannot be dispensed with."—Grossadmiral Erich Raeder, Commander in Chief Kriegsmarine, during a mid-1940 conference with the Fuehrer on matters dealing with the German Navy during World War II, four European nations designed, constructed and/or operated aircraft carriers, or attempted conversions of other type ships to carrier characteristics: Great Britain, France, Germany, and Italy. Great Britain met with extraordinary success, especially in the design of carriers. Among the advances made were the prototype of the WW II-produced CVE (structurally, USS Langley qualifies as the first unintended CVE) and experiments that eventually led to the perfection of the "steam slingshot" catapult. Her experiments have a continuing effect on the design of modern carriers. France operated a converted battleship, the Béarne, and was building two carriers, J offre and Painlèве, when war started. These two carriers were never completed and France fell to the Axis too early in the war for her Navy to make any advancements in carrier aviation. At the same time, Germany's efforts were fitful, frustrated and fated to failure. And Italy, tardily entering carrier-conversion efforts, found the war ended with her ships unfinished.

A starting point in the catalogue of incredible events that launched the nations of the world into global war was the assumption as Chancellor of Germany by Adolph Hitler on January 30, 1933. In the following October he withdrew his country from the disarmament conference and from the League of Nations. Nearly five years later, Germany invade and annexed Austria. Next on his list was Czechoslovakia in September 1938 which, by skilled " brinkmanship" on the part of the Fuehrer, ended in the Munich agreement. Overconfident now, Hitler zeroed in on Poland. This was too much for both England and France and, on September 3, 1939, they declared war on Germany, and World War II began.

By Scot MacDonald

When war began, Britain had six aircraft carriers in commission and six more under construction. Of those operating, the 22,000-ton Ark Royal (most recent addition to the Fleet, 1938) and the converted large light cruiser Courageous operated with the Home Fleet. The Furious, stationed at the Firth of Forth, was used for carrier deck training (but immediately took up convoy duty in the North Atlantic). Glorious, sistership to Courageous, was assigned to the Mediterranean, while the Eagle, laid down as the dreadnought battleship Almirante Cochrane for Chile in 1913, converted and commissioned an aircraft carrier in 1924, covered the China Station. Hermes, the first ship in the world designed from the keel up as an aircraft carrier, also completed in 1924 (the Japanese Hosho was completed December 1922), was conducting anti-submarine warfare in home waters.

In addition to the tactical carriers,
Britain had one other carrier of lesser, but still significant, capabilities: the Argus, worked on between 1916 and 1918 from the Italian liner Conte Rosso, was employed on convoy escort duty.

As the political climate changed in Europe and war clouds gathered, Britain made a substantial effort to reinforce her modest and generally venerable carrier fleet. She ordered six new carriers. When the storm broke, these six were in various stages of construction: Formidable, Illustrious, Implacable, Indefatigable, Indomitable, and Victorious. In addition, the 14,500-ton aircraft depot ship, Unicorn, under construction in 1939, was to be completed as a CVE.

The first years of World War II were expensive ones for Britain's small carrier fleet. Courageous was the first carrier casualty of the war. Tracking down a reported U-boat on September 17, 1939, she turned to receive her returning planes when the U-29 submarine plowed torpedoes into her. The carrier sank with more than half her crew still aboard.

Loss of the Glorious was particularly heartbreaking. In June 1940, she participated in the British withdrawal from Norway. Land-based RAF Gladiators and Hurricanes were embarked at Narvik. This was a particularly hairy operation, for none of the planes was configured for carrier landing and the Air Force pilots were not acclimated; all landed safely. Presumed low on fuel, she was ordered to proceed home independently. En route, the carrier was spotted by the German battleships Gneisenau and Scharnhorst on June 8, and attacked. "Chocked" with RAF aircraft, she was in no condition to launch defending planes. Pounded mercilessly by enemy guns, the ship developed a list and within an hour went down.

These losses were balanced in 1940 by the introduction of the Illustrious (first of her class) and Formidable. They displaced 23,000 tons each, had a length of 753 feet and a beam of 95 feet. They were soon joined by Victorious, of the same class, and Indomitable, a carrier in a class by herself. The latter had two hangar decks.

An early contribution to carrier operations by Illustrious came when she had installed a search radar system for the tracking of enemy aircraft. She was also the first carrier to have a fighter-direction officer aboard. With this effective teaming of men and electronics, Illustrious- based planes claimed 75 enemy aircraft in a little over six months of operation.

HMS Eagle was the first aircraft carrier to launch planes against enemy surface warships in WW II. On July 9, 1940, carrier-based Swordfish torpedo bombers attacked the Italian fleet in the Med. Defective torpedoes permitted only limited success: only one of the Italian destroyers was sunk.

The first successful wartime carrier strike in history occurred on the night of November 11, 1940 when two striking forces from the carrier Illustrious attacked the important Italian Naval base at Taranto. Winston Churchill said of this successful raid:

"By this single stroke the balance of naval power in the Mediterranean was decisively altered. The air photographs showed that three battleships, one of them a new Littorio, had been torpedeed, and in addition one cruiser was reported hit and much damage inflicted on the dockyard. Half the Italian Fleet was disabled for at least six months, and the Fleet Air Arm could rejoice at having seized by their gallant exploit one of the rare opportunities presented to them."

The defeats at Taranto and Cape Matapan (March 30, 1941) finally gave the Italian admirals, who had been pleading for an aircraft carrier since 1925, an effective argument in their dealings with the Italian Air Force which controlled military aircraft. Several plans were actually drawn up but the progress of war did not permit the laying down of keels. Material and manpower shortages forced the Italians to abandon the idea of building carriers from the keel up; instead, they attempted to convert merchant liners.

Early in the war, September 1939, Dr. Joseph Goebbels' Ministry of Propaganda jubilantly reported the sinking of Ark Royal by a German bomber. This widely publicized error caused the Third Reich considerable embarrassment, for the carrier escaped undamaged and operated effectively until November 11, 1941, when she finally fell victim to U-boat torpedoes.
A month later, HMS Audacity met a similar fate. This ship, converted from the German prize Hannover, became Britain’s first escort carrier upon her completion in June 1941. She was sunk during a battle between U-boats and a Gibraltar-U.K. convoy. Her planes and surface escort destroyed five enemy subs and the decision was made to press for the building of more escort carriers.

Of the losses sustained by the British, Hermes was the only aircraft carrier sunk by the Japanese. Fleeing from Trincomalee just ahead of the expected Japanese carrier strike, on April 8, 1942, she was spotted by enemy carrier-based planes. Hermes, hit by some 40 bombs, sank in 20 minutes.

Five carriers of the Majestic class and seven of the Colossus were laid down, but only the first five of the Colossus were completed before V-J day; each displaced 14,000 tons. Four of eight of the new 18,300-ton Hermes were produced. They were appreciably longer and faster than the Colossus class, comparable to the U.S. Navy’s first carrier named Enterprise. The remaining Hermes class was canceled.

Two of the four ships of the new 33,000-ton Ark Royal class were laid down but none was completed until well after the end of hostilities.

In addition, the British planned three 45,000-ton Gibraltar class carriers (others: New Zealand and Malta), but the project was canceled at the end of the war. These were to be the British equivalent of the U.S. Midway class.

During the war, the U.K. operated five light fleet aircraft carriers (the Colossus class, in 1945), six fleet carriers of various tonnages, and three escort carriers—all built in British yards—in addition to the ten carriers sunk and the CVE’s lend-leased from the U.S. Her carrier-based planes played a vital role in defeating the U-boat offensive. In the Pacific, Adm. Sir Bruce Fraser, RN, commanded the newly established British Pacific Fleet. The 1st Carrier Squadron, comprising the Indomitable, Victorious, Illustrious and Indefatigable, was a unit of this fleet. Both Indomitable and Victorious had seen prior action in the Pacific. Formidable joined the squadron later. The British group acted as a flying buffer between U.S. amphibious forces and enemy airfields at Sakishima Gunto during the invasion of Okinawa.

Other European powers with carrier aspirations were less successful. France started the war with one converted carrier. The efforts of both Germany and Italy to become carrier powers were foredoomed to failure.

The French carrier Béarn was laid down in January 1914 as a battleship of the Normandie class. She was finally launched as a battleship in 1920, but three years later entered the yards for conversion to a Bâtiment PorteAvions and was completed in May 1927.

Béarn displaced 25,000 tons, fully loaded, had an over-all length of 599 feet. She had a complement of 875 and carried 36 to 42 aircraft, including torpedo, reconnaissance and fighter planes. She was held in semi-internment at Martinique from the fall of France in 1940 until 1943. In early 1944 she was taken to the U.S. for rework and emerged as a transport d’aviation, operated by the French.

In 1935, Adolph Hitler announced that his country would construct aircraft carriers to strengthen the Kriegsmarine, the German Navy. The keels of two were laid down in 1936. Two years later, Grand Admiral Raeder presented an ambitious shipbuilding program called the Z Plan, in which four carriers were to be built by 1945. In 1939, he revised the plan, reducing the number to be built to two.
The German Navy has always maintained a policy of not assigning a name to a ship until she is launched. The first German carrier, laid down as Carrier “A”, was named Graf Zeppelin when launched in 1939. The second carrier bore only the title Carrier “B”, since she was never launched. Various names, including Peter Strasser and Deutschland, were rumored, but no official decision was ever made.

A review of the Fuehler’s conferences on matters dealing with the German Navy, the minutes of which were captured after the fall of the Third Reich, reveals Hitler’s vacillating interest in the carriers. Marshall Hermann Goering, Commander in Chief of the Luftwaffe, was resentful of any incursion on his authority as head of the country’s air power and he frustrated Raeder at every opportunity. Within his own service, Raeder found opposition in Adm. Karl Doenitz, a submarine man.

By May 1941, the strain on manpower and raw materials was being felt in Germany. Raeder was still optimistic, however, and informed Hitler that the Graf Zeppelin, then about 85 per cent complete, would be completed in about a year and that another year would be required for sea trials and flight training.

Though Hitler continued to assure Raeder that the carriers would be built, the Admirals’ war with Goering had no truce and became increasingly bitter. Goering showed his contempt for the naval air arm by informing Hitler and Raeder that the aircraft ordered for the Graf Zeppelin could not be available until the end of 1944. Goering’s tactic was a delaying one—and it worked.

Construction on the carriers had been fitful from the start. Carrier “B” was abandoned in 1940 and broken up. Manpower and material shortages plagued the Graf Zeppelin.

Prodded by Raeder, Hitler ordered Goering to produce aircraft for the carrier and under this pressure, the air marshall offered redesigned versions of the JU 87B and the ME 109E-3 which were at that time being phased out of the Luftwaffe first line squadrons. Raeder was unhappy, but he had to accept them or none at all. This forced another delay in the construction of the carrier: the flight deck installations had to be changed.

By 1943, Hitler had become disenchanted with his Navy. Raeder was relieved at his own request and Doenitz, the submarine admiral, took the top naval post. This effectively ended the Graf Zeppelin and work on her stopped.

Had the carrier been completed, she would have displaced 23,000 tons, had a length of 920 feet and a beam of 88 feet. Powered by geared turbines, she was to have a speed of 33.8 knots. Her aircraft complement was to have been 42, consisting of ME 109 fighters and JU 88C dive bombers (new designations for the redesigned aircraft). She was to have four screws—unusual for the triple-screw-minded Germany.

The fate of the Graf Zeppelin was as stormy as her conception and berth pangs. Scuttled by the Germans, she was raised from the back-water channel near Steffin, by the Soviets in 1946-47. Loaded down with loot, she was towed into the Baltic in 1947, headed for Leningrad. East of Rügen, the ship sank.

With Germany’s abandonment of aircraft carriers came Italy’s growing interest in them. The liner Roma was earmarked for conversion and many parts of the Graf Zeppelin were transported to Italy for use in the conversion. Of particular interest, according to eminent naval historian S. A. Smiley, were the new engines in the ship. Four independent sets of geared turbines from the light cruisers Cornedio Silla and Paolo Emilio were installed, giving her a designed speed of 30-31 knots. This, says Smiley, was “a unique marine-engineering pearl.” The ship’s name was changed to Aquila and was nearly ready for trials when Italy surrendered. Aquila was sabotaged to prevent the Germans from operating her. She was repaired later, but was damaged in two air raids, one in 1944 and the other in 1945. Finally, in 1949, she was towed to La Spezia and scrapped.

Another Italian effort to produce an aircraft carrier by conversion was made when the liner Augustus, a running-mate to the Roma, was put in hand for conversion in March 1944. She was first named Falco and then Sparviero, but was never completed. Her half-finished hull was bombed and sunk at Trieste at the close of the war.

A condition of the peace treaty signed in 1947 after a five-week meeting of the Big Four Foreign Ministers in New York specified that no battleship, aircraft carrier, submarine or specialized assault craft could be constructed, acquired, employed or experimented with by Italy, blocking her efforts to be an aircraft carrier nation.

Bearn was the only carrier France had completed before the start of WW II. Converted to aircraft carrier characteristics between 1923 and 1927, she had a speed of 21.5 knots, or a radius of 6000 miles at 10 knots. She spent most of the war years at Martinique.