They Flew into Battle on Silent Wings

World War II Glider Pilots of the US Army Air Force

By: Major Leon B. Spencer, USAFR (Ret'd), former WWII Glider Pilot

Few Americans, including a majority of those who served in the armed forces, were aware that the United States employed combat gliders during World War II. In fact, military gliders were used in virtually every major campaign starting with Operation Husky (Sicily: 9 July 1943), Operation Thursday (Burma: March 1944), Operation Overlord (Normandy: 6 June 1944), Operation Dragoon (Southern France: 15 August 1944), Operation Market-Garden (Holland: 17-25 September 1944), Operation Repulse (Bastogne: December 1944-January 1945) and Operation Varsity (Rhine River Crossing: 24 March 1945). The combat glider, America's first stealth aircraft, was one of the best kept secrets of WWII. Press releases were few and far between and because their deployment was classified almost nothing was written about military glider operations until long after the war ended. The mission of the combat glider was to land airborne infantrymen and/or hardware behind enemy lines, often in darkness, and usually in support of paratroop landings.

In March 1941, General Henry H. "Hap" Arnold, chief of the US Army Air Corps, ordered engineers at Wright Field in Dayton, Ohio, to draw up specifications for a glider capable of transporting personnel and material to places where powered aircraft could not land. From the very beginning the role of a combat glider was so new to the Army Air Corps that it had to cope with inexperience, improper design, pilot training problems and poor coordination with other task forces. Before September 1942, AAF records listed no glider pilots, and there were only 160 licensed civilian glider pilots in the United States. Of the 160, only 25 were sufficiently experienced to be instructors. The glider program was a bold experiment for the Air Corps, but one that would succeed beyond all expectations, despite the obstacles it had to overcome.

Russia was the first country to foresee a practical use for gliders as a combat vehicle, followed by Germany, Great Britain and subsequently the United States, who demurred until early 1941. Russia used its gliders primarily for resupplying their troops during the German incursion into Russia. The Germans were the first to use gliders in a stealth role when, on 10 May 1940, it landed nine DFS-230 gliders, carrying seventy-eight glider infantrymen, atop the grass-covered roof of the allegedly impregnable Belgian fortress, Fort Eban Emael. In twenty minutes they had sealed the fort and in twenty-four hours forced the surrender of its nearly 800 occupants. This opened the attack route for the German army into Northern France. Impressed by this stunning success Great Britain and the United States began to develop a glider combat force of their own.

Of the four companies who responded to the solicitation distributed by Wright Field, Ohio, to design and build a glider to Army Air Corps (AAC) specifications only the Waco Aircraft Company of Troy, Ohio, designed and built test models that met specifications. Waco would subsequently design and build the 9-place Waco CG-3, followed closely by the 15-place CG-4A that would become the workhorse during World War II. Only 100 CG-3As were built and were used only for training purposes. Later, in 1943 and 1944, Waco developed the 30 place CG-13 and subsequently the 42-place CG-13A. Only the CG-4A and CG-13A were utilized in combat and the latter for only one mission in the Philippines. Before hostilities ended in Europe in May 1945, 13906 Waco designed CG-4As were built under contract by sixteen companies at an average cost of $25,630 each. Unknown to most glider pilots, several of the sub-contractors building wooden parts for the CG-4A had previously built coffins.

The CG-4A, with its almost 84 foot wing span, and 48 plus foot length, was constructed largely of wood, steel tubing and fabric, and could carry more than its empty weight in personnel and/or cargo. The wood was mainly spruce or yellow poplar of carefully selected stock. The majority of the tubular steel in the fuselage structure was SAE 1020 or 1025 carbon steel. The CG-4A contained 70,000 individual parts, 44,000 of them small metal parts. The 6 foot 2 inch by 12 foot honeycomb cabin floor contained over 5.000 interlocked wooden pieces for added strength. After its introduction in 1942 over 7,000 modifications were approved, none of them major. To facilitate loading and unloading, the glider nose could be raised.

The first CG-4A was delivered in June 1942, but substantial deliveries did not occur until September of that year. The big motorless leviathan could carry various loads; thirteen fully-equipped infantrymen; a jeep; a jeep trailer loaded with supplies; 37 mm and 75 mm field guns; a small bulldozer; medical supplies; ammunition; or 5-gallon Jerry cans of gasoline. It was customarily towed behind a Douglas C-47 transport on a 350 foot nylon towrope, 11/16th of an inch in diameter, at 120 to 150 mph, and could land in unusually small fields and pastures. The Army's demand for nylon for parachutes and tow ropes was so great during WWII that it created an acute shortage of nylon for ladies' hose. According to E. I. DuPont, Inc., one 350' tow rope contained enough nylon to make between 1,877[1] and 2,021 pairs of ladies nylon hose depending on the manufacturer. However, an article in the August 1944 issue in The National Geographic Magazine[2] asserted that a 350 foot towline contained enough nylon to make 1,620 pairs of ladies stockings (or hose). In either case, the ladies had to resort to leg makeup as a substitute.

Concurrent with the development of the combat glider, the Army Air Corps began a recruiting campaign for glider pilot candidates. Initially, 1,000 volunteer candidates were sought, but this was quickly expanded to 4,200 and ultimately to 6,000 plus. Originally, glider pilot candidates had to be between 18 and 35 years of age, had to pass a Class I or II flying physical examination much more stringent than a regular physical examination, had to have 20/40 vision, correctable to 20/20, and score at least 110 on the Army AGCT Test or 65 on the Aviation Cadet Mental Screening Test, and have some flying experience.

Glider pilot candidates were told up front that a 50% casualty rate was expected in combat, a sobering pronouncement. It was soon learned that not enough volunteers were applying for training, so the AAC began accepting students with no flying experience. Glider students began their training in light powered aircraft, then progressed to light gliders and sailplanes, and subsequently to large cargo gliders. Pre-glider, basic and advanced training was followed by tactical training, first at Bowman Field, Kentucky, and eventually at Laurinburg-Maxton Army Air Base, North Carolina.

Initially glider students were to graduate as staff sergeants, but in November 1942 the AAF announced that glider pilot students would graduate as flight officers, a new wartime rank equivalent to a junior-grade warrant officer. Glider students who had washed out of power pilot training were graduated as second lieutenants. Glider pilots drew hazardous duty pay which amounted to 50% of their base pay. Officer glider students who successfully completed glider training retained their existing rank.

The glider program developed so rapidly in 1942 that there were not enough civilian gliders available to train glider students. In 1941, there was not a single glider in the Army Air Force inventory and no military glider training schools. The AAC began by training a cadre of power pilots as glider instructors. It then contracted with a number of civilian schools to provide pre-glider training for glider students in light powered aircraft. Students with previous flying experience went through a four week training course, while students with no previous flying experience had to endure eight weeks of concentrated ground and flight training. The light planes selected for pre-glider training had flight characteristics similar to those of a glider with the engine not running. Students were taught to land these aircraft, L-2s (built by Tay-

lorcraft), L-3s (built by Aeronca) and L-4s (built by Piper), without power, known as dead stick landings. Student pilots would climb to 1,500 feet, shut off the engine, pull up the nose of the aircraft until the propeller stopped wind-milling and then made a simulated glider landing, stopping as close as possible to a designated spot marked on the ground. These dead stick landings, that simulated glider landings, were practiced day after day at 1,500, 3,000 and 5,000 feet in both daylight and complete darkness. The precision landings required a keen eye and excellent depth perception. Some students couldn't seem to develop the knack. The wash out rate was about 38% in my class of 108 students. Only 67 graduated.

The AAC used a little ingenuity in providing suitable gliders for basic training. Since only about 160 civilian gliders were available for several thousand students the AAC asked the CAA (Civil Aeronautics Authority) and three aircraft companies, Taylorcraft, Piper and Aeronca to develop a light training glider using one of their existing light aircraft airframes. The problem was solved by removing the engine, adding a third seat where the engine had been mounted and shortening the landing gear. It was an ungainly looking glider but they turned out to be very good light training gliders. The AAC procured 253 of these gliders from each of the three companies. Like the pre-glider training schools, the basic glider schools were also civilian contract schools.

There was still a shortage of the large CG-4A gliders when I arrived at South Plains Army Flying School, Lubbock, Texas, in December 1942, but my classmates and I managed to complete our training in February 1943, doing most of our flying at Dalhart, Texas, where the wind blew constantly and dust storms were not uncommon. Following graduation from advanced training most glider pilots went through back-breaking tactical combat training at Bowman Field, Kentucky, and Laurinburg-Maxton, North Carolina, before being assigned to a Troop Carrier Group and sent overseas.

A glider pilot was part airman and part soldier. He was not only trained to fly gliders, but also to fight, albeit briefly, as an infantryman once on the ground. His combat training included 20-mile forced marches, hand-to-hand combat, qualification in most airborne infantry weapons, familiarization with enemy weapons, bayonet training, use of the new C-2 plastic explosive, evasion and infiltration tactics, and much more. Once a glider pilot had landed his glider in combat he joined his infantry passengers and fought alongside them until he could be evacuated, which was sometimes a week or more. Many of them earned medals for heroism in combat. In one instance a group of glider pilots successfully held off a strong German attack at a crossroads in Germany, known as "The Battle of *Burp Gun Corner".* For their heroism, one of the glider pilots was awarded the Silver Star, while the others were awarded the Bronze Star, but not until many years after the war.

Flying gliders in combat was fraught with danger. They usually approached the landing zone at an altitude of 400 to 750 feet, and at the normal tactical airspeed of 70 mph. The low and slow landing approach presented the enemy with a big defenseless target. It was like shooting sitting ducks said a German infantryman. Moreover, glider pilots were asked to land fully loaded gliders in impossibly short fields, some only 300 to 400 feet in length, and sometimes surrounded by hedgerows on which grew Poplar trees that stood 40 to 60 feet in height.

The normal landing distance for a CG-4A glider was 600 feet. To make impossible conditions even worse, the inventive Germans had French civilians plant ten to twelve foot wooden poles, six to twelve inches in diameter, throughout fields big enough to accommodate gliders. These poles were frequently topped with mines to do further damage to gliders and its passengers. They were referred to as "Rommel's Asparagus," and cost the lives of many glider pilots and glider troopers.

To understand the magnitude of the glider combat role in World War II one has only to look at the eight combat missions in which gliders were used; (1) Sicily, (2) Burma, (3) Norman-

dy (4) Southern France, (5) Holland, (6) Battle of the Bulge, (7) Wesel (Germany) and (8) Luzon, Philippine Islands.

(1) **Sicily Mission**: 136 American CG-4A (15-place) combat gliders were used for this mission that took place in July 1943. It was a British mission with British glider pilots flying American gliders. Eight (8) British Horsa gliders (30-place) were also used. Prior to mission day, thirty (30) American glider pilots volunteered to fly as copilot on the mission. All of the objectives were taken even thought some of the tow planes and gliders were mistakenly shot down by our own naval vessels. Six (6) American glider pilots were killed and eighteen (18) wounded. This was the first World War II invasion in which American gliders and glider pilots were used. Some valuable lessons were learned from this mission.

(2) **Burma Mission**: 68 CG-4A combat gliders were used during Operation Thursday that took place in March 1944. Most of the gliders were grossly overloaded and only thirty-one (31) made it from India to the landing zone (LZ) (Broadway) in Burma. Because of the excessive weight some of the gliders broke loose from their tow planes and never reached their destination. Eleven (11) glider pilots were killed and eighteen (18) wounded. Despite the high casualty rate the mission was a success.

(3) **Normandy Mission**: 517 CG-4A combat gliders participated in Operation Neptune that took place on D-Day, 6 June 1944. Because the gliders were forced to land in small fields, some less than 400 feet in length, many of them crashed on landing, but few of the occupants were injured and only a minimal amount of the cargo was damaged. A fully loaded CG-4A normally required approximately 600 feet of landing space. Nevertheless, the mission was a complete success. Forty-four (44) glider pilots were killed and more than a score were injured, many seriously. The movie, "The Longest Day," featured only British gliders, but actually more American CG-4A gliders were used than the British Horsa and Hamilcar (tank carrier) gliders.

(4) **Southern France Mission**: 407 CG-4A combat gliders were used on this mission that took place in August 1944. American forces quickly overcame the enemy making the mission a total success. Twenty-three (23) glider pilots were killed and sixty-three (63) wounded.

(5) **Holland**: More combat gliders were used on this mission than any other during World War II. 1,900 CG-4A combat gliders were used in this multi-day operation beginning on 17 September 1944. 1,618 of the gliders landed safely in the designated landing zones in Holland. Some were released over Germany by mistake and the occupants were never heard from again. Forty (40) glider pilots were killed, thirty-seven (37) wounded, and sixty-five (65) were Missing-In-Action (MIA). The overall mission failed, but the Americans objectives were successfully taken. This was the mission that inspired the movie, "A Bridge Too Far."

(6) **Battle of the Bulge**: 61 CG-4A combat gliders were used in this operation. Glider pilots were the first to come to the rescue of the beleaguered 101st Airborne Division, not General Patton and his tanks as history asserts, but they received virtually no notice in the newspapers for these suicide missions. Four (4) glider pilots were killed and eighteen (18) wounded in this German onslaught. American gliders delivered surgical teams to treat the wounded, artillery ammunition and much needed gasoline for the division vehicles while under intense and deadly enemy ground fire. The casualty rate for men and machines was high, but the mission was successfully accomplished.

(7) **Wesel, Germany Mission**: This was the largest one-day use of American gliders in combat during WWII. 906 CG-4A gliders were used on this mission that took place on 24 March 1945. American gliders crossed the Rhine River for the first time and the casualty rate was high. Eighty-Eight (88) glider pilots were killed, two hundred forty (240) were wounded

and thirty-one (31) were Missing-In-Action (MIA). This was the last large scale use of gliders during World War II. Germany surrendered two months later.

(8) **Luzon, Philippine Islands Mission**: This small scale American combat mission was the only one that took place in the Pacific area. Only six (6) CG-4As were used and one (1) CG-13A (42-place glider). The mission was a complete success and there were no casualties. This was the last use of American gliders in combat during World War II.

In addition to combat roles, the military glider was also used to evacuate the wounded from areas inaccessible to powered aircraft. These rescue gliders were snatched out of the fields by C-47s on the fly trailing a hook attached to a steel cable on a winch installed in the tow plane. This was referred to as a "snatch pickup." In seven seconds the glider went from 0 to 120 mph. Over 200 wounded soldiers were evacuated from Burma by gliders that were snatched from the jungle by Douglas C-47 Skytrains.

When glider pilots were asked what the "G" in his wings stood for the usual response was "Guts." They were probably the most unrecognized group of warriors that fought in the war. The following quote was taken from the History of the 101st Airborne Division. "*Glider pilots were the most uninhibited individualists in the Army. There seemed to be something about flying a* glider, *or having been selected for that job, that freed a man from the ordinary restraints of Army life. Those who wanted to fight in combat, fought like lions. Those who wanted to return to their home base managed to get there before anyone else. The glider pilots were usually right up front during crucial hours of combat when the need for men is greatest. But they successfully defied all attempts at organization."* Many glider pilots were belatedly recognized by the Air Force for their heroism a few years ago in special ceremonies. Today, less than 1,400 of the 6,600 plus former WWII glider pilots survive.

Note 1: Some information taken from a letter from E. I. DuPont, Inc. in Wilmington, Delaware, to former World War II AAF glider pilot W. D. Knickerbocker, dated 6 March 1963, in response to the latter's inquiry, and from an article in the August 1944 issue if National Geographic Magazine (Volume LXXXVI No. 2) "Gliders - Silent Weapons of the Sky, by William H. Nicholas.