## SKIMMING THE WAVES An LRA-1 undergoes a test glide in 1943. The LRQ-1 (below) featured retractable tricycle landing gear.

## FLYING-BOAT GLIDERS

A PROPOSAL TO USE AMPHIBIOUS ASSAULT GLIDERS DURING THE PACIFIC ISLAND-HOPPING CAMPAIGN FAILED TO TAKE OFF

## BY ROBERT GUTTMAN

ne of the most influential leaders of American naval aviation, Mark Andrew Mitscher did much to establish the carrier task group as the dominant combat element in the U.S. Navy's line of battle. He also served as a successful fleet commander in the Pacific during World War II. But not all his contributions to naval aviation were successful. His proposal to use amphibious assault gliders to land Marines on hostile beachheads was one that fortunately never gained traction.



The concept of inserting assault troops via gliders became popular after the Germans succeeded with that tactic during their 1940 invasion of Belgium. As a result, many of the world's military arms considered adopting assault gliders. A handful of spectacular successes followed, as well as some costly failures. But even the victories, such as Germany's airborne invasion of Crete and the Allied landings in Normandy, involved high casualty rates. Without complete air superiority

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or the element of surprise, gliders were extremely vulnerable. Their freedom of maneuver was limited by the fact that they could ultimately go in only one direction down. Despite that, gliders remained an integral part of Allied airborne operations as late as March 1945.

In April 1941, Admiral Mitscher took the concept one step further, proposing that the Navy use amphibious flying-boat gliders to land an entire Marine brigade of 715 men and their equipment on a hostile beachhead. The gliders, capable of taking off from and landing on either land or water, would preferably be towed by the Consolidated PBY-5A, the amphibian version of the Catalina flying boat. The Naval Bureau of Aeronautics was to design two prospective assault gliders, a conventional single-hull type accommodating 12 passengers and a larger version, with twin hulls, to carry 24. Only the former was ever actually built. Production contracts for 100 aircraft were assigned to two different companies. If the concept panned out, orders were anticipated for up to 12,000 more. All aircraft of the assault

glider type received the "LR" designation from the Navy, with the version built by Allied Aviation Corporation of Maryland known as the LRA-1. The other contract went to the Aeromold Corporation, which before its prototypes were completed became the Greenport Aeronautical Corporation and then the Bristol Aeronautical Corporation of New Haven, Conn. (no relation to the Bristol Aeroplane Company of Britain). Bristol Aeronautical's glider was designated the LRQ-1.

Based on the same design, the two gliders looked much alike and had similar characteristics. Both were designed to carry two pilots, seated side by side in the nose, and 10 troops. Both were 40 feet long, with a wingspan of 72 feet. In an effort to conserve strategic materials, they were constructed largely from molded plastic-impregnated plywood. One unusual feature was a single elevator mounted behind the fuselage rather than a conventional split elevator.

Unlike most assault gliders of the period, however, the Navy gliders' fuselages had a flying boat's planing bottom. They also differed from most assault gliders in their low-wing configuration. The gliders did not have the wingtip stabilizing floats found on most flying boats; the wings themselves were intended to help stabilize and support the aircraft on the water.

One aspect where the two amphibious gliders differed was their landing gear. The Allied LRA-1 was equipped with jettisonable wheels and stabilizing skids under its wings for takeoffs from land. The Bristol LRQ-1 included a more elaborate-and probably also heavier and more expensive-retractable tricycle landing gear. In addition, the Bristol glider mounted a small outboard motor to enable it to make it to the beach if it came down

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short of its objective.

The Bristol XLRQ-1 made its first flight on January 3, 1943, while the Allied XLRA-1 flew on March 24. By that time, however, it had become increasingly apparent that inserting Marines on beachheads in amphibious gliders was impractical. The production contracts calling for 100 Allied and 100 Bristol gliders were canceled. The Marine glider unit continued to train for a time with a few of the Army Air Forces' standard Waco CG-4 gliders, on the off chance the LRs might still prove useful, but the Navy's amphibious flyingboat glider program was terminated after only two of each type were built.

The Navy declared both types "successful," although it never specified the criteria on which that was based perhaps simply because they managed to take off and land without crashing. But by then the gliders were deemed neither viable nor necessary in the Pacific island-hopping campaign. The amphibious assault glider project was officially canceled on September 27, 1943, though testing con**RELATIVES** The LRQ-1 had much in common with the LRA-1—including the fact that both were canceled.

tinued until early December, presumably in connection with a Navy program involving the development of a glider bomb.

Meanwhile, early in 1942 the Marines had established a glider training unit at Parris Island, S.C. Marine Glider Group 71 trained with Schweitzer LNS-1s and Pratt-Read LNE-1s, commercial sailplanes that were adapted for use as military trainers. About 15 of the Army Air Forces' CG-4A assault gliders were also transferred to the Navy for evaluation and training purposes. Redesignated as LRW-1s by the Navy, the Wacos do not seem to have been used operationally.

Aside from a few notable successes, WWII made it clear that assault gliders were not practical in general, and that amphibious assault gliders were an even worse idea. The helicopter would soon fill the role envisioned for those aircraft.  $\pm$