mately changed to the 112th Liaison Sq, 3rd AF.

I finally received my final flight training and was sent overseas, arriving in Liverpool on June 6, 1944 - D-Day. I flew missions to most cities and villages - Omaha Beach, St Lo, Chartes, Mayenne, Vire, Avrance, Leval, Rennes to name a few and then on to Paris, Verdon, Reims and then to Belgium and Holland.

I had to return to the US in late 1944. The Red Cross notified me that my parents were not expected to live and I had to get home. I was at Camp Beale, Marysville, California, about 45 miles from my home in Sacramento when VJ Day came. I was at McClellan AAE in Sacramento when I was honorably discharged in 1945."

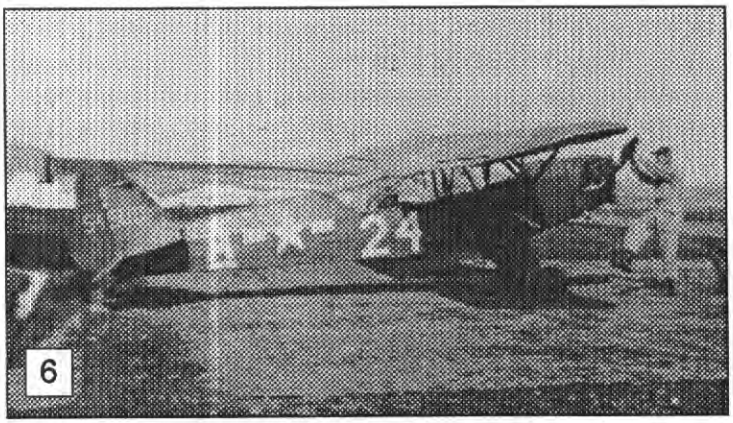
1 – Lt. Dave Condon and his L-5 at Utah Beach on D-Day plus one *–Bill Stratton*

2 – General Eisenhower confers with General Omar Bradley behind Normandy Beach, 1944. Note Eisenhower's L-5 in the background *–E. Creager conference*

3 – Lt. Don Carroll and Lt. Colozzi and L-4 in Germany, 1945 *–H. Watson*

4 – Lt. Frank Malinek and his L-5 "The Little Fox" in Germany, 1945 *–F. Malinek*

5 – Lt. Vance Hester and his 4th Armored Division Stinson L-1 near Remagen Bridge Germany, 1945 *–V. Hester*



6 – General George Patton's L-4 "Lucky Forward" Germany, 1945 *–Ft. Rucker Museum*
7 – L-4s landing on Champs Lysee Blvd in Paris, 1945 *–Jean-Luc Beghin*

8 – Lt. Bruce Stansbury and his L-4 "The Light" in Germany, 1945 *–B. Stansbury*
9 – Lt. Harold Baker's 72nd Liaison Squadron L-5 "Shack Rabbit" in Germany, 1945 *–H. Baker*

— Chapter 9

Keep 'Em Flying

Simplicity was one of the selling points for the small civilian-tumed-war planes. They still would not have been successful in the war zone had it not been for the untiring efforts of the pilots who loved to fly them and the ground mechanics willing to work under the shade of a tree or even out in the open. Often their work was done on an engine while is was still almost too hot to touch.

Many problems encountered by the artillery pilots had to be solved by improvising, and they learned their lesson from experience.

Some pilots in Europe experimented with lashing bazooka to the wing struts and were credited with destroying German tanks.

Pilots and mechanics did much of the maintenance in the field near the front line, and occasionally behind the enemy's lines. They handled their airplanes just as cavalry troopers had groomed and cared for their horses. Automotive gasoline was a common substitute for aviation gasoline, which wa often unavailable. "Scrounging" became standard operational procedure.

Dr. Laurence B. Epstein, Chief
Historical Division, Troop Support and Aviation Materiel
Readiness Command, St. Louis, Mo.

He writes, "An L-4 named 'Lucy' was an example of the expedient nature of repair and maintenance needed to keep the Field Artillery's liaison airplanes flying. Maj. Edward S. Gordon logged more than 100 missions in 'Lucy' by the end of the Sicilian Campaign. By then 'Lucy" was not the same girl she had been when she rolled out the doors of the Piper factory at Lock Haven. Incorporated into her air frame was a landing gear made form parts of a German Me-109 fighter and a French bomber. Her instrument panel came from three different American fighter planes, a Lockheed P-38 Lightning, a Bell P-39 Airacobra and a Curtiss P-40 Warhawk, as well as an armored halftrack. In addition, her glass cockpit housing came from a P-40, some of her tubing from a French fighter plane and her tail assembly was bench built from a wrecked jeep. The myth that light aircraft could not survive over the battlefield was dispelled."

Col. Sid Hess of Waco, who was with the 25th Liaison Squadron at Clark Field in the Philippines, gives us an insight into some of the problems overcome by the "make do, use what you have" situation: "Fuel and oil were available for our planes (L-5's) but the light-weight grease used in the tail assembly was impossible to secure. We had several planes with damaged tail posts and parts because of lack of proper lubrication.

"One afternoon, I saw one of the line mechanics come from the mess hall with a one-gallon can. Upon inspection, I realized he had a can of oleomargarine. It felt about right to the touch, so we tried it and our problem was solved. We put our planes back in the air and from then on when we needed to grease or pack the tail wheels we simply used margarine from the mess hall."

Don Carrell relates some of the problems with winter in northern France: "Winter came as a sudden burst out of the Arctic and our planes were not equipped for winter conditions. Plane tires often froze to the ground and we had to rock the plane back an forth to break it loose. Worse than that, the oil often got so cold that even in flight the engine wouldn't perform properly. In an effort to warm the oil we blocked out most of the front openings, but that only made the cylinders overheat, so we decided to wrap the oil tank- but with what? In the basement of a bombed out building I saw some asbestos hanging from a broken pipe. We tore the asbestos form the pipe and used it to wrap our oil tanks. It worked and worked well.

"We were also plagued with ice crystals forming in the gasoline and someone in the group remembered that in World War I, all gasoline for airplanes had to be strained through a chamois to take out water and impurities. Word went out that we needed a chamois skin; I don't know where it came from but soon we were straining our gasoline through it and no more ice crystals.

"Another weather related problem was breath freezing on the microphone and causing transmission trouble. Could we put a sock over the mike? No, the sock was too thick; a glove was rejected because it was even thicker than the sock. We had to have clear transmissions if we were to direct fire missions.

"Finally the answer was found in an Army issue prophylactic kit. Someone suggested that the sheath included in the kit might work. And so it did; by slipping it over the microphone, our problem was solved. Our frozen breath could no longer freeze on the mike and we used the rubber sheaths for the rest of the winter.

"In many places, we landed on ground that was frozen solid and it was just like landing on rock, so it was inevitable that we had a lot of broken tail wheel springs. One of the ground crew members remembered seeing some springs on captured German cots. The springs were compared to the ones we were using and the match was perfect. From then on, each L-4 was equipped with a spare pair of springs from German cots. Another example of make-do.

"The difference in a few feet often made take-offs a success or failure. In trying to eke out a few less feet required for take-off we did two things: We dropped both ailerons about one inch which shortened the take-off run from 7 to 9 feet, and secondly we changed props until we could get one that would lift the tail at high r.p.m.'s when the plane was chocked and not moving. The standard prop for the L-4 was 72 inches with a 42-44 pitch. For some reason, there was a world of difference in the props that were sent out to us. We learned very quickly that prop and aileron droop would get us in and out of place that would ordinarily be impossible."

Col. Sid Hess recalls a never-to-be-forgotten event in which a young pilot used his know-how and make-do to save his fiend's life:

"We had men stationed on many small islands of the Philippine group. The L-5 was used to haul food and supplies in and our of the small strips. On one of the remote island were two L-5 pilots and a mechanic, stationed with a small group of men. One of the pilots came down with a bad case of malaria and the only way to get treatment for him was to fly him out. But the weather was bad-very bad. The clouds were thick and you could see only a few hundred feet in either direction.

"As the pilot's condition worsened, his friend knew he must have medical treatment. The L-5 was not equipped for blind or instrument flying, but youth and determination can make the impossible become possible. To provide a sort of turn and bank indicator, he hung his pocket knife on a string from the inner windshield support.

"This young pilot decided to take his sick friend out, weather or no weather.

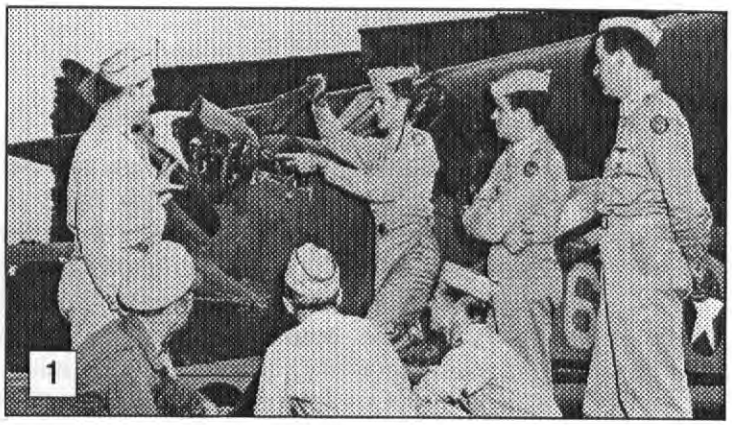
"He loaded a few supplies and his malaria-wracked fellow pilot on the plane, and bidding the ground crew farewell, gunned the engine, released the brakes and disappeared into the murky sky. A couple of hours later he found a small strip near a hospital in Manila. How he was able to dead-reckon his way I'll never know. The sick pilot made it through and was able to return to limited duty.

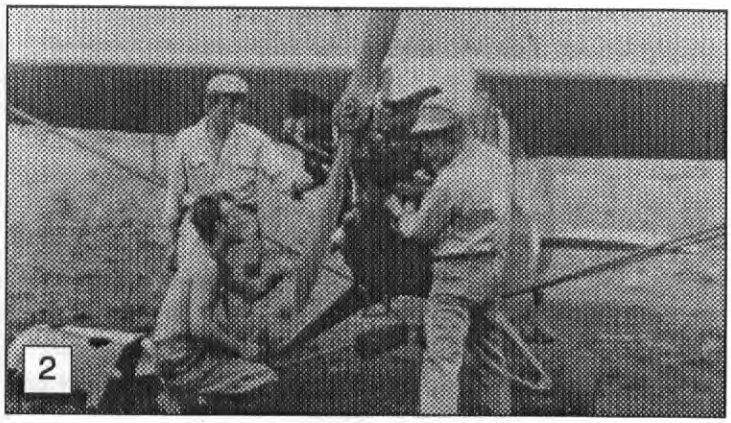
Keep 'Em Flying

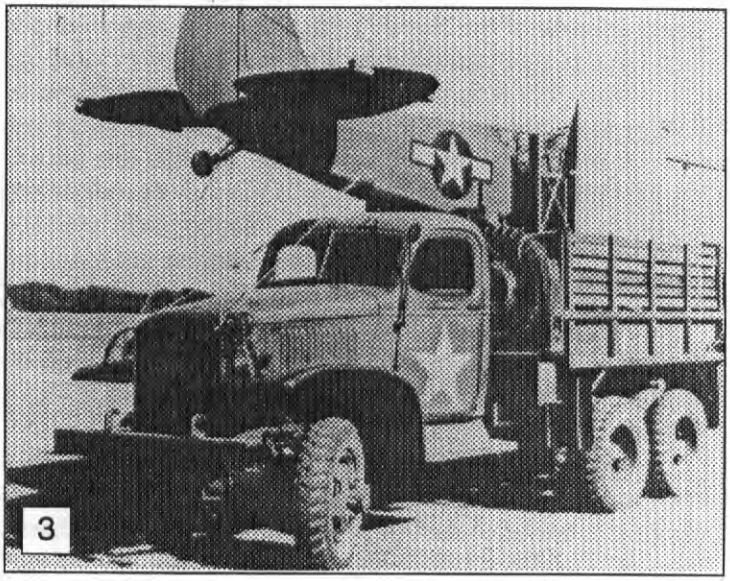
1 – Merritt Bloomquist and mechanics inspecting L-4 engine *–M. Bloomquist*

2 – Marine Capt. Pete Petras maintaining L-4 near battle lines *–P. Petras*

3 – Famous photo of Army 6x6 truck unloading Piper L-4 near front lines *–Ft. Rucker Museum*







— Chapter 10

L-Bird Oddities

The L-planes were flown and operated off any number of unusual places including board runways that were constructed on the tree tops of jungles. These aerial airports were constructed by topping out several trees and stringing taut cables along the shortened trunks, then bolting planks to the cable forming a semi-flat surface for the Grasshoppers to take off from and return to when their missions were completed. Fuel, oil, pilot, passengers and/or supplies had to be hauled to the tops of the trees for these missions. As many as five planes operated from these "treetop internationals" at one time. It must be said, though, that they were limited to one take off or landing every ten minutes to allow the airport to stop shaking so the next plane could utilize the facility without being bounced off, as told by Col. Sid Hess, C.O. of the 25th L.S. to Bill Stratton.

By itself, the liaison plane was just a flying jeep. Besides its more serious duties, it delivered messages and gave joy rides to jaded GIs. However, coupled with the courage and imagination of their pilots and ground crews, there was no limit to what they could and did do.

The idea of using light aircraft close to the front line for other than artillery spotting was met by scorn or, at least, skepticism. The sergeant pilots of the Grasshoppers soon turned that derision to admiration with their accomplishments. Gen. "Vinegar Joe" Stilwell, who greeted the idea of light aircraft in combat with ridicule, changed his opinion when his personal airplane, a C-47, couldn't land at a rain-soaked, muddy strip in Northern Burma to take him to a vital conference with Lord Mountbatten in India. A Liaison squadron was contacted, and one of the little Grasshoppers snaked its way through the mountain passes under the low overcast and skidded to a stop in the soft gumbo slush. After loading the general on board, they splashed through the muck while the pilot fought to free the plane from the suction of the quagmire strip and finally, with the engine screaming, bounced into the air. They arrived at the conference splattered from head to toe with mud, but with time to spare.

Eastern Air Command Headquarters reported that "Yanks herded Japanese soldiers from Flying Jeeps." Liaison planes of the First Aid Commando Group were given the nickname of the "Sheep Herder Squadron" since they began rounding up Japanese troops in recaptured Burma.

Twice, the little unarmed aircraft, used normally to evacuate wounded and carry in much needed medical supplies, herded large parties of Japanese soldiers into the hands of British ground forces.

Staff Sgt. Clause Lacy of Augusta, Georgia, the pilot of the plane and LT. Allen Pfander of Clarinda, Iowa, his observer, were returning from a mission to deliver some medical supplies when they spotted some 50 Japanese soldiers southeast of Pegu, fleeing from a British tank group. While Lt. Pfander fired a carbine, Sgt. Lacy put his plane into a steep dive between the trees and flew so low the Japanese were blown into each other. They were actually driven into the hands of the waiting British tank men.

A few hours later, three other liaison pilots and observers rounded up a whole column of enemy troops. By dropping hand grenades and firing small arms, they were able to force several hundred Japanese into a milling, frightened group. They were able to hold them immobile until Sgt. Lacy was able to overtake the British column and ask them to take over.

Sgt. Lacy found the British but was unable to make them understand what was happening. He tried to drop a note but the message landed in the trees. Flying ahead of the British column. Sgt. Lacy found a small clearing in the trees and landed on the road. Walking back to meet the British officer in charge, he related the story of how three liaison planes were holding several hundred Japanese prisoners at bay. The British officer barked a few orders, Lacy returned to his plane and led the way to the prisoner round-up. With fuel running low, the liaison pilots were glad to see the British arrive and surround the group.

From *Forty Years of Army Aviation* By Richard K. Tierney, Editor, *Aviation Digest*, Pg 21-24

As Army aviators became more proficient, they developed more and more missions in support of the ground forces. Their ability to gather intelligence, coupled with the fact that they could trigger instant and devastating fire power (from artillery), was of great importance, as illustrated by an incident that occurred in March 1943.

After Army aviators had uncovered a major thrust being launched by the German 10th Panzer Division, they were able to direct a withering artillery barrage that helped stop the assault, averting penetration of the Allied lines.

The ingenuity of people associated with Army Aviation was directly responsible for its growth and success. An example was Capt. Devol who had flown from the deck of the USS Ranger. He constructed a flight deck on an LST (Landing Ship Tank), in only 36 hours. The runway was 12 feet wide and 210 feet long, constructed of timbers covered with steel mesh landing strip material. Four Cubs took off from an LST in the Sicilian landings. The operation was successful and the LST "aircraft carrier" was effectively used at Anzio and in Southern France. A similar LST "carrier" was used in the invasion of the Philippines, except the deck was covered the 3/4" plywood. Capt. Devol was awarded the Legion of Merit for his work.

Field expediency was also demonstrated in Italy by Army aviators as related in the story of the Futa Pass "Ski Jump" airstrip. Due to rugged mountain country it was extremely difficult for Fifth Army Commander Gen Lucius K. Truscott to visit units under his command. Traveling by jeep was not practical, so Gen. Truscott made frequent use of the Cub to get about in the Futa Pass area. Gen. Truscots' headquarters was a 30-minute jeep ride (and an oftentimes impassable river) away from the nearest airstrip. Very disturbed over this, Gen. Truscott told his air officer, Capt. Jack Marinelli, to get an airstrip built near the command post-"and the sooner the better." After much consideration and study, the airstrip was built on a mountainside. It was 735 feet long and 30 feet wide. The upper end was 98 feet higher than the other and the whole airstrip had the appearance of a ski jump. The lower part ended abruptly with a sheer 2,000-foot drop off to a valley below.

"The interesting feature," according to Capt. Marinelli, "was that we had to use full throttle to taxi to the top of the strip after landing. If we had a strong head wind we would have to get out and push also. But you could also take off down the strip with no power. Regardless of wind direction, you always landed going up hill."

Many general officers made frequent use of the Cubs, especially Gen. Mark Clark, who on one occasion had his pilot, Capt. Eugene P. Gillespie, land his L-4 on the Boulevard Carregeola in the heart of Naples. Many Neapolitans were astonished, but the General made it in time for an urgent meeting. A short while later, in the assault on Rome, Gen. Clark and another pilot, Lt. Col. Jack Walker, made the famous L-4 landing near Rome inside a school courtyard formed by buildings and an eight-foot brick wall. When it was time to depart, Col. Walker assured the General that he had enough room to take off. "He did," Gen. Clark recalled, "by a margin of three inches."

During the invasion of France in June 1944, most of the Army's liaison planes were dismantled and loaded on trucks that were moved across the English Channel on ships. However, a few were flown across.

Capt. James Gregorie, 4th Infantry Division artillery aviation officer, landed at Utah Beach with the 4th Infantry on D-Day. The next day he found a suitable area for an airstrip and sent a message to Lt. Dave Condon to have the Division's L-4's and L-5's flown from England.

The L-5's carried enough fuel to make the trip, but it was necessary for the L-4's to carry extra fuel in oxygen tanks strapped to the back seats. A fuel line running from the oxygen tank to the main tank gave the L-4's twenty additional gallons of gas. By the time the aircraft arrived in France the Division's artillery was set up, but the guns were not registered (aimed) because hedgerows limited visibility. Since the primary concern was to get the guns registered and firing, Capt. Gregorie and Lt. Condon took off in an L-5 and registered the first artillery fire on Utah Beach.

As in Europe, the role of the Cubs became increasingly more important to the ground commanders in the Pacific. The liaison pilots fighting the Japanese demonstrated just as much ingenuity and initiative as their counterparts did in Africa and Europe.

During the invasion of Okinawa, the light planes effectively operated from the Brodie Device mounted on as LST. Named for its developer, Lt. James Brodie, it consisted of four masts which supported a strong, horizontal steel cable that provided a straight, smooth, clear runway for landing and taking off. A trolley with an attached sling underneath caught a hook mounted above the center of gravity of the airplane. The trolley ran

along the cable and allowed landing and take off runs. The airplane was raised from or lowered to the deck by tightening or slackening the cable. Unlike the LST carrier, the planes could take off as well as land using the Brodie Device.

In the Pacific the device was mounted on LST No. 776 which also became known as the "USS Brodie." It was on Okinawa that the device really paid off. There was an urgent requirement to set up artillery units in the Kerama Retto Islands to bombard the Japanese on nearby Okinawa. Photography and aerial observation were needed by the artillery batteries, but there was no place to set up a landing strip. That's when the "USS Brodie" steamed to the rescue. It launched and retrieved numerous airplanes throughout the invasion, and not an Army aviator or plane was lost."

When the United States entered World War II, one of the main priorities was the reduction of German submarine attacks on coastal shipping and North American convoys. The U.S. Navy was unable to provided adequate convoy protection from U-boats and wolfpacks along the convoy's routes. Many ideas were considered which might quickly provide daylight air observation ahead of the convoy, so that all of the U-boats lying in wait on the surface might be detected and the convoy diverted away.

The Brodie System was one such concept to provide air observation for a convoy, by basing liaison aircraft on one or more of the convoy's ships. Lieutenant James H. Brodie, U.S. Army Field Artillery, developed an operable system that could be utilized on a ship, or on land.

By early 1943, in the New Orleans, Louisiana area, Lt. Brodie developed the prototype system. The Brodie System was a device intended to permit the operation of liaison aircraft from ships or from jungle or similarly inhospitable terrain. It consisted of a cable, 500 feet long, and strung between two masts. A 'hook' mounted on top of the aircraft permitted the liaison aircraft to takeoff and land while suspended some fifty feet minimum above the ground or ocean surface.

To develop the idea, two rigs were erected at Fort Sill, Oklahoma and tested. Aside from broken propellers, there were no accidents. To show how simple and easy it was to operate, some top students from pilot graduating classes began to also train on the Brodie System. They soon became so adept at using the Brodie System, that boredom became a problem. One student flew over the rig at 1,000 feet, cut the engine to stop the propeller, and came around and hooked-up deadstick. Another student came over the rig, did a loop and hooked up out of the bottom of the loop. They were grounded for a week, but it illustrated how easy it was to do.

In September of 1943, a ship version was installed on the cargo vessel City of Dalhart, and tested in the Gulf of Mexico off the coast of New Orleans, Louisiana. U.S. Army Air Corps Staff Sergeant R. A. Gregory made a series of takeoffs and landings from the ship in his Stinson L-5. However, by that time, the German submarine menace was severely reduced because of the advent of sonar, long-range B-24 patrols, and U.S. Navy convoy escort ships. Therefore, the priority was reduced considerably.

But the possible usefulness of the U. S. Navy ships equipped with the Brodie System to support beachhead landings and the anticipated invasion of Japan, raised the priority again. The Office of Strategic Services (OSS-the forerunner of the CIA), was organized under Major General "Wild Bill' Donovan to conduct espionage, sabotage, guerilla warfare, psychological operations and escape and evasion behind enemy lines. The OSS assumed direction of the Brodie System development, and the OSS high priorities accelerated the project for OSS use also. The Brodie System was considered so top-secret that the operation was under the direction of the OSS.

After the system was perfected, OSS, Navy and Army high ranking officers viewed the system, and approved continuance of the program. In June of 1944, the Navy authorized a Brodie System installation of LST-776, and Brodie, Sergeant Gregory, and staff proceeded to the Navy's Amphibious Training Base at Coronado, near San Diego, California. By September, they had trained Navy personnel on the LST how to use the system.

The ship-board system differed from the land system only in the fact that the runway was about 300 feet instead of 500 feet, and the runway cable was suspended by booms on board of the LST. Landing techniques on the LST were similar to that of the land rig except the added thrill of handling the roll of the LST, which was notorious with its round bottom hull.

Ship operations were then begun using Piper L-4s and Stinson L-5s off of San Diego. The ship's forward

motion directly into the prevailing wind reduced the need for a longer cable, because the 300 feet long cable on the LST was ample for take-off. The L-5 had a starter on the engine. However, the L-4 had to be 'propped' - a little difficult 50 feet above the ocean. But thanks to the L4s large side door opening, the pilot could climb out with one foot on the landing gear strut, and hand-start the engine.

In March of 1945 using the U.S. Army Field Artillery pilot, LST-776 liaison aircraft flew fire-direct missions for twenty four 155mm howitzers of Keisa Shima, eight miles from Okinawa. The artillery support made the initial beach-head landings at Okinawa a success.

During the summer of 1945, LST-776 was located in Manila Bay, training additional Army liaison pilots for the planned invasion of Japan.

Earlier in November of 1944, some U.S. Army and OSS personnel went to India to erect a land-rig Brodie System and demonstrate its operation to the British. They erected it at RAF airbase at Jesoore, India. This RAF base supported several secret, clandestine activities. One example was dropping trained nations of the Japanese-occupied countries (like Burma) into these territories, where they directed guerilla activities.

The British liked the System - both land and ship versions. The ship versions were planned to be installed on the sides of two British hospital ships operating along the coast of Burma. This would permit seriously wounded personnel to be transported by British L-5s from forward combat airstrips in Burma directly to the hospital ships off the coast. In as much as the Japanese forces were by that time rapidly withdrawing from Burma, the plan was dropped.

However, the system was used little, except at Okinawa from an LST that was Brodie equipped. Four other LSTs were being converted to the Brodie System for the invasion of Kyushu, Japan. The war ended before they were needed.

The Brodie system was not used in Europe, either for D_Day landings or subsequently. However, one Brodie rig sample was sent to England for evaluation by the Royal Aircraft Establishment at Farnborough, but the tests were not impressive for European use; they were ideal for use by the British in Burma and India where airfields were rare, and clear level land for an airfield even rarer. The Brodie System was sent to the British in India in early 1945. But by then the Burma Road was practically open and the Japanese were retreating. Therefore, the British had very little use for the System.

However the Brodie System was used successfully by the U.S. Army during the fight for Okinawa; only Piper L-4s and Sintson L-5s were used.

Upon the Japanese surrender, all Brodie System programs were terminated. With the rapid advancement of the helicopter, the Brodie System was never used again by the U.S. military.

I.L.P.A. member Wilmot G. Rhodes had a long career in flying and was personally involved with the Brodie land rig. His background included teaching in the Civil Pilot Training Program ground school for Southern Airways in Birmingham, Alabama in the summer of 1940.During his senior year at Auburn University he taught CPTP ground school at night and also taught CPTP ground school at Tuskegee Institute to flight students who became the US Air Corps 99th Pursuit Squadron. He received his Commercial Pilot Certificate at this time.

In 1941, he received Flight Instructor Rating and CPTP Aerobatic Fight Instructor Rating. Wilmot was employed at Aubum University as CPTP Aerobatic Check Pilot in addition to ground school teaching and managed the operation other University-owned aircraft. He graduated in June of 1941 with at BS in Aeronautical Administration. Wilmot bought and completely rebuilt a Great Lakes airplane with an oversized engine and did airshow exhibitions throughout the Southeast during the summer of 1941. Following graduation and until Pearl Harbor, he was employed as Assistant Professor of Aviation at Auburn, teaching formal aviation subjects, CPTP classes, and managing the Auburn-owned fought school and aircraft.

After Pearl Harbor, Wilmot was employed as the civilian fight instructor and check pilot at the US Army Liaison Pilot School at Ft Sill Oklahoma. In 1943 he received his direct US Army commission as 2nd Lieutenant. Duties included check pilot and flight commander of a training stage.

In 1944, while attached to the Ft Sill organization, he elected assignment to the Office of Strategic Services (OSS) to assist in development of the Brodie System. After the System was developed, he demonstrated the land rig to Pentagon Army Staff members, who approved the program's continuation. He was also involved in the development and flight demonstrations of the Brodie System on the side of LST-776 at San Diego.

He then returned to Ft Sill and instructed US Army teams in the erection of the Brodie land rig and the training of US Army pilots on flying the Brodie. This lead to intended use of the Brodie-equipped LSTs for battle ship fire direction during the planned invasion of Japan.

In 1945, Wilmot left Ft Sill with two enlisted Brodie specialists and a Brodie land rig and demonstrated its application to the Combined Headquarters - US and British Air Forces. This was to determine if the Brodie System could assist Merrill's Marauders in the Burma jungle campaign. Following this demonstration tour, Wilmot elected to accept assignment with the Chinese Combat Command - a US Army agency in Kunming, China. Later in that year, he transferred to the 19th Liaison Squadron as Operations Officer. He returned with that unit to the USA in December of 1945.

The Aviation Digest article continues: "Colonel Dwight D. Eisenhower served on General Douglas MacArthur's staff in the Philippine Islands during the mid-1930's. As they worked to build up an indigenous army, they realized the need for a small "air force" to reach their 9 training camps. They needed light airplanes that could take off and land on short airstrips in order to reach the camps, since the 7,100 islands of the Philippine archipelago had only a primitive road network, except on Luzon.

An airfield was informally established outside Manila in 1936 and Col. Eisenhower, at age 46, began pilot instruction. He passed his license examination on 19 July 1939. By the time of the Louisiana maneuvers he had logged more than 600 hours in light airplanes.

General George C. Marshall, Army chief of staff, was so pleased by Col. Eisenhower's work in the Louisiana maneuvers that he promoted him to brigadier general in late September.

U.S. Army Aviation Digest, June 1979, Dr. Laurence B. Epstein, pg. 13: "Col. Eisenhower, as chief of staff, Third Army, showed enthusiasm over light aviation. Mr. J. M. Helbert, a Piper member of the Grasshopper Squadron, became Col. Eisenhower's courier pilot during the Louisiana maneuvers. Mr. Helbert had just flown in when Col. Eisenhower and Lt. Col. Sam Davis, chief of Third Army Air Corps, stopped to look over the planes.

"A week later at about 1700 hours Mr Helbert had returned from a mission and was tying down his Cub on the football field from which he was operating. Col. Eisenhower approached him and said that he had been doing paperwork all day, and if possible would like to fly for awhile. The two went flying and the future President took off, flew and landed the J-3 with no trouble. Col. Eisenhower and his staff used the light airplane constantly." Taken from the Army Aviation Story, Part I, pg. 19, by Richard K. Tierney.

From U.S. Army Aviation Digest, June 1977 by Laurence B. Epstein, pg. 14: "Another Armored Force officer who appreciated light aviation's potential was George S. Patton, Jr., then acting and later commanding general of the 2nd Armored Division. During 1940, he incorporated light planes in all his exercises, using them to transmit orders to subordinates in the field, to locate and identify units, and to fly himself and his staff officers quickly to their destinations. He experimented with light planes that could use open fields unsuitable for other military aircraft and came to prefer the Piper Cub.

On 12 December 1940, General Patton sent the 2nd Armored Division on a 400-mile round trip from Columbus, Georgia to Panama City, Florida. The four-day trip, the longest march ever undertaken by an American armored division, used light airplanes to control the columns of 1,100 vehicles.

General Patton wrote to his friend Lt. Col. W. C. Crane in the spring of 1941: "I am personally getting so air-minded that I own an aeroplane and expect shortly to have a pilot's license. Next time you come down here (Ft. Benning) I may be able to take you for a ride if you have sufficient insurance."

The 2nd Armored Division moved West in early 1941 to test tank doctrine and train for desert warfare. In a report to Gen. McNair on 20 May 1942 Gen. Patton wrote..."since it is the first time to my knowledge that a fairly large group of armored vehicles were successfully commanded from the air by voice radio, the report may be of interest..." When he wrote the lessons, learned in "Notes on Tactics and Techniques of Desert Warfare,(provisional), 30 July 1942," Gen. Patton concluded that the commander should exercise command from the liaison plane by two-way radio until contact was made with the enemy. Then a staff officer should replace the commander in the airplane while the latter leads the attack from the ground.

The officers and men of the 2nd Armored Division never knew when or where Gen. Patton would show up to witness their progress. He used jeeps, staff cars, tanks, halftrucks, and light airplanes to move about among his dispersed units. Gen. Patton nearly lost his life while landing his Cub near his headquarters, nar-

rowly missing some nearby telephone poles. Upon their own initiative his troops cut down the offending poles and buried the wires underground."

Brig. Gen. William Wallace Ford was an avid aviation enthusiast. He obtained his commercial pilot and instrument ratings prior to World War II, and anticipated the desirability and practicality of using light aircraft for artillery fire adjustment.

In 1941 Ford convinced his superiors that he should be permitted to use his personal aircraft, at his own expense, to demonstrate the advantage and utility that the light planes had to offer the Field Artillery.

In May 1941, he outlined his visionary concept of aviation employed in the support of field artillery in an article in Field Artillery Journal.

General Ford's aerial demonstrations, his writings and his personal conviction let to the full-scale Army tests of light aircraft and their acceptance and incorporation in field artillery battalions.

Maj. O. Glenn Goodhand was prominent in expanding the role of Army aviation in World War II. Maj. Goodhand had more than 500 hours of combat flying and improvised unique and effective tactics in the European battle areas.

At Cassino, on his own initiative, he conducted experimental pioneer work in night flying with L-5 aircraft; devised feasible methods of adjusting long range artillery fire at night, and flew night missions, often deep behind enemy lines.

At Anzio, Capt. Goodhand developed a system for corps artillery aircraft which assured continuous target coverage, engagement by the most appropriate artillery and early pilot warnings of hostile fighter aircraft. The latter action greatly enhances artillery effectiveness and pilot safety.

In Southern France, Maj. Goodhand organized a V Corps unit of L-5 aircraft for observation ahead of advancing ground elements. This unit developed and employed original techniques for directing P-47 fighter-bombers onto targets beyond artillery range.

His organization and operation of L-5 reconnaissance and fighter-bomber direction was an outstanding benefit to V Corps, and unique for liaison-type aircraft at that time.

Maj. J. Elmore Swenson was one of the first liaison pilots to be sent overseas. Maj. Swenson exploited the tactical use of Army aviation to the fullest as the division artillery air officer, 29th Infantry Division. Leading his "29th Air Force," as he called his section, Maj. Swenson directed one of the first fire missions on Omaha Beach on D-Day. He participated in all the major battles of the European Theater of Operations, from Normandy to France, Holland, Belgium, and Germany to V-E Day.

In late November 1942, Lt. Paul A. Dewitt became the first Army aviator to fly an artillery mission in a Grasshopper against the German Afrika Korps in Tunisia.

In March 1943, Army aviators discovered a major thrust planned by the 10th Panzer Division. The L-4 pilots were able to direct a devastating artillery barrage and put a stop to the Nazi penetration of the Allied lines.

Liaison pilots often flew out in front of the Allied advance to keep track of the enemy's position.

The last aerial dog fight over Europe was between two unarmed liaison planes. A Piper Cub, unarmed spotting plane named "Miss Me" of the U.S. 5th Armored Division and a German Fieseler Storch, also a spotter plane, met in the sky over Germany in April 1945. Lt. Duane Francis, pilot, and his observer Lt. William Martin, dove on the Storch and fired their .45 Colts, bringing the German plane down. They landed nearby and captured the pilot and German observer. It was the only German plane in World War II shot down with a hand gun.*

*From Forty Years of Army Aviation, by Richard K. Tierney, editor *Aviation Digest*, Aug. 1982, pg. 25.

During the Battle of Britain, British air losses were great and the need was always there for money. Winston Churchill said, "Give us the tools and we will do the job."

As Mike Strok of Piper Aircraft recalls, "In 1941, Piper built forty-eight J-3's and called them 'Flitfires.' Proceeds from sales of these planes was to go to the RAF Benevolent Fund to help support the British war effort, particularly the RAF. The name Flitfire was coined by Bill Strohmeyer, Piper Publicity man at the time. Each aircraft was painted with the British roundels on each wing and fuselage and tricolor on the tail. They also had the name of each state (a publicity tie-in) painted on the cowling. The forty-eight Flitfires were flown to New York City and then formed up and flown in formation over Manhattan in six flights. A ground com-

mittee of judges picked the best flight formation (which was mine with me as flight leader) and the winners were treated to a free dinner with a date being a beautiful girl named after each state. I flew Miss Rhode Island so I had a date with a Rhode Island beauty. I am no sure what happened to the Flitfire after that..."

There are two opinions as to what happened to them. One opinion is that the wings were taken off and they were shipped to England to be used as trainers for the RAF. It is a fact that the English were so short of training planes that many American light planes were sent over there for that purpose.

The other opinion is that the Flitfires were flown to Canada and used there to train Canadian pilots for the Royal Air Force.

A photograph in the National Geographic of December 1943, pg. 732, shows a Flitfire among a Michigan Civil Air Patrol group, so perhaps all of them did not leave the United States.

It took many men, with different talents and attitudes to fight the war. Stories have been written about many soldiers and Marlene Gantt has written about one of the more famous - 'Bazooka Charlie'. Her article follows:

"Buzzing over the German submarine base at Lorient, France, in his L-4 Piper Cub spotter plane, Major Charles Carpenter saw buttons of flak approaching in the sky and quickly ducked under. According to his newspaper correspondent passenger, Carpenter merely laughed and 'wriggled' into a river valley, hopping between trees and over hedges.

All in a day's work, apparently. 'My luck's a tradition,' said Carpenter. 'I hope you don't mind my way of flying.'

In short time after the Normandy landings of June 1944, Carpenter's 'way of flying' his artillery spotter for the Fourth Armored Division of Patton's Third Army had become such a legend that newspaper reporters were begging rides with the onetime school teacher.

'Flying from 50 to 60 feet above the ground, we had been peering into farms yards and behind the hedges in a country area lying between the outer defenses and the main citadel behind the low-lying seaport,' wrote Gault M'Gowan after the Lorient foray.

It was not only the hedge-hopping, but Carpenter's penchant for arming his slow-moving Cub with bazookas that attracted all the attention - and a colorful nickname.

'A flight in Major Charles Carpenter's bazooka-shooting Cub observation plane is something like a ride in a roller coaster equipped with sky rockets', wrote Stars and Stripes correspondent Ken Koyen. 'The 32 year old liaison pilot, who taught history in Moline, Illinois, but now hunts tanks with the six bazooka mounted under the wings of his tiny aircraft, sometimes takes a passenger, although it cramps his gunnery.'

"Bazooka Charlie' was the nickname that Carpenter picked up once he strapped on the infantryman's rocket tube and began pecking away at German tanks and other targets front his platform in the sky. 'He rides the skies in his unarmed, slow-moving artillery observation plane s though it were a Lightening Rod Thunderbolt,' wrote M'Gowan another time.

Before the advent of his bazookas, Carpenter favored dropping hand grenades on the enemy below.

One time, he landed his plane and 'liberated' Quimperle, an inland port located in Brittany, all by himself. Almost by himself, actually - correspondent M'Gowan happened to be riding along that day too.

Another time, Carpenter saw a column of American tanks stalled outside a French village by German artillery. He landed nearby, ran to the lead tank, grabbed its .50-caliber machine gun and ordered the seemingly leaderless tanks forward."

As Associated Press War Correspondent J. Wes Gallagher soon wrote for the readers of newspapers bacolunteer for this artillery-spotter role in Piper Cubs. He was assigned to the Fourth Armored Division, commanded by Maj. Gen. John S. 'Tiger Jack' Wood, a Patton think-alike noted as a hard-charging leader even in the hard-charging Third Army.

When the Fourth Armored landed at Utah Beach one month after the Normandy invasion of June 6, the men unloaded in an eerie silence. Before then were upturned Jeeps, sunken ships - the debris of war. And on invasion day, they knew, the same beach had been strewn with the dead and wounded.

At the moment, though, they had a war to catch up to. While its L-4 Cubs were flown across the English Channel, the division rolled unopposed for miles until it finally did catch up with the battle lines. As the Cub spotters then flew ahead checking the landscape for targets and enemy activity, the men in the tanks below

affectionately called the spotter wing the 'Fourth Armored Air Force'.

Third Army Commander Patton needed first-had knowledge of the terrain ahead, since he was likely to stop for nothing. His Cubs flying ahead of the tank columns often were clay pigeons, drawing and revealing enemy fire. The artillery instructors back in the States would have paled, since the Cub pilots had been instructed to fly behind Allied lines, not in front. A good-sized rock in the right place could have knocked any of the tiny, wood and muslin aircraft right out of the sky.

The first attempt to mount rockets on the spotter planes came during the American breakout from Normandy marked by the fall of St. Lo July 18. A couple of pilots placed a bazooka under each wing and shot up a few enemy trucks as Patton's Third Army now raced for Coutances. But Charlie Carpenter wasn't one of them.

It wasn't until his own first taste of battle at Coutances that he began his heroic feats and sprang into legendary status. His compatriots frowned upon the bazookas because, as correspondent Wes Gallagher put it, 'They found that diving the frail craft down a 200-yard firing range into a hail of German fire was extremely unhealthy, and returned to their observation duties.'

More routinely, the spotters flew over enemy lines until the Germans shot at them and thus disclosed their location. The spotter's main task, in effect, was to aim his side's guns at German concentrations ahead. The Cubs also flew ahead of Patton's endless line of supply trucks known as the Red Ball Express to check for disabled vehicles blocking the road.

On the road to Contances, savage fighting raged in and near Marigny, east of St. Lo. From its position on the Third Army's right flank, the Fourth Armored then swept down and captured Contances. The fresh American troops reacted to their victory by continuous fire even as the enemy was evacuating. And the race continued, down the coast towards Avranches.

Himself caught up in the excitement, Carpenter had gone in search of a suitable landing spot for his corps of Cubs. Since the Normandy farm fields often had been mined, he was looking for a pasture with grazing cows, a sure sign of a safe landing place. Before he could find such a haven, however, he spotted an American tank and infantry column pinned down outside a French village by German 88 fire.

From his perspective aloft, it appeared no one was in command of the stymied tank formation - and behind the German artillery there was no significant back-up in sight. Carpenter simply landed his plane, and took command after climbing aboard the lead tank.

He commenced firing its .50 caliber machine gun as, helmetless, he led the attack that broke up the German defenses and seized an important town. As the story goes, every time Carpenter's tank came to a corner, he would yell to its crewmen below him, 'Let her go', and the tank's 75mm cannon would bang away.

The system worked fine for five corners, but at the sixth, the tank round blew a bulldozer blade on an American Sherman sky high. The flying pieces unfortunately injured several of his own men, In the aftermath, Carpenter was threatened with a courtmartial. His wife, Elda, when she heard back home, wired him through the International Red Cross with a plea to stop trying to win the war himself. General Patton flew in and reviewed the situation, then gruffly told the men involved that if they would get off their hind ends such a battle could have been won 24 hours sooner. Carpenter, he said, was the kind of fighting man he wanted in his army.

The entry into Avranches marked a 60-mile penetration from the D-Day beaches - the seed of invincibility was planted firmly in the minds of the Fourth Armored's personnel. Patton's method of fighting also had been established, his rampage through the Cherbourg Peninsula typical of his tactics. He sent his tanks forward, and when they hit something they couldn't crack immediately, he sent then around it. His methods was to reconnoiter, then reinforce the reconnaissance, and then attack.

In much the same spirit, the Carpenter Cub patrol became a one-man army. Achieving a maneuverability hardly surpassed by the war's more sophisticated aircraft, Carpenter delighted in dropping hand grenades on the enemy below. He once landed in a battle zone near Sens to 'inspect' a column of still-burning tanks - and capture six German soldiers with rifles he had picked up nearby.

As he shot-up German staff cars and carried on his one-man crusade, his favorite headgear under fire was a long-billed baseball cap that kept the sun out of his eyes.

Carpenter was sent ahead of the advancing troops to gather information on Lorient, considered a hellhole by U.S. reconnaissance pilots because of the flak protecting its U-boat pens. Fires behind the ramparts

suggested that the port's more valuable assets already were being liquidated to prevent the Americans from using them. Smoke still rose from the recent visits of Allied bombers, which had blasted at the concrete-roofed U-boat pens. Carpenter couldn't be sure that the Germans had abandoned every inch of ground - he soared higher to get a better view of the damage, but the German gunners resented his curiosity and some of the flak that made Lorient notorious came floating across the skies after him. Nothing hit the L-4, but the area where it had been seconds before was filled with flak.

'They're firing 88s at us', Carpenter told M'Gowan as they ducked under. 'It's less risky down low.' Carpenter had to shout over his shoulder in the confined cockpit. 'They won't shoot - it will give away their positions. Besides, the nearer the ground we are, the harder it will be for the gunners to hit us.'

The plane hedge-hopped to safety, but for Major Carpenter the risks without more tangible results were becoming too great. He began to think about the men who had mounted bazookas on their Cubs at St. Lo. After Lorient, he put two bazookas on his Cub, a number soon increased to six. Now, the puddle-jumping flights would be really worthwhile, he figured.

He used the first bazooka model produced for the war. It fired its rounds by means of a battery igniter. The unit itself was a solid, one-piece metal tube 54 1/2 inches long. It weighed slightly more than 13 pounds. Its projectile had a range of 500 yards, but the sights were calibrated for 100 and 300 yards. Carpenter had to launch his rocket rounds carefully, so the back-blast wouldn't ignite his flimsy craft's wings of doped fabric.

With her fresh firepower added, he dubbed his L-4 'Rosie the Rocketer', a name painted on the side of her nose. His 'Rosie" had no radio. She relied upon a fixed-pitch wooden prop and a 65-horsepower 0-170-3 Continental engine for power.

Within a few weeks, Carpenter was credited with knocking out a German armored vehicle and four tanks. Often diving within 75 yards of his targets, he eventually was credited with knocking out six enemy tanks. His big day came north of Nancy when the Germans launched a tank attack and forced some GIs to hide in a creek. Carpenter dove down through a barrage of German fire in a series of attacks, firing all of his bazookas. During the day he fired the rounds, returning to base camp only to reload. The ground troops credited Carpenter with two tanks - thus he became the first 'puddle-jumper' pilot to knock out two tanks in one day. Explained Carpenter later: 'Some people around here think I'm nuts, but I just believe that if we're going to fight a war we have to get on it with 60 minutes an hour, 24 hours a day.'

War correspondents who flew with Carpenter learned what was meant by this statement. Ken Koyen (Stars and Stripes) was one. As they flew over the front where Fourth Armored tanks were blasting German positions with 75s and machine-gun tracer fire, the major pointed out a burned vehicle. 'That's the German armored car I hit the other day.' He then pointed to a German tank next to a building in a village and another hidden under a tree.

Carpenter shoved down 'Rosie's' nose and shouted, 'We'll go down for a try at the one in town.' Diving almost vertically to less than 300 yards off the ground, Major Carpenter squinted through the sight, then touched a switch firing two of the rockets, one from each wing. as Koyen later reported, there was a dull boon and a flash of flame. 'Rosie' stuck her nose up in a steep climb that would have been called evasive action of she were a Thunderbolt. Tiles on the roof of the house next to the German tank disappeared in a cloud of red dust. 'Allowed too much for the wind,' the major said. 'Anyhow, our tanks will know there's something there to shoot at. Next we'll try for that tank under the tree.'

Again the Cub dove and tow rockets flashed groundward. Dirt spouted from the ground near the tank - apparently a massive Panther. 'That's another one marked for the boys on the ground,' the flying artilleryman said, as he wheeled 'Rosie' around for another shot at the tank in the village, The last two rockets roar from the launcher tubes in one explosion and blasted the ground 15 feet from the tank.

Major Carpenter climbed and circled above the tanks, critically examining his work. 'I don't expect to get them very often, especially from this long range, but I imagine I worry then at that.'

German gunners then began shooting at the Cub - black puffs of antiaircraft shell bursts spotted the sky. Carpenter commented, 'They usually don't shoot at a Cub for fear of observation and artillery fire, but when they see it shooting bazookas they cut loose. Aggravates then some, I guess.'

Carpenter then turned 'Rosie' back to her hillside pasture landing field. Pilots of liaison planes did not

fly back to the comforts of a base, as did bomber pilots. Instead, they lived in foxholes or tents with the front-line troops and ate cold 'C' rations. Carpenter had learned to brew coffee in his tent over a blowtorch he captured from one of the German tanks he knocked out. 'Everytime I show up now, they shoot with everything they have,' he said. 'They never used to bother Cubs; bazookas must be bothering them a bit.'

By November the Third Army's winter offensive was on. The winter's snow flurries made air support uncertain, but the 'Forth Armored Air Force' was still scudding over the Fourth Armored's columns. One plane that everyone knew by then was 'Rosie'. Carpenter didn't let weather interfere with his operations. He took off one day from a muddy landing strip during a snowfall. He proceeded to blow up a German ammo truck, fired several times at a Panther tank and returned.

Earlier, Carpenter had been credited with liberating Quimperle, midway between Lorient and Quimper. Flying ahead of the Fourth Armored as it spearheaded into Brittany, he discovered the Germans had pulled out of Quimperle, an inland port big enough for 800-ton ships. The French were moving toward it and wanted American support. What they got first was 'Bazooka Charlie'.

Carpenter, with correspondent M'Gowan aboard, flew low over the city, skimming rooftops, flying down city streets, zooming over wharves while waving to gendarmes on traffic duty. People tumbled out of houses calling out, 'Les Americaines, les Americaines.' As Carpenter circled the town for the third time, the crowds became frantic with joy, clapping, throwing kisses, making the V-for-Victory sign. When Carpenter landed his plane nearby, they brought him cider, eggs, baskets of pears, anything they could find.

Carpenter was eventually credited with his six tanks and awarded the Silver Star with Oak Leaf Cluster, the Bronze Star, and the Air Medal with Oak Leaf Cluster. He reached the rank of Lieutenant Colonel.

But Charlie Carpenter was discharged from the service in 1945 with Hodgkins disease and given just two years to live.

Engaged in a new, personal war, the school teacher from Mid-America fought the disease as he had the German - bravely, resolutely.

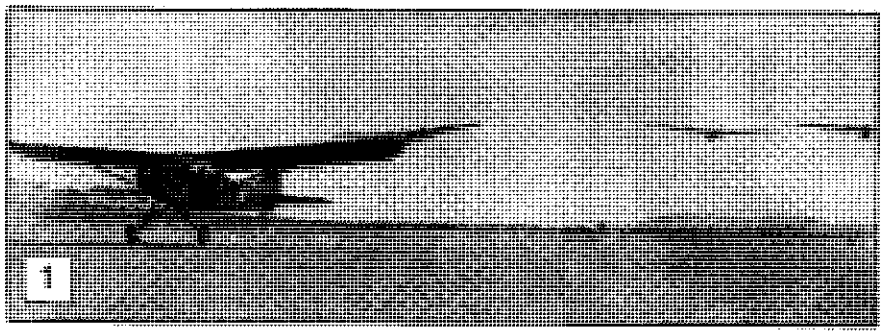
He passed the two-year mark, but then had to face death and major surgery every few years. The doctors told him each time that if it heals, you are ok, otherwise you are gone.

It was a 'terrible cloud to live under', said the World War II hero's wife Elda later.

Charlie Carpenter lived 21 more years, until March 22, 1966. During those years he taught briefly at Roosevelt Military Academy in Aledo, Ill. But he also obtained a master's degree in history from the University of Illinois. He saw his daughter Carol graduate from college and enter the Peace Corps.

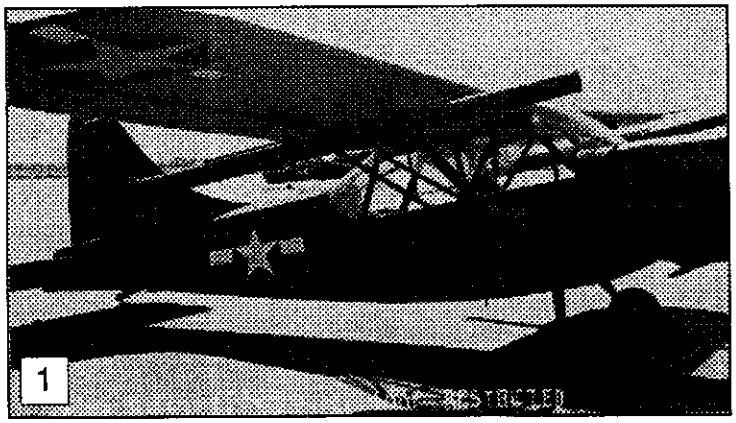
He then taught at Urbana (Il) High for 15 years, almost until the time of his death. He was known as a teacher who always insisted upon including current events in his history classes.

He was gone, then, but far from forgotten. As good friend William Christison recently said: 'I am 73 years old, and I have never met anyone else like him.' The same could be said for the other liaison pilots of World War II - they were in a class of their own.



1 – L-1 towing gliders, 1942
–D. Downing

L-Bird Oddities

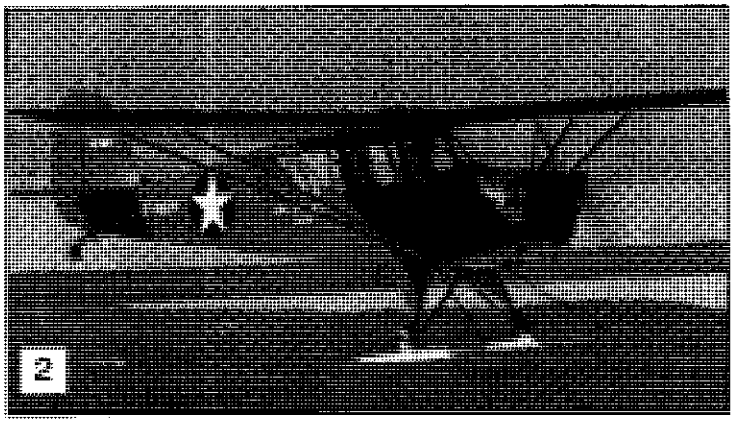


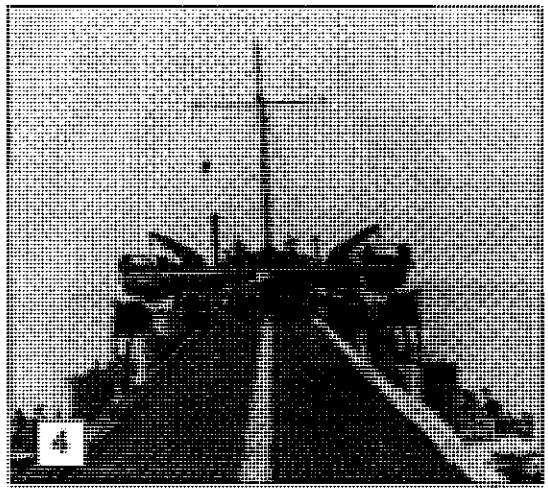
1 – L-5 equipped with rockets, 1944 *–A. Raszil*

2 – L-3 equipped with skis, 1987 *–W. Sluyter*

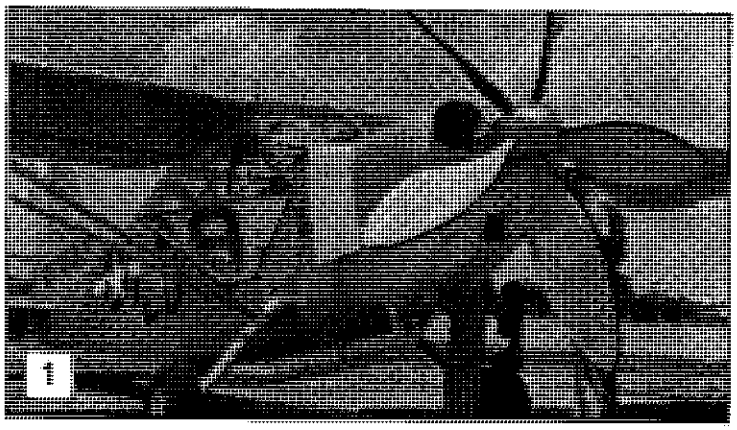
3 – L-5 equipped with floats, 1944 *–F. Malinek*

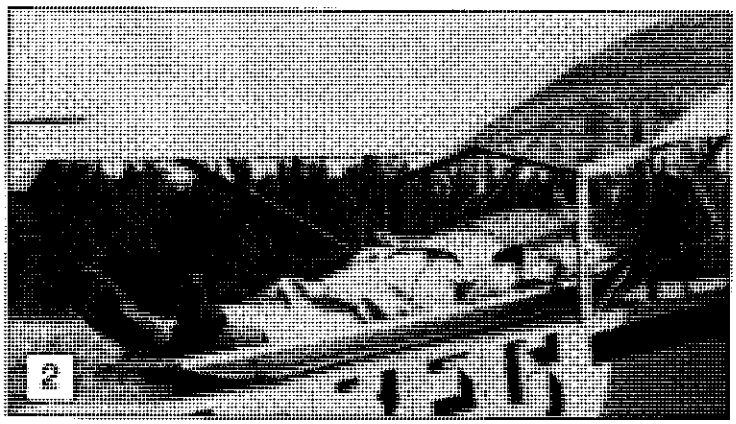
4 – Launching L-4s at Sicily and Italy from LSTs, 1943 *–A. Pace*

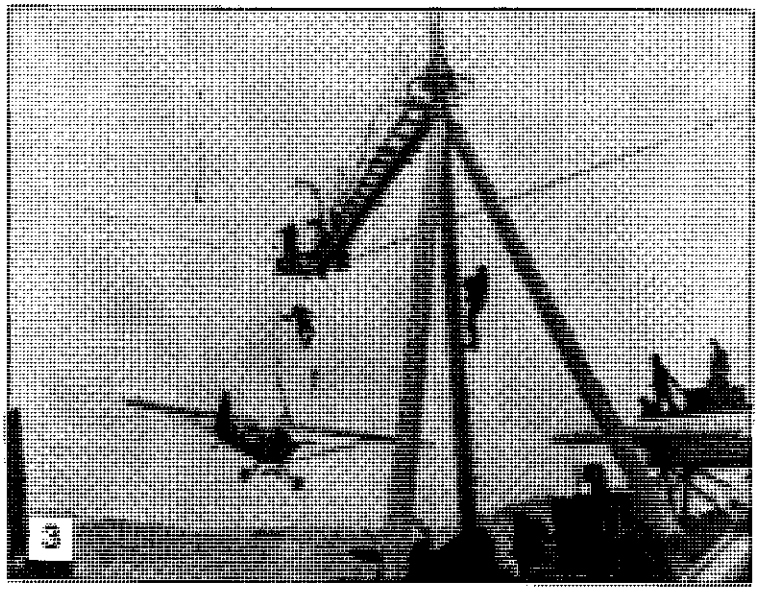




L-Bird Oddities







1 – Trying to quiet down the L-5 at Langley Field, VA, 1945 *–F. Malinek*
2 – Swedish L-4 rigged to fly wounded *–B. Olsson*
3 – L-5 being launched from "Brodie Device" rigged on LSTs, 1943 *–Ft. Rucker Museum*

In Chaper 11 we will state specifics on the L-Birds and add to that a few stories I have received from ILPA members and L-Bird pilots and owners.

— Chapter 11

The Planes

Gliders

On May 10, 1940 nine German assault gliders carrying 78 specially trained glider troops landed inside the "impregnable" Belgium fortress of Eden Emael. In less than half an hour, German assault troops had seized control of this key position manned by almost B00 Belgium soldiers. A new weapon of war had come into play - the glider! The military world suddenly opened its eyes to the advent of a new, and seemingly potent, weapon.

When these swift, silent assaults opened the way for the German forces to rapidly advance through Belgium and Holland and on to France without having to make a frontal attack against the Maginot Line, military commanders around the world suddenly realized that a new dimension had been added to combat. This was also noticed by General Hap Arnold, and on February 25, 1941, he directed his staff to prepare a study on the military transport glider.

In April 1941, Captain Marc Mitchner, Chief of the U.S. Navy's Bureau of Aeronautics, directed an investigation of a military glider for the Navy and Marine Corps.

On the morning of May 20, 1941 the Air Corps ordered its first troop transport gliders. Responding were the Frankfort Sailplane Company, Waco Aircraft Company, St. Louis Aircraft Company and Bowlus Sailplane Company. These companies were civilian sailplane manufacturers, whose designs were similar to lightweight, high performance sailplanes than military troop gliders. Waco won the design with their CG-4A, and a phenomenal total of 13, 909 were eventually built.

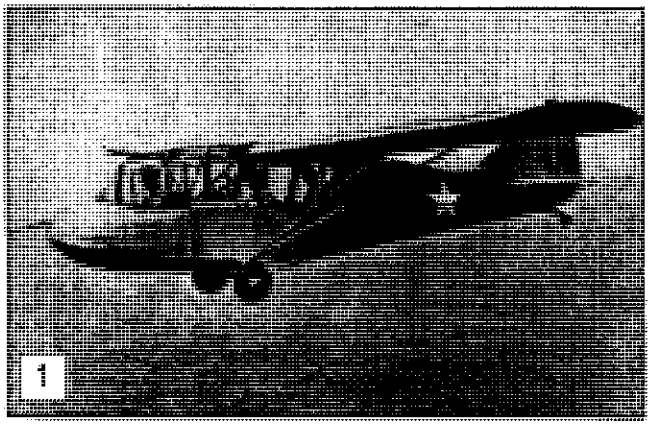
With glider production ordered in large quantities, it was not without embarrassment that the Army did not know where to get pilots to fly this formidable new air assault weapon.

None of the U.S. military services had any glider pilots nor had they developed any plans for training them by 1941. Therefore, the service started impounding from private owners every two-seat sailplane that could be found, and also began ordering new two-seat sailplanes to equip the as yet to open military glider schools. In 1941, this glider training was so hastily planned that the U.S. Army had only one glider in service, One Frankfort XTG-1.

By very early in 1942, it was obvious that the sailplane companies could not turn out enough training gliders, and that the Army did not have the instructors or facilities to turn out the required number of pilots to man the coming flood of Waco CG-4As. Army cadets who had trained on the confiscated sailplanes were experiencing severe problems when transitioning to CG-4As. The CG-4A behaved nothing like the typical high-performance sailplane, with a glide ratio of 25 to 1. The CG-4A was about 8 to 1. It is no wonder that the newly trained pilots were coming to grief when faced with the truck-like CG-4A glider.

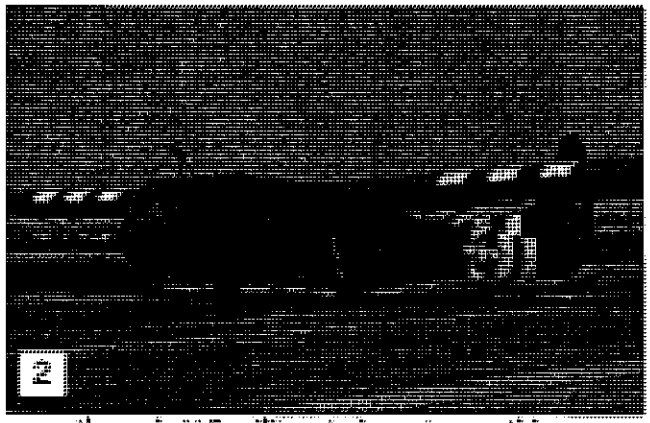
Both major problems of the glider programs, (1) not enough glider pilots being turned out, and (2) the existing training sailplanes having no where near the same flight characteristics of the CG-4As, were solved indirectly by one major move. The Army wanted glider pilots trained quickly with a minimum of time and effort. Calculating that a glider pilot's combat life would be less than 6 minutes, it seemed foolish to train him in the same high degree as a future bomber or fighter pilot. After all, he was only expected to know how to get in the air behind the towing aircraft and how to land - once! Therefore, it was decided to use NCOs as pilots, and not commissioned officers.

Therefore, sailplanes were out. The Army pointed out that the landing of a military assault glider was similar to an engine-out forced landing in a conventional-powered aircraft. The Army also noticed that the Waco CG-4A looked like a very large Piper Cub painted Olive Drab, and that the wing loading was also about the same as a Cub. Therefore, they should handle like a Cub. Since the Pipers, Aeronca, and Taylorcraft light planes were cheap, easy to build, and readily available, it was decided that as a stop-gap program, initial glid-



1 – Aeronca TG-5 in flight, Middletown, OH factory –*J. Houser*

2 – Waco CG-4A "Cargo Glider" –*Silent Wings Museum*



er training would be given in these L-2s, L-3s, and L-4s.

The use of these liaison planes for instruction actually involved no extra items for the student to learn, because all the necessary maneuvers that would be learned for a liaison aircraft are the same for a glider.

Therefore, Aeronca's idea was to remove the engine and cowling, and replacing them with a third seat in a new nose with a tow release. The weight of the 65 hp engine that was removed was the same as the student that was added, so there was no change in weight and balance. A new, lower landing gear was fitted to give the Aeronca a ground attitude similar to the CG-4A.

The result was a prototype being towed into the air nine days later, and completing all military tests in only 24 days after the go-ahead. The converted Aeronca L-3 became the XTG-5. Maurice Fry flew it for its first flight on May 20, 1942. Additional vertical fin area was added to counter the increased side area of the extended canopy. The prototype initially had a tailskid, but a tail wheel was fitted.

The TG-5 was a tandem three-seat training glider. Two seats were in the same location as the L-3, while the third seat was in the new nose. All three seats had basic flying controls and instruments. The training crew was typically an instructor pilot with two student glider pilots. This allowed for one student to fly while the other observed. Though this two student/one instructor arrangement has been used by several foreign air forces for pilot training, the TG-5, 6, and 8s were the only U.S military trainers to use this arrangement. Solo was from the front seat only.

The fuselage of the TG-5 was a welded steel tube structure covered with fabric over spruce fairing stringers. The fuselage was 23 feet, 10 inches long. The wing structure consisted of two solid spruce spars with aluminum alloy ribs. The entire structure was fabric covered. The ailerons had metal frames with fabric covering. With the exception of a spoiler, the wing was identical to that of a L-3 with a span of 35 feet and an area of 169 square feet. The empennage wad identical to the L-3 except for an increased area of the vertical fin to balance the longer nose. The TG-5 had a steerable tail wheel like the L-3. TG-5s had a battery and position lights for night gliding. Most were equipped with radios.

The TG-5 had an empty weight of only 635 pounds, and a gross weight of 1260 pounds. The maximum speed was 129 mph. The best glide speed was 55 mph, and the stall speed was 46 mph. As a result of these tests, the U.S. Army ordered 250 TG-5s from Aeronca.

Despite this order, the need for glider training was very urgent, and many more than Aeronca could mass produce were needed. Therefore, Taylorcraft and Piper were asked to modify their L-2s and L-4s in a similar manner Taylorcraft responded immediately and the U.S Army also ordered 250 of them; they were designated the TG-6.

Piper made a similar conversion from their L-4 and was also awarded a contract for 250 of them that were called TG-8s. All of these TGs were built very quickly and were able to provide the U.S. military with the badly needed training gliders. Since the training gliders were basically unpowered light planes the students learned to handle them easily. The transition was smooth and the entire course, including ground school, was only six months.

Student glider pilots first learned to fly in powered planes like the Piper L-4. By using the L-4s, they got in more airwork because they did not have to be constantly retowed back to altitude. Also the U.S. had fleets of Cubs in civilian pilot training schools in initiate training and could turn out basic pilots by the thousands.

After training on power-planes like the Cub of L-4s, the student pilot then transitioned to the training glider for actual glider operations and tow-line experience.

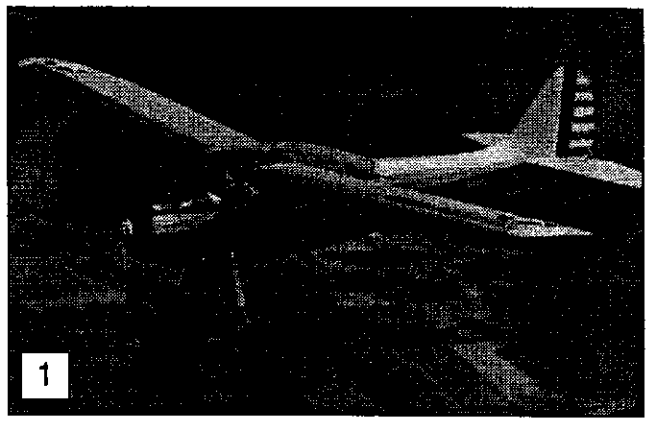
In 1943, it become apparent to senior Navy planners that troop and cargo assault gliders were not practical for the South Pacific operations. Therefore, on June 24, 1943, the U.S. Navy terminated their glider programs and turned them over to the Army.

Large scale glider pilot training came to an abrupt end in early 1944 and the 750 odd number of the TG types in use were quickly declared surplus. Later many of these were converted into powered aircraft and are still flying today.

The sergeant pilots included in their number former child-star Jackie Coogan and cowboy star Gene Autry.

Most of the fully trained glider pilots had been sent to the Mediterranean for the invasion of Sicily or to England for the invasion of France on D-Day.

Stinson O-49/L-1



1 — Stinson L-1—*F. Houston*

In January of 1912, a young teenage girl named Katherine Stinson took her first airplane ride. Her pilot was the great Tony Jannus. She loved it, and continued flying. She became the fourth woman pilot in the United States. By 1913, she and Ruth Law were the leading female pilots; this was extremely rare at the time. Katherine and her mother incorporated the Stinson Aviation Company in April of 1913 in Hot Springs, Arkansas.

Katherine's brother Eddie joined them. Matty Laird taught Eddie to fly. By this time war clouds were gathering in Europe where aviation had taken enormous strides forward. The need for European pilots was great, especially for the British Royal Flying Corp (RFC). Canada wanted to help, but they had no flying schools. The Canadians asked Stinson to train some of their pilots for the RFC. Katherine Stinson graduated her first class of five Canadians in November 1915 using Wright B trainers.

Stinson bought more aircraft for training from Grover Loening. Late in 1916 the commander of the 1st Aero Squadron, Captain Benjamin Foulois, hired Eddie Stinson to teach new students to fly. Eddie basically invented the spin recovery maneuver. Capt. Foulois wanted the new "stunt" taught to his students. The flying school was very busy during World War I.

Katherine then expanded and started an air mail route from Chicago to New York in May of 1918. In July of 1918, she flew air mail to Calgary, Edmonton, Canada to do the first air mail in Canada. Finally in 1928, Katherine married Mike Otero, a World War I aviator. She never flew again, and became a housewife.

In Atlantic City, New Jersey, a timid young lady who had always been afraid of heights, reluctantly took her first airplane ride. The pilot at the airshow was Eddie Stinson. When Stinson looped the Jenny that they were flying in, Ruth Nichols' fear vanished! She was soon flying her own plane and later became the first woman airline pilot.

In 1921, Eddie Stinson bought a Junkers, the large all-metal cabin monoplane built in Germany. Eddie wanted to demonstrate its potential, and on November 21, 1921 he flew non-stop Chicago to New York City. With four passengers on the plane, it was the first commercial flight between the two cities. In 1922 Stinson moved to Detroit to establish his charter operations. He saw the need for a charter-type aircraft. He hired a man to design a plane with his specifications: he wanted a cabin heater, wheel brakes and an electric starter. Taken separately, such features were not unique. Collectively, they had yet to appear on a single aircraft. The resulting airplane was the Stinson Detroiter, which first flew on January 25, 1926.

In March, Stinson received a call from Horace Dodge, the automobile magnate. He wanted to fly to Washington, D.C. immediately. Stinson said he would fly him, only if he purchased a Detroiter for his future

needs. Thus the Stinson Detroiter became one of the first corporate aircraft. It also helped the start-up of other airlines such as Northwest Airlines and Florida Airways. Stinson began building the Detroiter in numbers.

In April of 1929 Stinson moved his factory to Wayne, Michigan a suburb of Detroit. He produced 121 aircraft in 1929 and became the third largest aircraft manufacturer in the country. This success attracted many investors including Errett Cord, owner of the Cord, Duesenberg, and Auburn automobiles, Lycoming Motors, and other corporations. Cord bought a controlling interest in Stinson Aircraft.

Stinson started making larger aircraft like the Stinson SM-6000 tri-motor airliner. The airliner seated 11 passengers, Full loaded, it would take-off in 700 feet and had a landing roll of only 400 feet. It was considered to be the finest airliner of its time; 35 were built. Cord asked Stinson to start an airline to utilize the new tri-motor airliner. They founded Century Airlines and Century Pacific Airlines. In 1933 Cord sold the airlines to Aviation Corporation, a holding company, which became American Airlines. American used the Stinson tri-motors and Stinson also sold some to another small airline just getting started name Delta Airlines. But the depression was in full swing, so in order to sell more planes, Stinson started to work on smaller airplanes. The result was one of the finest personal aircraft - the Stinson Reliant.

In September 1938, at the National Air Races in Cleveland, the German Luftwaffe was invited to display some aircraft. The Germans, wanting to show off their much-vaunted Luftwaffe, wanted to display the superiority of their Fieseler Fi-156 Storch. The Storch was the first light STOL aircraft designed specifically for the Army liaison role. Its appearance had tremendous and very long-lasting effects on the U.S. military. Pilot Emil Kroph could make the plane almost hover at 30 mph wind, with full control, and repeatedly take-off and land almost vertically. Nothing like the Storch had previously been seen in America.

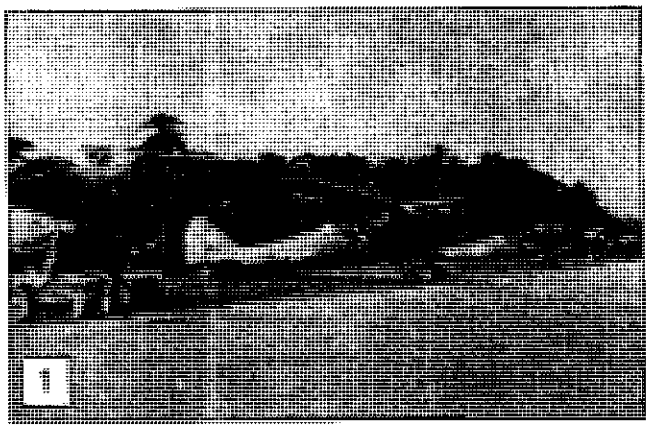
The U.S. Army wanted its own Storch, so they put out a request for proposals to manufacturers. Twelve submitted designs. Stinson's proposal, the Model 74, closely followed the Storch formula. It employed full-span Handley-Page automatic slats and sloted flaps. The airframe was a conventional steel-tube structure and was fabric covered. Of the three contract winners, only Stinson received a production order. The runners-up were the Bellanca YO-50, and the Ryan YO-51. They were awarded orders for an experimental model to be built. The Stinson contract, valued at $1,500,000.00 was for 142 aircraft. The Stinson O-49 won the competition because it was less complex and cheaper to build.

The Stinson model 74 or YO-49 was completed, but the Wayne aircraft factory was in full production of the Reliant, so Cord bought a factory in Nashville, Tennessee. First flight was in Nashville on July 15, 1940. It proved to be an amazing airplane. Test pilot Al Schramm demonstrated the YO-49 capabilities by flying in and out of a 200 foot circle. It was a bad landing if the roll-out was more than 10 yards. With a brisk headwind, it would even fly backwards. The Yo-49 was an outstanding performer. It was the Army's first STOL-type liaison aircraft. The YO-49 began military service as the O-49 Vigilant in September 1940.

Stinson received a second production contract for 182 more O-49s called the O-49A. All O-49s/L-1s were produced in Nashville. The contract number issued by the War Department was W535-AC-17910. In August of 1940, Cord sold his Stinson Aircraft division to Vultee Aircraft through a stock transfer arranged by Aviation Corporation (Avco), the parent company. Avco also owned Lycoming Motors and because of this, Stinsons were powered by Lycoming engines. Shortly thereafter, Vultee merged with Consolidated Aircraft to become Consolidated-Vultee or the shorter version Convair which is now General Dynamics.

The Vigilant, with its high wing and its pronounced dihedral, was a very stable aircraft. The controls were heavy, and the ailerons responded a little sluggishly, but the rudder and elevators were aerodynamically perfectly balanced. Nevertheless, it was a jewel to fly. The pilot's visibility in turns was much better than most other high-wing aircraft. There was also a sliding skylight window overhead, which could be opened during flight. The full-length slots on the leading edge of the wings allowed the Vigilant to virtually hover above the tree tops, over troops or armor units. It could fly at a speed substantially less than an automobile could travel on a city street and still maintain its altitude. The Vigilant was used later for mapping and reconnaissance roles.

Although the Vigilant was designed solely for the role of a two-seat army liaison and observation landplane, it did gain the distinction of becoming one of the very few amphibious float seaplanes to serve during World War II. The Edo Aircraft Corporation had been designing special amphibious float gear for the Vigilant. Known as the Model 77 amphibious gear, it combined two long single-step floats each of which embodied retractable nose gear and main wheels. This gear was fitted to two ambulance conversions of the O-49/L-1,



redesignated as L-1E, and to one ambulance conversion of the L-1A, which became the L-1F. The principle difference between the two models being the longer fuselage length of the L-1F.

When the O-49 was delivered, many of the pilots simply would not believe that "slower is better" for observation missions. Some even felt that the O-49 was a step backwards. Most military pilots believed that the faster a plane flew the better it was. The Army Air Corps listened to the complaints from its observation pilots and reconsidered its choice of aircraft. Ignoring the pleas of the ground forces for slower, light observation aircraft, the Air Corps ordered no more Vigilants and ordered the Curtis O-52 Owl to potentially replace the O-49. The new Owl was a high-wing, all metal craft with retractable landing gear. Powered by a 600 hp Pratt & Whitney R-1340 engine with a top speed of 208 mph, it had a 40 foot 9 inch wingspan, a weight of 4,231 pounds empty, and 5,344 pounds at maximum weight. The Owl was a waste of time and effort. It just did not work for what it was designed for. Therefore the Vigilant was vital during the war and served in all theaters of operation.

It served as an ambulance, aerial observation post, artillery fire control, supply craft, and many other vital uses. The Vigilant held only 67 gallons of gasoline. The total production of the O-49/L-1 was 252 planes, of which 33 went to the British under Lend-Lease. They served in Tunisia, Sicily and Italy in 1943 and 1944 and with the RAF. In addition, one Vigilant was built for the U.S. Navy. The Bureau of Aeronautics number was 09799 and designated the GQ-1.

The Vigilant was a real work horse. It was tricky to land in a cross-wind because of the dihedral of the wings. Because of its size and weight, it was a mechanics nightmare. Just to move it on its long, spindly landing gear required 6 to 8 strong men. To clean the windshield or check the oil meant hanging by one hand and working with the other. Just to change a tire meant the use of a two-ton jack. When a propeller or an engine change was needed, special tools and hoist equipment had to be used.

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1 – First Air Commando L-1s on the flight line at "Myoean Airstrip" in Burma, 1944–*Smithsonian*

2 – First Air Commando L-1s on the flight line at "Broadway" in Burma, 1944 –*L. Carroll*

3 – Stinson L-1 pilot Leo Carroll and his mechanic in Burma, 1944 –*L. Carroll*

Numerous L-1s were used in Alaska during World War II for search and rescue missions along the routes used by the ferry pilots flying P-39s etc to Siberia for the Russian Air Force. Following the war, several surplus L-1s were converted to float planes for use in the Alaska "bush".

As an ambulance, it could take out 2 or 3 casualties at one time, which the Army found out in Burma with the 1st Air Commando Group. They were evacuating wounded personnel in support for General Stillwell, Merrill's Marauders, and Chinese and British troops. The 100 pilots and 75 L-1s helped fly out over 1,000 casualties. The 1st ACG lost only 5 pilots, two of them strafed by the Japanese on takeoff.

Performance of the O-49/L-1 was legendary. Wallace "Wally' Thomas was stationed in Hawaii in 1941 flying the Vigilant from Bellow Field on the north side of Oahu. Wally always read the local Honolulu newspapers each morning and checked the arrival dates and times of the sea-going passenger and cruise ships sailing from the states. He would fly out in his O-49 to meet the ship some 50 or 60 miles out at sea. Once over the ship, he would slow the O-49 down to almost stall speed, and "hover" over the fantail of the ship, generally over the swimming pool. He would wave at the girls, and of course, they would wave back. Wally would make gestures to indicate the message "I will meet you on the dock". After getting an affirmative return gesture from a girl or two, Wally would then fly back to Bellow Field and jump into his car. He would rush to his quarters, get cleaned up in his best "meet-you-on-the-dock" clothes, buy a Lei of Hawaiian flowers and meet his shipboard date at the dock. He says the arrangement worked real well for him until the morning of December 7, 1941.

Production of the Stinson O-49/L-1 Vigilant Model 74

L-1-ST ex O-49
L-1A-ST ex O-49A
L-1B-ST ex O-49B
L-1C-ST An L-1A was modified with a loading hatch in the upper fuselage decking and cabin provision for a stretcher as the L-1C-ST. It was later converted to an L-1F-ST. Eventually, 113 L-1C conversions were completed.
L-1D-ST A total of 21 L-1A-STs were converted for glider pick-up training.
L-1E-ST Seven L-1A-STs with ambulance interiors and twin EDO floats with retractable nose and main wheels.
L-1F-ST The L-1C-ST conversion fitted with EDO floats. An additional four L-1A-STs were reported to have been simialrily converted.
CQ-2 Designation given to a small number of L-1s converted for remote control of targets.
O-49 Initial production model with a 295 hp R-680-9 and pilot and observer in tandem; 142 were built. Serial numbers were 40-192 through 40-291 and 40-3101 through 40-3142.
O-49AAs an O-49 but with a 13 inch fuselage extension and higher gross weight; 182 were built. Serial numbers were 41-18900 through 41-19081.
O-49BFour O-49s that were adapted for ambulance duties.
RAF The RAF called their version the Vigilant also.

Stinson O-49/L-1 Vigilant

Wing Span 51 ft. 11in.; Length 34 ft. 3 in.; Height 10 ft. 2 in.; Wing Area 329 sq. ft.; Empty Weight 2,670 pounds; Gross Weight 3,400 pounds; Engine Lycoming R-680-9 with 295 hp; Crew one or two; Maximum Speed 122 mph; Cruise Speed 108 mph; Stalling Speed 31 mph; Climb 1100 ft. per minute; Ceiling 20,000 ft.; Range 350 miles.

Vultee L-1

Stinson designed, and Vultee Aircraft Corporation developed, the Vigilant to fill the need for a slow-flying plane that would perform several functions. Full-length slots on the leading edge of the wings let the Vigilant virtually hover above the tree tops, troops or mechanized units. It could fly at a speed substantially less than an automobile on a city street and still maintain its altitude.

The Vigilant saw service in all theaters of World War II as ambulance, observation, fire control, supply craft and many other uses. Its 300 hp Lycoming air-cooled, nine-cylinder radial engine pulled the big airplane along at about 100 miles per hour. With a 52-ft. wingspan and a length of 36 ft., the Vigilant was one of the largest single-engine aircraft ever built. It's empty weight without oil or gas was 3,313 pounds; it's tanks held

6 gallons of oil and 67 gallons of gasoline.

Total production of the L-1 was 252, of which 33 went to England for use as trainers. The remainder were used in China-Burma, Alaska and Panama-Central America theaters of war. Only one exists today in flying condition.

The Vigilant was a strong plane, easy to fly, and it became a real work horse. It was tricky in cross-wind landings because of the dihedral of the wings. Because of its size and weight it was a mechanic's nightmare: just to move it required six to eight strong men. To put fuel into it meant the use of an extension ladder. To clean the windshield or check the oil required one to hang by one hand and wipe the windshield with the other. Just to change a tire meant using a 2-ton jack. When a prop change or an engine change was necessary, they required special tools and equipment. The Vigilant's tremendous thirst for fuel and oil also made it necessary for huge quantities to be kept on hand.

One of the L-1's notable weak points was its landing gear. Whether on floats, skis or wheels, the landing gear and struts were prone to bend or break.

The L-1 has a fascinating genealogy: it was designed by Stinson Aircraft Corporation, which mergered with Vultee Aircraft, which merged with Consolidated Aircraft, while many of the parts-including the tail section and all of the controls-were built by Fleetwing Aircraft.

Imagine, if you will, an Aeronca C-3 or a Piper J-3 Cub tucked under each wing of one of these Gargantuans of the air.

"Sergeant Pilot" flys L-1 into enemy held airstrip

provided by Duane K. Fudge, ILPA member, Wahoo, Nebraska

Staff Sergeant Duane K. Fudge, liaison pilot with the First Air Commando Group of Major General George E. Stratemeyer's Army Air Forces in India and Burma tells the following story of his exciting combat experience in the China-Burma-India-Theater.

"April eighth is a day that is burned into my memory in such a way I will never forget. On this particular day, I was ordered to fly into a tiny airstrip near the road block behind Jap lines in Burma named "White City". It got that name from the innumerable white supply parachutes hanging from trees surrounding it. My orders were to bring back a British Colonel. Fighting had been so intense that day and many days before, that we never knew who controlled the strip.

"I took off in a stretcher plane which we call the L-1. By hedge hopping along over the trees, I was soon over the strip. I circled and waited for a signal that all was well and that the strip was still controlled by our troops. There was no one on or near the strip, and it was surrounded on all sides by dense jungle,"

"Finally, I saw a green flare signal. Thinking it had been fired by our troops, I came on in and landed. My wheels had no more than slowed down when bullets began to rip through the plane. Fortunately, they hit no vital spot and I had enough runway after turning around to take off again. I found out later that the Japs had fired the green flare to lure me onto the field, which they controlled at the time. They hoped to capture the plane intact. The British said they had fired several red flares to keep me from landing, but I had not seen them."

"Later on that day, I returned and completed my mission as the British had retaken the field shortly after I had taken off, while the Japs were firing at me.

Air Commandos arrive greeted by L-Birds

by Leo J. Carroll, ILPA member, Bloomington, IL

Before the First Air Commandos had their Glider invasion of Burma, March 10, 1944, the Liaison Pilots were already up front working with Merrills Marauders, Stillwell and British troops. They were fighting the Japanese in the Huang Valley on the way to Myitkina, which was a large Japanese base about 200 miles south of Ledo, Assam, India.

Our 164th Liaison Squadron was at Taro, Burma about 100 miles south of Ledo, along the Ledo Road. My C.O., Capt. Everett F. Smith asked me to go to Caring village to pick up an American captain pilot who

had bailed out over the Hump. He had walked with British troops for two weeks, and was ready to be picked up. Charing was on the other side of the Huang Valley, so I had to fly north and then east and then south to go around the valley, because of the heavy fighting in the valley. The fight would be over 100 miles one way and it was getting late in the day.

Capt. Smith gave me a map and pointed to where he thought Charing was. He was pointing about two inches off the map and said, "I think it is about here." I took off and went around the valley and down the other side. I could see the fighting and artillery guns in the valley.

I had flown for over an hour and came to the end of the map. I could see Myitkyina in the distance, and I knew I did not want to go that far. I knew I had to go back soon or find Charing. I was over an area that looked like it might have been an airstrip at one time but had several trees brush on it. I continued circling and was beginning to say my second "Our Father who art in heaven" and the trees and brush began to move. I did not know who they were, but took a chance and landed. They were Burmese boys with a French Catholic Missionary. I was sure glad to see them. They told me Charing was over the next mountain about 40 miles. The priest told me to hurry and leave because the Japanese were in the area and would be there soon. I gave him some rations I had and he gave me five gallons of jeep gas which I put in the L-1 and took off.

Over the next mountain, down in a valley there was Charing next to a road and river. I did not see a strip, but the troops were standing on the road and waving. I have landed the L-1 on roads before, but this one was narrow with a wooden bridge over a creek with hand rails. Down in the valley, no wind, about 100 degrees temperature and trees at the far end on a curve. I had to decide, so I landed with full flaps at about 37 miles per hour. After bouncing over the wooden bridge, I came to a stop with everyone smiling. I tried to look like I was happy also, but I wanted to get going because it was getting late. The Capt. got aboard in the ambulance section behind me with his used parachute and was smiling. Now we both were beginning to sweat because the section of road looked shorter than when I landed.

With British troops holding the horizontal stabilizers while I revved up full rpm's, we took off. The villagers waved, the British troops took off into the jungle and the Capt. and I are on our way. I decided not to go back the way I came, because I would not make it before dark. I circled and climbed to gain altitude to clear the mountain and headed right across the valley to Taro. I had no other choice. After about one hour, I arrived at Taro just after sundown in the light of the moon.

L-1 Vigilant pilots remember how it was

The following recollections of several men who flew Vigilants in Burma in WW II, were collected by Hardy Cannon and Bill Stratton

Technical Sgt. Schnatzneyer and Captain Smith flew some saboteurs down into enemy territory, but did not return. **Staff Sgt. Carroll** scouted for them and sighted their two L-1s bogged down in a sand bar in the river. The downed men would be in for a long walk.

Master Sgt. Kermit Torkelson reported that he had been fired upon, but escaped a Japanese Zero while carrying a wounded Britisher. "With quick maneuvering on the valley floor, I managed to elude him. One spot measured 785 feet long, by 50 feet and had tall trees on both ends. We practically bent the L-1s around the trees to get in and out. One particular day, we ferried 88 wounded from that strip under threat of enemy fire. We lost two planes."

Staff Sgt Leo J. Carroll recounts, "Many pilots preferred the L-1 because of its ability to carry a much larger and heavier load (than the L-5s). But, the L-1 was a maintenance nightmare in the field.

"The engine quit just before I reached the strip. I stretched the glide, however, I ran out of ideas and altitude at the same time. I was able to strike both trees at the same time, and the wings took most of the shock."

"On another occasion, my right wheel had hit a hole and bent the landing gear strut. It was about to collapse. The doctor suggested a splint. We put two pieces of bamboo on each side and wrapped it tightly with nylon parachute cord. That was one landing that I made two-point tailwheel and left main gear.

"I saw **Jasper Thompson** attempt to take off with a loaded L-1. The left landing gear just seemed to give way."

Technical Sgt. Grant B. Putnam recalled, "It plunged into a rice paddy at the end of the strip. The landing gear folded as though it were made of rice paper."

Staff Sgt. Edward F. Hadovcak said, "My engine konked completely out. The paddy was not large enough, and when I hit my landing gear washed out."

"Grasshoppers"

The Taylorcraft 0-57, the Aeronca 0-58 and the Piper Cub 0-59, became known as the L-2, L-3 and L-4. Basically civilian airplanes in war dress, these planes were built to fill a need for civilian and military flight programs, with the Army testing them in the war maneuvers of 1941, where they were first called "Grasshoppers."

Taylorcraft L-2

The Taylorcraft L-2 was designed and built by the man who designed and built the Taylor Cub, or the Cub E-2. In 1930 C. Gilbert Taylor and his brother organized Taylor Aircraft Corporation at Bradford, Pennsylvania.

The company reorganized in 1931 but was still called Taylor Aircraft Corporation. C. Gilbert Taylor was president, general manager and chief engineer; William T. Piper was secretary-treasurer, and "Bud" Havens was the company pilot.

The Taylorcraft story begins in 1935 when designer Taylor sold his share of the company to his partner, oilman William T. Piper. From 1931 to 1935 Piper had financed the very successful "Taylor Cub", a single-engine, two-seat monoplane that prospered because of it economy, low price and ease of maintenance; truly a creation of the world-wide economic depression.

Taylor felt that the "Cub", with a few changes, could be made more comfortable and even possibly to go a little faster. This difference of opinion, and others, led to the end of the partnership. Piper kept the company, the Cub and all the manufacturing rights.

At the time, some felt Taylor was a genius, some thought him eccentric, but all admitted he was a designer of outstanding ability. This talent fostered an enthusiastic bank of "Taylorcraft" fans that remains even to this very day. Taylor was not going to stop building airplanes, so he formed Taylor Aviation Company and began production in a shop in Butler, Pennsylvania. There the first Taylorcraft Model A was built.

Taylor used his basic Cub design, streamlined it, placed the seats side by side and used a wheel instead of a stick for control. The T-craft used the 40 hp Continental engine, which was the same one as in the Cub, but the Model A could fly a few miles faster.

Taylor's little airplane became an immediate success, so much so the factory had to be expanded. However, with the depression on, there was no extra money to make such a move. Then the city of Alliance, Ohio, offered the Hess "Argo" plant rent free. This was an offer Taylor could not refuse, so the factory was moved. By August 1937, the 200th Taylorcraft Model A had been sold. Production in 1938 reached 75 units per month.

Model B came out in 1938, with the 50 hp Continental that was later upgraded to a 65 hp Continental Franklin, or Lycoming. The Model B seemed to perform better than the Model A and drew high praise and success for its builder.

With the war coming, Taylorcraft began to build trainer versions that were designated 0-57 and later L-2 by the Army.

In 1940, a new market expanded for which Taylorcraft side-by-side could not compete. The Civilian Pilot Training Program trained pilots in the military way-tandem with stick controls. Though Piper captured the lion's share with its "Cub," there was need for more planes. Aeronca and Taylorcraft hastily went into production to build a tandem trainer.

Model D was a case of using what you have and going on from there. Model B wings and tail group were fitted to a new and simpler fuselage. Tandem seating extended the fuselage nine inches. Some sections were reinforced, a new landing gear, an open-engine cowl and a stick control were added. Rather than use "Cub" flap door and raised window entry, Taylor used a wide single door with entry to both seats. The plane was designed as a "bare bones" army trainer and not aimed at the civilian market. Some of the cockpit comforts and details were eliminated.

Used as the trainer it was designed to be, the Taylor Model DC-65 Tandem became a real workhorse of the light plane industry.

The second paragraph of the Model D Instruction Manual endorses Taylor's concern for safety:

"Carelessness in one form or another is the true source of practically all airplane mishaps. Neglect of, or improper inspection on the ground, is the hardest form of carelessness to overcome. While we all condemn reckless flying, improper care on the ground cannot be too strongly pointed out as the most dangerous form of recklessness."

To accommodate operators who preferred different makes of 65 hp engines, the D Model was available with three power plants: The DC-65 with a Continental A-65, the DI-65 with a Lycoming 0-145-B2, and the DF-65 with the Franklin 4AC-176 engine.

A few D's were sold to private owners for $1,845 each and a few more than 100 went to the CPTP before world events completely altered the marketing situation.

The Big Three light plane manufacturers virtually forced CPTP models on the Army for trial in the 1941 Army maneuvers, along with their sharpest company pilots. In spite of initially strong resistance from Army officials, the performance of each company's tandem-seat models, operating on roads, unprepared areas and from small clearings, was sufficiently impressive for the Army to order four test models of each design. The T-craft became YO-57; the Aeronca, the YO-58; the Piper, the YO-59, and all were collectively nicknamed "Grasshoppers." (The Y indicated the Army test status of the designs.)

The Army did away with the old O (for Observation) designation and replace it with L (for Liaison) early in 1942. The O-49 became the L-1, the O-57 became the L-2, the O-58 became the L-3, and the O-59 the L-4.

The major change made to the three light planes for liaison missions was to increase the field of view for the rear seat occupant. The Aeronca and Piper design retained their original upper fuselage contours and merely made the area immediately behind the wing transparent. Taylorcraft made more extensive changes. It cut off the superstructure to produce a low, flat deck level with the upper longerons and then extended enlarged cabin windows into a streamlined transparent fairing behind the rear seat. The rear seat was redesigned to swivel so the observer could face the rear. Production versions of the militarized O-57 craft were the L-2A, B and M, which Taylor craft designated Model DCO-65.

More changes were made to the L-2M, which featured a cowled engine and spoilers, similar to those on a glider, on top of the wing to allow steep approaches to small fields; none of the Big Three L

1 – Unknown pilot with Taylorcraft L-2 at Ft. Sill, OK, 1942 –*Ft. Rucker Museum*
2 – L-2 flying over Ft. Sill, OK, 1942 –*Ft. Rucker Museum*
3 – L-2M taxing out for take off at Ft. Sill, OK, 1943 –*F. Houston*

models had flaps. TL-2-M was the last L-2 model that Taylorcraft built.

Early in 1942, the Army glider pilot training program was seriously handicapped by a shortage of suitable training gliders and glider schools. The Army asked Civil Aeronautics Administrator Charles I. Stanton for ideas on how to break the bottleneck.

Stanton had an almost instant answer. He suggested converting readily available light planes to training gliders. The engines could be removed and a new nose, containing a third seat and a special set of controls, could be bolted to the existing fuselage structure at the original engine mount attach units. Balance could be maintained by ensuring that the weight of the occupant and the new nose just about equalled the weight of the removed engine, mount, cowling, and propeller. The nose would be contoured to carry the canopy back to the existing structure and a short two-wheel landing gear would be substituted for the original.

Piper and Aeronca bolted new noses onto the engine mount points, but Taylorcraft cut the frame back to the wing strut attach point and used a different nose structure in the glider, which it called the ST-100 for Stanton Taylorcraft.

The Aeronca training glider became the TG-5, the Taylorcraft the TG-6, and the Piper the TG-8. The Army ordered 250 from each manufacturer after evaluating a model from each. The U.S. Navy also evaluated a glider from each manufacturer and decided on the Taylorcraft.

At war's end, the Big Three resumed production of pre-war models. Aeronca modernized its tandem L-3 into the Champion 7AC, and Piper resumed production of the J-3 Cub. But Taylorcraft revived only the side-by-side BC-12 model, dropping the tandem-seat D Model.

But that wasn't the end of the line for the Tandem. Many Army L-2's went onto the surplus market, as did most of the three-seat gliders. The latter were useless to the small soaring fraternity so were sold instead to would-be power plane owners. With the Aeronco and Piper gliders, conversion to power involved only removing the glider nose, removing or deactivating the spoilers and re-attaching stock engine mounts, a cowling and landing gear to obtain a standard license under the original A.T.C.

The Taylorcraft glider, however, because of the cut-away forward structure, was not so easy to convert. Since the factory was not interested, about 26 small shops and individuals undertook the conversion work on their own.

The surplus L-2's could be licensed under their original A.T.C. Some were changed or civilianized, some were rebuilt and some were just repainted.

There were 336 "A" Model L-2's and 490 "B"'s built for the Army artillery observation. The L-2M became the most numerous model with a total of 900 being built.

In 1943, the U.S. Navy followed the Army's lead in abandoning sailplane-type gliders for primary and familiarization training and adopted modified liaison-types from which the 65 hp Continental engines had been removed and replace by an extra seat in the nose to maintain balance. The Navy bought 35 Army Taylorcraft TG-6s, 10 as the XLNT-1 and 25 as the LNT-1. These had sinking rates and speeds and glide ratios more compatible with the cargo-type gliders the pilots were eventually to fly. Shortly thereafter, the Navy pulled out of the glider programs altogether.

Over the years a number of American designed aircraft have been licensed to foreign manufacturers for production and sales. One of the best known examples of the pre-World War II years was the Taylorcraft. The T-craft as it was known, was licensed to the Taylorcraft Aeroplanes limited formed at Turmaston, Leicester, England in 193B. Taylorcraft Aeroplanes Limited had completed 22 model Cs by the summer of 1939 when the beginning of WWII ended all civil aircraft production.

The British firm converted all remaining unassembled Model C airframes with engine mounts to take the popular British Cirrus Minor four-cylinder inverted air-cooled engines. These engines were used in the early models and designated as the Auster 1 and the Auster II's "mounted" the American Lycoming O-290, 130 hp engine. But to avoid the risk of importing the American engines in wartime, the RAF used a British engine - the 130 hp De Havilland Gypsy Major engine. They produced 467 Auster IIIs, the most popular WWII British Liaison aircraft.

Another one of the U.S. Navy's secret projects during the war was the Gliding Bomb Project and assigned the designation LBT-1. Few people knew that a super-secret Taylorcraft glider was designed and built or modified to deliver the Atomic Bomb. Al Barber was the test pilot on the GLOMB - glider-bomb project.

The Glomb concept proposed that a glider be built that could be flown into the target area by a remote controlled aircraft with the guidance being a television camera in the nose of the Glomb. It would send back to a screen in the mother aircraft where the remote control "pilot" sat guiding the gliding bomb onto the target. This was a very early version of the modern-day "smart bombs". Of course, we now know that the whole idea was to get the mother ship away from the target so there would be no damage from the extreme shock created by the Atomic bomb. A TG-6 could have been the ship to carry the bomb to Japan or Germany. Instead they found that a B-29, at extreme high altitude, could get away from the blast successfully. Both Piper and Taylorcraft built a Glomb.

The Glomb was tested originally with a pilot on board and flown many hours before the electronic guidance equipment was installed. A similar project was going on at the same time with a B-24 being loaded with high explosives and then taken off with a small crew onboard who then armed the impact switches and bailed out allowing the mother ship to follow and guide it to the target. Joe Kennedy, brother of the future President of the United States John F. Kennedy, was killed in this type aircraft over England when the aircraft blew up during the arming procedure prior to bail out.

The civil register in 1948 listed approximately 1,350 DCO-65's and other D models in existence. The total listed now is less than 250;truly a vanishing breed of plane.

Through research, study and interviews, it has been determined that none of the Taylorcrafts were ever used in combat zones during World War II.

TAYLORCRAFT O-57/L-2 GRASSHOPPER MODEL D TWO-SEATER

L-2-TA... ... ex O-57-TA

L-2A-TA ... ex O-57A-TA

L-2B-TA ... Same as L-2A-TA but with modified equipment for artillery spotting. It has a 65 hp O-170-3 engine; 490 were built. Serial numbers were 43-1 through 43-490

L-2C-TA ... 13 impressed Model Dc-65 with the Continental A-65-8 65 hp with two seats in tandem. Serial numbers were 43-2802 through 43-2866, 43-2868 through43 -2873 and 43-2091.

L-2D-TA ... One impressed Model DC-65 with 65 hp O-145BZ engine, with two seats in tandem. Serial number was 43-2902.

L-2E-TA ... Ten impressed Model DF-65 with a 65 hp Franklin 4AC-150 engine with two seats in tandem. Serial numbers were 43-2859, 43-2861, 43-2867, 2890 through 43-2892 and 43-2903 through 43-2906.

L-2F-TA ... Seven impressed Model Bl-65 originally given the designation UC-95-TA. The engine was a 65 hp O-145-B1; it had two side-by-side seats. Serial numbers were 42-79556, 43-2881 through 43-2883, 43-2889,43-2993, and 43-2908.

L-2G-TA ... Two impressed Model BFT-65s with a 65 hp Franklin 4AC-150 engine. They had tandem seats. Serial numbers were 43-2888 and 43-2907.

L-2H-TA ... Nine impressed Model 8C12-65s with two side-by-side seats. The engine was a 65 hp Continental A-65-7. Serial numbers were 43-2874, 43-2879, 43-2880, 43-2883 through 43-2886, 43-2895 through 43-2897, and 43-2900.

L-2J-TA ... Five impressed Model BL12-65 which was the same as the L-2H-TA, but with a 65 hp O-145-BL engine. Serial numbers were 43-2875 through 43-2877, and 43-2898 and 43-2907.

L-2K-TA ... Four impressed Model 8F12-65 which was the same as the L-2H-TA, but with a 65 hp Franklin 4AC-150 engine. Serial numbers were 43-2878, 43-2884, 43-2887 and 43-2894.

L-2L-TA ... One impressed Model 8F50 with two side-by-side seat with a 50 hp Franklin 4AC-150 engine. Serial number was 42-79559.

L-2M-TA ... Same as the L-2A-TA with a close fitting engine cowling and wing spoilers; 900 were built. Serial numbers were 43-25854 through 43-26753.

UC-95-TA One Taylorcraft BL-65 (serial number 2495), registered in Panama to an American citizen name R. D. Maynard. It was impressed as the only UC-95 with the serial number 42-79556. It was re-registered as the L-2F-TA and withdrawn from use in December 1944.

YO-57-TA... Four Model Ds for evaluation with a 65 hp YO-170-3 engine. Serial numbers were 42-452 through 42-455.

O-57-TA ... Same as the YO-57 but with small changes and a 65 hp O-170-3 engine. Seventy were built; serial numbers were 42-7773 through 43-7792, and 43-2859 through 43-2908.

O-57A-TA Same as the O-57 but with a modified cabin, wing railing edge cut away near the wing root for the military SCR-585 radio. The observer's seat could face aft. 336 were built with the serial numbers 42-15073 through 42-15185 and -32825 through -36074. An additional 140 were ordered and built with the serial numbers 42-38498 through 43-38531, and 43-25754 through 43-25853.

TG-6-TA ... Model St100 three-seat training glider version of the L-2 with enlarged fin area, wing spoilers and a simplified landing gear. 250 production models were built. Serial numbers were 42-58561 through 42-58810. One was rebuilt as the XTG-33-TA. Three (43-12496 through 43-12498) were ordered for delivery to the U.S. Navy as the XLNT-1. Bureau of Aeronautics were 36428 through 26430. Seven were transferred to the U.S. Navy as Bu 67800 through 67806.

XTG-33-TA Two TG-6-TA were extensively rebuilt in 1945 with a prone station for the pilot as the XTG-33-TA - it did not work at all.

XLNT-1 ... U.S. Navy version of the TG-6-TA, ten of which were obtained from the USAAF as the XLNT-1. The Bu numbers were 36428 through 36430 and ex-43-10491 through 43-10498 which were Bu numbers 67800 through 67806.

LNT-1 ... ... 25 production examples were built; Bureau of Aeronautics numbers were 87763 through 87787.

TAYLORCRAFT O-57/L-2

Wing Span 35 feet 5 inches; Length 22 feet 9 inches; Height 8 feet; Wing Area 181 square feet; Empty Weight 875 pounds; Gross Weight 1,300 pounds; Engine Continental O-170-3 (A-65-8) 65 hp; Crew one or two; Maximum Speed 98 mph; Cruise Speed 78 mph; Climb 350 feet per minute; Ceiling 10,050 feet; Range 230 miles

TAYLORCRAFT TANDEMS

	DL-65	L-2M	TG-6
SPECIFICATIONS:			
Powerplant:	Lycoming O-145-B2	Continental A-65	(Glider)
(Military designation	65 hp, @2,550 rpm	O-170-3)	
Wingspan	35 ft 5 in	35 ft 5 in	35 ft 5 in
Length	22 ft 9 in	22 ft 9 in	25 ft 2 in
Wing Area	180 sq ft	180 sq ft	180 sq ft
Wing Loading	6.67 lb/sq ft	7.37 lb/sq ft	7 lb/sq ft
Power Loading	18.46 lb/hp	20.42 lb/hp	—
Empty Weight	720 lb	875 lb	615 lb
Gross Weight	1,200 lb	1,327 lb	1,260 lb
PERFORMANCE			
High Speed	102 mph	97 mph	140 mph (red line)
Cruising Speed	98 mph	90 mph	—
Landing Speed	36 mph	45 mph	42 mph
Initial Climb	550 fpm	480 fpm	—
Service Ceiling	14,000 ft	12,000 ft	—
Range	300 sm	264 sm	—

Aeronca L-3

The story of the development of the Aeronca begins with a 12 year old French immigrant named Jean Roche. The young boy developed a passionate love of aviation and became a skilled model builder. He was able to win many awards for the excellent flying characteristic of the models.

Aeronca L-3

Simplicity and functionality were Roche's keynotes to sound engineering. He recognized that aircraft design is a series of compromises between such factors as range, weight, useful load and fuel load. He kept weight to a minimum as a matter of course and insisted on strict functionality of all parts.

The single wing monoplane was far superior to the two winged biplane and was steadily maintained by Roche. This fact was born out when his light monoplane was able to out perform, on less horsepower, the standard biplanes of the day.

John O. Dorse, an assistant to Roche, volunteered his service and the two man team was better able to come up with a complete yet simple little airplane to be flown for fun.

The Aeronautical Corporation of America (Aeronca) was formed in November 1928. Here was a company with assets of over on half million dollars, but no factory, no employees and no airplane to build. It was decided by the group that the new facility would be based at the Lunken Airport near Cincinnati, Ohio.

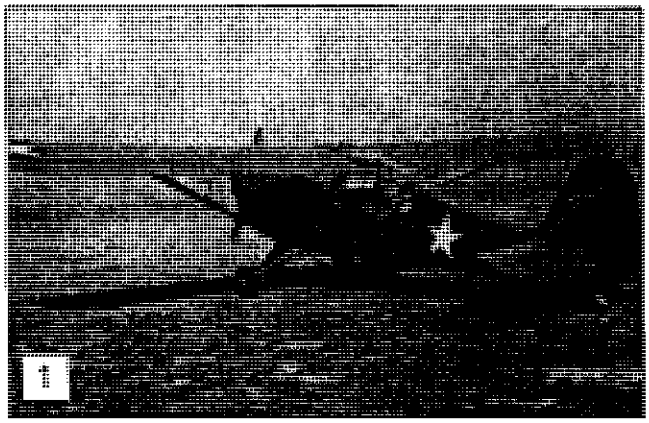
After much testing and a few modifications, a deal was made with Roche for the manufacture of his airplane. He was to receive 220 share of stock in the newly formed company and was to act in an advisory capacity.

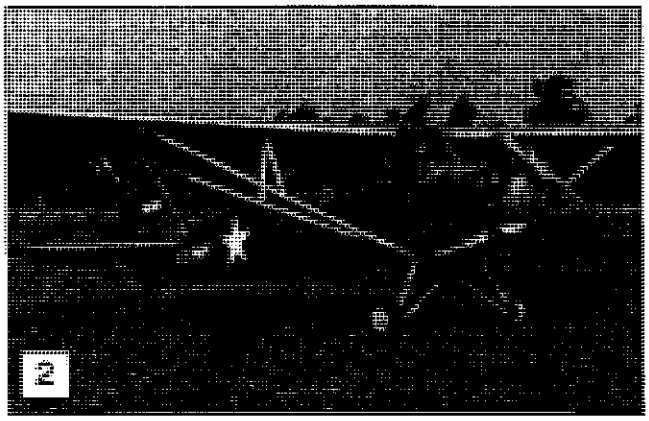
The first production airplane was to known as the Aeronca C-2. It was a single place monoplane powered by a 26 hp, two cylinder, air cooled engine developed by Aeronca. The next production model was a modification of the C-2 to be known as the C-3. It seated two people and had a bit more powerful Aeronca two cylinder, 36 hp air cooled engine. Many of the C-3s were built and sold as a very economical dual training aircraft during the Depression ear. Many of today's pilots, including many retired airline pilots, leamed to fly during that era and received their dual and solo hours in the Aeronca. They also built up the required hours to get their commercial, instructor's and air transport pilots certificates in the Aeronca C-3. Paying $1.50 an hour for dual instruction, and $1.00 per hour for solo flight time was a good price back then.

In April 1938 the Aeronca company introduced the Aeronca Chief, with the newly released Continental Twin Ignition 50 hp engine. About 200 of these Chief aircraft were built during the first year. In the next year, 1939, the Army tested the Aeronca 50-C (50 hp Chief) as a trainer, but due to is side-by-side cockpit arrangement, turned it down. The Army stuck to its old theory that all training airplanes should have a tandem seating cockpit arrangement, Of course, the military later reversed this thinking as seen by the very long lasting and still operating Cessna T-37.

As the clouds of war began to cover the world. the United State began stepping up its flight training program. In order to compete with the other Big Three, Aeronca introduced its Aeronca Tandem Trainer, powered by either a Franklin 60-h.p. or Continental A-50 engine. In a class with the J-3 Cub, the Aeronca Trainer used the wings and tail group of the A-50 Aeronca Chief with a tandem fuselage instead of a side-by-side.

"Several desirable points were evident at first





1 — Aeronca L-3 *—J. Houser*
2 — Navy version of L-3 JR-2 *—W. Sluyter*
3 — L-3 "crack up" in C.B.I. *—16th Combat Photo Group*

sight: having lift struts brought to a point forward of the door minimizes propeller risks, a lot of head room, and the rear stick being well out from the seat permits use of either a seat or a back-pack type chute without any adjustments, discomfort or interferences with the back travel of the stick. It is nice to be able to put on a chute, get in, and move right off without a lot of fuss or having to sit in too much of an abnormal or cramped position."

In order to increase sales and to be more in competition with Piper, Taylorcraft, Rearwin and Porterfield, Aeronca refined and modified its Aeronca Trainer into what became known as the Aeronca Defender in 1941. From the Defender came the Aeronca YO-58, then the O-58 and finally the definitive model the L-3.

The fuselage was made several inches wider at the bottom, allowing for wider seats and more leg room around the rudder pedals. The tail group was made a little smaller, with almost two square feet taken out of the rudder area and the new rudder balance. The elevators were the same except for a wider trim tab of narrower chord.

The cockpit of the new Defender was another step forward in refinement of the interior of training planes. Special hinges allowed the door to swing completely out of the way.

The Defender became the YO-58, then the O-58, then with further modification the L-3, and with still further modification, the TG-5 Training Glider.

The Clark Y Airfoil selected by Aeronca founder Jean Roche to build his first airplane, is the same airfoil used in all Aeronca-built planes.

The first Aeronca aircraft obtained by the Army in 1941 were four Model 65TC Defenders, light training monoplanes with tandem seating and dual controls. Designated YO-58 in the Army Air Corps observation category, they were powered by 65 hp Continental YO-170-3 engines. Substantially the same were fifty O-58s. The twenty O-58 A's had a four-inch wider fuselage and the design was then fully modified for Army duties, with increased window area in the cabin for improved visibility. This version was designated the O-58B, with a gross weight of 1850 lbs. compare with the 1200 lbs. of the original Defender.

After 335 O-58B's had been delivered, the aircraft was reclassified (in common with the Piper and Taylorcraft types) into the Liaison category. The YO-58 and O-58 became the L-3; the twenty O-58A's became L-3A's and the O-58B became the L-3B, under which designation, production continued until a total of 875 of this model had been built. They were followed by 490 L-3C's in which the radio was revised and the gross weight reduced to 1800 lbs, concluding production of the L-3 for the Army.

In common with other commercial aircraft, a number of privately-owned Aeroncas were commandeered for military use in 1942. They were designated in the L-3 series as follows:

L-3D, 11 Aeronca 65-TF with Franklin AC-167 engines

L-3E, 12 Aeronca 65-TC with Continental A-65-8 engines

L-3F, 19 Aeronca 65-CA Super Chiefs (42-78044) with side-by-side seating and Continental A-65-8 engines

L-3G, four Super Chiefs, same as L-3F but with Lycoming O-145-B1 engines

L-3H, one Aeronca 65TL Defender with Lycoming O-145-B engines

L-3J, one Aeronca 65-Tc Defender with Continental A-65 engine.

The Aeronca TG-5 was a significant contribution to glider pilot training. It was a three-seat training glider that used the L-3 wings, tail unit and rear fuselage with a new bolt on the front fuselage section. All three seats had basic flying controls and instruments, the instructor being in the new front seat section and the students in the tandem seat positions of the original L-3. A single production batch of 250 TG-5's was built, and three more were procured later for evaluation by the Navy.

Aeronca Aircraft turned out is first glider, the TG-5, just nine days after the Civil Aeronautics Authority had ordered its design. A variation of the Aeronca Defender, the TG-5, was successfully flown May 20, 1942, by Maury Fry. Writing for Airpower magazine, author Mal Holcomb said: "The birth of the first Aeronca TG-5, in only nine days, is easily one of the most amazing success stories of World War II."

The total production of the Aeronca Aircraft Company for the war effort was 1798 L-3's, 253 TG-5 gliders, and in cooperation with the Fairchild Aircraft Company, Aeronca built 620 PT-19-A-Ae primary trainers known as the "Cornell."

As to the use of the O-58, or L-3 as we know it, it was a very rugged trainer and was used in many flight schools to train liaison pilots. The L-3 was pressed into duty doing Japanese submarine patrol off the

California coast. It was also a trainer and general liaison plane for the Free French in North Africa in 1942-43. After the Normandy invasion, the L-3 saw general duty in France and there are pictures of L-3's on a tropical airstrip somewhere in the Pacific War Theatre. There's just no positive proof as to the role that it may have played in the Pacific War.

As to the use of the O-58/L-3, we know it was a very rugged trainer aircraft used in many flight schools. The L-3 found itself out on the west coast flying patrols looking for Japanese submarines. In 1942 and 1943, the Free French used the L-3 as a trainer and general liaison aircraft. The L-3 saw general duty in North Africa, in France after the Normandy invasion, and in the South Pacific. In United States military duties overseas, the units with L-3s were U.S. Army units. The Army liaison L-3 was a flexible monoplane and served in all theaters of operations. Short take-off and landing requirements, easy maintenance, and low speeds made them ideal for artillery spotting, troop movement, general liaison courier chores, and observation. Happily for the crew, they were very difficult to shoot down, and if hit, the L-3 had considerable gliding capabilities. bullets easily passed through the canvas covering usually doing little damage. Also, as the enemy learned if you shoot at a liaison aircraft, you could have a lot of artillery down on you very fast. Therefore, they were usually not shot at. Of the L-3s shot down, one was downed by the Japanese overtaking/retaking Manila.

All L-3s were declared war surplus after V-J day, and were purchased very economically by the civilian market - both in the United Stated and overseas. Many still exist today.

AERONCA O-58/L-3 MODEL 65TC GRASSHOPPER

L-3-AE ex O-58
L-3A-AE ex O-58A
L-3B-AE ex O-58B
L-3C-AE Same as L-3B-AE but with a radio. Engine was the 65 hp 0-170-3. Total of 490 were built. Serial numbers were 43-1471 through -1960. These were at first given the serial numbers 42-60281 through -60777 but were canceled.
L-3D-AE Eleven impressed Model 65 TF Defender tandem two-seaters with 65 hp Franklin 4AC-176 engine.
L-3E-AE Twelve impressed Model 65TC defender tandem two-seaters with 65 hp Continental A-65-8 engines.
L-3F-AE Nineteen impressed Model 65 CA Super Chief side-by-side two seaters with a 65 HP Continental A-65-8 engine.
L-3G-AE Four impressed Model; 65C Chief side-by-side two seaters with a 65 hp 0-145-B1 engine.
L-3H-AE One impressed Model 65TL Defender. Same as the L-3D-AEa but with a 65 hp 0-145-B1 engine.
L-3J-AE One impressed Model 65TC Defender. Same as L-3E-AE but with a 65 hp Continental A65-3 engine.

The L-3D through L-3J impressions were allocated serial numbers 43-2809 through -2858, but no precise allocations are known, although not all serial numbers were taken up. Also an L-3F-AE impressment (serial number 4081 was NC33876) was serial number 42-78044.

YO-58 Four aircraft were serial numbered 42-456 through -459 with a 65 hp YO-170-3 engine.
O-58 Same as the YO-58 but with a 65 hp O-170-3 engine. 50 were built with the serial numbers 43-2809 through -2858.
O-58A Same as the O-58 but with a wider fuselage, enlarged windows for better observation. 20 were built with the serial numbers 42-7793 through -2817.
O-58B Same as the O-58A but with equipment changes. 335 were built with the serial numbers 42-14713 through -14797 and 42-36075 through -36324. Redesignated as the L-3B-AE, 540 more were built with the serial numbers 42-38458 through -38497 and 43-26754 through -27253. (JR-1's used by the Navy... how many I do not know but they flew out of Olay Naval Station in California)
XTG-5-AE Three seat training glider version of the L-3 with a redesigned forward fuselage and tandem seats. The instructor was in front. Four prototype conversions were canceled with the serial numbers 42-683022 through -68305.
TG-5-AE 250 were built using the serial numbers 42-57229 through -57478. An additional three were diverted to the U.S. Navy with the serial numbers 43-12493 through -12495.
LNR Three TG-5-AE (42-457, -57461, and -57462) were diverted to the U. S. Navy to become Bureau of Aeronautics 36422 and 36424.

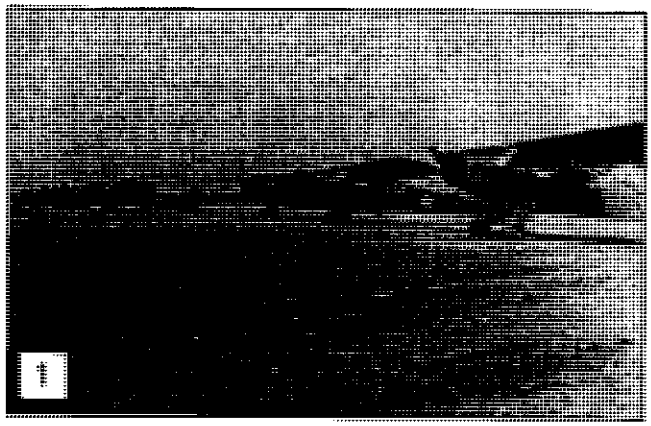
AERONCA O-58/L-3 GRASSHOPPER

Wing Span 35 feet; Length 21 feet 0 inches; Height 7 feet 8 inches; Wing Area 158 square feet;
Empty Weight 865 pounds; Gross Weight 1,800 pounds; Engine Continental 0-170-3 (A-65-9) with 65 hp @2300rpm;
Crew one or two; Maximum Speed 87 mph; Cruise Speed 75 mph; Climb 400 feet per second; Ceiling 7,750 feet; Range190 miles

Piper L-4

The Piper L-4 Cub or Grasshopper was designed by the man who originally designed the E-2 taylor Cub. It was in 1930 that C. Gilbert Taylor and his brother organized the Taylor Aircraft Corporation in Bradford, Pennsylvania.

The company was reorganized in 1931 as the Depression took effect, and was renamed the Taylorcraft Aircraft Corporation. The only real change was the addition of local oilman William T. Piper as secretary-treasurer of the new company.



1 — L-4s on flight line at Ft. Sill, OK for the "Class Before One", 1942 —*Smithsonian*
2 — Capt John Linn, C.O. of 44th Division Artillery and his L-4 "Robin II" —*J. Linn*

The Piper Cub story really take off in 1935 in the middle of the Depression. At this time the President of the company, C. Gilbert Taylor, sold his share of the Taylorcraft Aircraft Corporation to William T. Piper. From 1931 to 1935, Piper financed the very successful Taylor Cub. This was a single engine, tandem seat, monoplane which prospered because of is economy, low price and ease of maintenance. This was truly a creation of the world-wide economic depression. Taylor felt that the Cub, with a few changes, could be more comfortable and even possibly go a little faster. This and other differences of opinion led to the parting of the partnership. Piper kept the company, the Cub and all of the manufacturing rights.

Piper operated the business under the name of Taylor Aircraft Corporation for a short time, but this caused confusion since Taylor had started his own aircraft company. So the company was reorganized and renamed the Piper Aircraft Corporation of Lock Haven, Pennsylvania. At this point, Piper was the President, Treasurer, and General Manager.

One of Piper's engineers was a man named Walter Jamouneau who fine-tuned the Cub design so as not to disrupt production very much. He changed the designation of the E-2 Cub into the J-3 Cub (J stood for Jamouneau of course). The first model of the J-3 was produced in 1937 and this evolved into the YO-59 which become the L-4. All were basically the same aircraft.

In 1938, with the declaration of a need to train pilots, the J-3 was there to do the job, efficiently and effectively. The transition from the J-3 to O-59 was completed by simply cutting away the fabric and putting on a transparent plexiglass panel in the "greenhouse" area.

The North American O-47, the Stinson O-49, and the Curtis O-52 competed with the Piper J-3 and they more than met their match, although the Stinson O-49 came close. There seemed to be nothing that the versatile J-3 could not do or accomplish at a fraction of the cost. With the Piper J-3 Cub redesignated as the O-59, there was no end to the demands placed on the Cub. They did the job, and they did it well. With the throttle slide open to the stops, they would do less that 100 miles per hour.

The O-59 which became the L-4 was operated in greater numbers that any other liaison or observation type plane during the formative years of what would eventually become the modern Army's air arm of Army Aviation. It played a significant role in shaping the operational doctrine that guided Army aviation activities until the early years of the Vietnam War. Examples of several L-4 variants did, in fact, remain in the Army's inventory into the early 1950s. The L-4 provided the basic airframe from which two other significant Army air-

craft were developed.

The ubiquitous Piper L-4 first entered Army service in 1941 as the O-59 when it was one of three commercial light planes types selected for evaluation in the artillery observation and general liaison roles. Like the other two aircraft chosen for testing, the Taylorcraft Model D (L-2) and the Aeronca Model 65TC Defender (L-3), the Piper J-3-65 Cub was a light, two place, high-wing monoplane of simple metal and fabric construction. Speed was not an especially important factor in the evaluation and the Cub's good short-field performance and ease of maintenance made it an ideal Army co-operation aircraft.

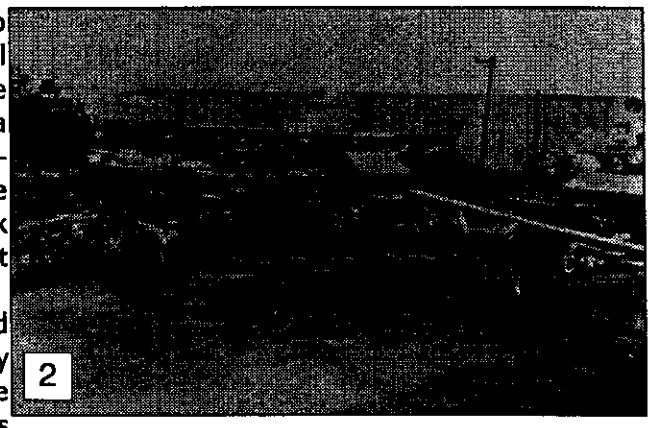
The 65 horsepower engine allowed the L-4 to operate on automobile gasoline. This fact proved vital to many liaison pilots. There were many times when the pilots would land their L-4s in a field, drain gas from a truck or jeep or a tank to obtain a couple of 5 gallon jerrycans. They would then pour it into their L-4s and be off to complete their assigned mission. The L-4 fuel tank only held 12 gallons of gas; that was enough for about three hours of flight time.

The L-4s first use by the Army was in the famed 1941 Louisiana maneuvers. There, a hard-bitten cavalry master sergeant, half asleep from a full day's ride through the dusty countryside, pulled up when his horse shyed and stared in wide-eyed amazement at the olive drab J-3 Cub putt-putting up to a country gas pump for fuel. The airplane had no national insignia, but it had on its sides the white cross indicating it was part of the white army actively engaged in the big maneuvers.

"What the hell's that airyplane doin' on this here road anyway?" demanded the top kick as he looked down from his perch high in the saddle. The pilot, dressed in suntans void of military rank, directed the station attendant to fill the tank, then looked up at the horse soldier, smiled a wide grin and said, "Sergeant, this little Cub just took part in a cavalry-tank skirmish and Colonel Eisenhower observed the whole show from the back seat." With that the pilot blocked the wheel with a rock, propped the engine, kicked out the rock, got in the cockpit, taxied a few hundred feet and then proceeded to take off down the dusty road.

Like Aeronca and Taylorcraft, the Piper Aircraft Company was asked in 1942 to evolve a training glider from their basic liaison aircraft that they were building at that time. This was mainly accomplished by removing the engine and the landing gear and substituting a new from fuselage with an extra seat for the instructor. A new simple cross axle landing gear with


1

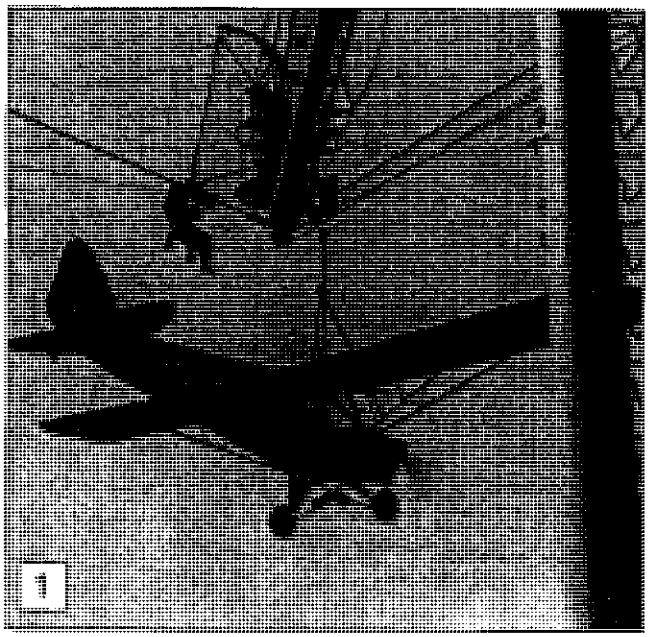

2


3

1 – L-4 "Grasshopper" on Louisana Maneuvers, 1942
2 – L-4 landing at Naples, Italy harbor to be loaded on LST (upper left) for Anzio Invasion, 1943 –*D. Rhodes*
3 – L-4 parked of Champs Eplysee in Paris, France, 1944 –*J.L. Behgin*

individually actuated hydraulic brakes and a steerable tailwheel completed the undercarriage. The vertical tail control surfaces area was increased and full controls were provided at each of the tree seats. Three of these gliders were procured for the U.S. Navy and designated TG-8. The Navy also used many of the Piper L-4s for primary naval flight training and designated them as the NE-1. They were primarily to serve at Naval Air Station training bases. The Navy acquired 230 NE-1s which were basically similar to the U.S. Army L-4s with Continental O-170-3 engines. Twenty NE-2s were similar. In 1942 the Navy also acquired 100 HE-1 ambulance versions of the Piper J-3C with Lycoming O-235-2 engines and capable of carrying one stretcher plus one pilot. These aircraft were redesignated AE-1 when the H designation was assigned to helicopters in 1943.

Don Carrell describes his feelings about the L-4: "As a commissioned combat L-pilot attached to the Eighth Armored Division, 398 Field Artillery Battalion, I had ample opportunity to observe the capabilities of the L-4.



1 — L-4 equipped with "Brodie device", 1943 —*J. Brodie*

2 — Lt. John Kriegsman and his L-4 "Pekin Bound", 1944 —*J. Kriegsman*

"I was part of an air section that consisted of eight pilots, seven mechanics and several pieces of support equipment. We operated on our own with practically no assigned duties, and were under the command of ground forces who knew little or nothing-and sometimes cared less-about our problems. However, when we arrived in the ETO we found we would be flying all day from dawn to dark directing artillery fire. We had no regular landing strips; we simply picked out the most likely looking spot and that was it.

"Our missions were combat missions in which we controlled and were responsible for directing fire of the self-propelled 105 howitzers assigned to our division. This fire power was accurate, it was successful, and was devastating to the enemy. In this respect we differed from the L-pilots in the CBI, who acted primarily as liaison pilots but who nevertheless performed a valuable and necessary function.

"One of my first fire missions was during the terrible weather just prior to the Battle of the Bulge. While flying over the area I heard a radio call for assistance coming from a group of tanks. I recognized the voice from my training day at Ft. Sill; it belonged to a fellow whose code name had been 'Pothead.' I got on my radio and called for 'Pothead.' His reply was a very relieved 'where are you?' It seems that the tracks on the tanks had become frozen to the ground and they were immobilized in the path of advancing German infantry. I adjusted artillery fire over their position so the shells would burst above ground and destroy or scatter the enemy. The tanks were soon relieved by their own group and continued on their mission.

"I have been around the 'big iron' boys, those with three or four rows of spaghetti, and once took a back seat and listened to their stories of the war. In fact, I would catch myself listening to the B-25 and B-29 boys and saying 'Don't laugh, but I flew an L-4.' I don't do that any more and should not have done it in the first place.

"It would be difficult to explain to the average person just how powerful a weapon this L-4 really was in

the hands of what I call the finest light plane pilots in the world.

"There is an old saying that the Cub won't stop flying until you put it in the hangar. It got me into and out of some very tight landing strips; it also got me out of some really bad situations, both in combat and in training. I'm proud to say that I was an L-pilot."

The Cubs could fly in the coldest weather, even though the breath of the pilot often froze on the windshield and the tires froze to the ground. One they were broken free they would fly and usually they were the only planes that could operate.

In early 1943, Captain Theodore Petras, personal pilot for the commanding general of the 1st Marine Division, suggested to his boss, Major General A. A. Vandergrift, an idea to form a light plane squadron within the division to handle aerial reconnaissance and artillery spotting. Thus the Marine Observation Squadron (VMO) was born. General Vandergrift was enthusiastic about having an air liaison detachment with his division. After the Guadalcanal campaign was over, the division deployed to Australia for rest and replenishment. Then the division was sent to Goodenough Island off the New Guinea coast to set, stage and train for the next operation. While there, it was noticed that the U.S. Army had lots of L-4s. General Vandergrift talked to General MacArthur about obtaining some L-4s. His request was granted and the division was delivered a dozen L-4s. The unit to operate the L-4s was designated the 1st Provisional Air Liaison Unit.

The unit lost little time in getting into the air. An L-4 was rigged with floats and utilized in that role for the Marines. The L-4s did much more that serve as taxies for the brass. The terrain was heavy jungle around Cape Glouster and New Guinea and the existing maps of the area were not very accurate. To solve the problem or target acquisition, the division artillery called on the Cubs. It worked very well indeed! The beginning of the VMO's brought an end to Piper L-4 operation six weeks before the invasion of Peleliu. VMO-3, a regularly assigned VMO with naval aviators and brand new OY aircraft, maintained by Navy school-trained mechanics, joined the 1st Marine Division and all of the other Marine divisions also at this time.

A German prisoner of war said that more fear was generated by the sight of an L-4 than any other allied aircraft. When there was an L-4, they knew that artillery fire was sure to follow - masses of artillery fire. Because of this, L-4s and L-5s were rarely shot at and, if they were shot at, artillery was only moments away from falling on the source of that fire. but if a liaison aircraft like the L-4 was hit, the bullets easily passed through its canvas cover. Basically, the only way the aircraft was brought down was if the pilot or the engine was hit.

The L-4 was the first airplane to fly off an aircraft carrier and land in North Africa during that campaign. The L-4 was the first airplane to fly off the top of a specially built deck above the top of an LST. The deck was 12 feet wide and 200 feet long and to launch, to L-4 had to swing around into the wind and open its diesel engine wide - all 8 knots of it. A Piper L-4 was the first allied aircraft to land in Europe after D-Day; the first allied aircraft to land in Paris after the liberation of that city. A Piper L-4 was the first allied aircraft to land on Okinawa!

The last record air-to-air kill in the European theatre of Operations occurred in late April of 1945 when a U.S. Piper L-4 unarmed observation craft named "Miss Me" from the Fifth Armored Division spotted a German Fieseler Storch over Germany. The L-4 pilot, LT. Duane Francies and his observer. dove on the German aircraft and shot it down using only their personal .45 caliber automatic pistols. They landed and captured the German pilot and observer. It was the only World War II German plane shot down with a handgun!

The number of L-4s still flying today attest to the value and true stamina of this liaison aircraft. The loads that they carried were unbelievable! The L-4 worked equally well on floats and many served in Alaska and in the Aleutian Campaigns in the float configuration.

If the truth be known, the L-4 created more chaos and destruction among the enemy while rescuing more Allied wounded and hurried the end to enemy hostilities more than all the allied bombers and fighters put together. In fact, in the Italian campaign, Italian and German soldiers were given a 15 day pass for every L-4 they shot down and destroyed.

When the dust settled and the cheering died down after VE-day, the Army and Navy got rid of a lot of their over-sized inventory of flying heavy metal by sending them back home and then either selling them or scraping them in a wholesale manner.

For all of the L-4s left scattered over Europe, it was another story. Too bulky and not high enough in pri-

ority to be sent back, these planes were sold off to local clubs, aviation schools, and civilians of American allies. Therefore, hundreds of these L-4s still exist.

Over the past 50 plus years, attrition has dwindled the number of L-4s considerably. How many are still flying in Europe is rather difficult to pin-point. Colin Smith of Sawbridgenorth, England guesses that there are more that 300 L-4s still registered with most of them still flying over the English countryside. But, wherever they are or whatever they are for, these planes are real warbirds, having seen combat in the European war zone.

Piper J-3 or L-4

Engine: Continental A-65-8, 65 h.p.; Fuel Capacity: 12 U.S. gals.; Wingspan: 35 ft. 2.5 in.;Fuel Consumption: 4.08 Gal. per hr.; Length: 22 ft. 4.5 in; Top Speed: 87 m.p.h.; Height: 6 ft. 8 in.; Cruising Speed: 73 m.p.h.; Wing area: 179 sq. ft.; Stalling speed: 38 m.p.h.; Wing chord: 5 ft. 3 in.; Rate of climb: 450 ft. per min.; Empty weight: 695 lbs.; Cruising range: 220 miles Useful load: 540 lbs.; Service ceiling: 11,500 ft.; Gross weight: 1,220 lbs.

Piper 0-59/L-4 Grasshopper

Wing Span 35 feet 2 inches; Length 22 feet 3 inches; Height 6 feet 8 inches; Wing Area 179 square feet; Empty Weight 695 pounds; Engine Continental 0-170-3(A-65-8) with 65 hp; Crew one or two; Maximum Speed 85 mph; Cruise Speed 75 mph; Climb 333 feet per minute; Range 190 miles; Stalling Spd 39 mph; Ceiling 9,300 feet

PIPER O-59/L-4 CUB VERSION OF THE J-3C-65

L-4-P1 ex O-59

L-4A-P1 ex O-59A

L-4B-P1 Same as the L-4A but without radio equipment. Engine was the 65 hp O-170-3. 980 were built with the serial numbers 43-491 through - 1470. (Piper serial numbers 9676 to 10291).

L-4C-P1 Eight impressed Model J-3C-65s with 65 hp O-145-B1 engine. The first two were 42-79557 and -79557 (Piper serial numbers 6170 and 6167), were ex-Panama civilian aircraft registered R-22E and R-23E, were initially designated UC-83As. The other six were 43-2923, -2925, -2927, -2932, -2959, -2967.

L-4D-P1 Five impressed Model J-3F-65s with a 65 hp Franklin 4AC-176 engine. The serial numbers were 43-2914, -2924, -2992, -2995, and -2996.

L-4E-P1 17 impressed Model J-4Es with a 75 hp Continental A-75-9 engine. used for pre-glider training. One aircraft, 42-79555, Piper serial number 1323, was ex-Panama civil registration R-11E. It was initially designated UC-83B. Serial numbers were 43-2941, 2954 through -2958, -2973 through -2974, -2989 through -2990 and -3003 through -3008.

L-4F-P1 43 impressed Model J-5As with 75 hp Continental A75-9 engine. Four were impressed in Panama and originally designated as a UC-83. The four in Panama wre serial numbered 42-79551 through -79554 with Piper serial numbers of 513, 514,515, and 211. They were ex-Panama civil registry RX-25, RX-26, RX-95 and RX-27. The remainder of the impressions were serial numbers 42-57507 (Piper Number 1080, EX-NC3871), 42-107425 (Piper number 5928, EX-NC38393), and 43-2909, -2911, -2912, -2915 through -2920, ,-2922, -2925, -2930, -2931, -2934, -2935, -2937 through -2939, -2947 through -2949, -2991, -2999 through -3002, and 44-52988.

L-4G-P1 34 impressed Model J-5Bs with a 100 hp GO-145-C2 engine. Serial numbers were 43-2910, -2913, -2921, -2928, -2929, -2933, -2936, -2940, 2942 through -2946, -2948, -2950, -2951, -2963, -2971, -2972, -2975 through -2977, -2979, -2981 through -2988, -2994, -2997, and -2998.

L-4H-P1 Same as the L-4B-P1 but with improved radios and a fixed-pitch propeller, 1801 were built. The serial numbers were 43-29247 through -30547 (Piper serial numbers 10538 through 11838), and 44-79545 through -80044 (Piper serial numbers 11841 through 12340).

L-4J-P1 Same as the L-4H-P1 but with a controllable-pitch propeller. 1680 were built. The serial numbers were 44-80045 through -80844 (Piper serial numbers 12341 through 13140), 45-4401 through -5200 (Piper serial numbers 13141 through 13940), and 45-55175 through -55254 (Piper serial numbers 13941 through 14020). In 1945 serial numbers 45-55216 through -55223 were canceled an replaced by 45-55255 through -55257, -55259, -55263, -55264, and -55267. Also another 270 were ordered with the serial numbers 45-5525 through -55524 but were all canceled as the end of the war approached.

UC-83-P1 These were impressed in Panama and were Model J-5As with a 75 hp O-170-01 engine. They were serial numbered 42-79551 (Piper serial number 513) ex-Rx-25, 42-79552 (Piper serial number 515) ex-Rx-26, 42-79553 (Piper serial number 514) ex-R95 and 42-79554 (Piper serial number 211) ex-RX-27. These were all redesignated as L-4F-P1 in 1943.

UC-83A-P1 These were Model J3L-65s with a 65 hp O-145 engine. They were impressed in Panama. They were serial numbered 42-79557 (Piper serial number 6170) exR-22E, and 42-79558 (Piper serial number 6167) ex R-23E. They were redesignated L-4Cs in 1943.
UC-83B-P1 This was a Model J-4A. It was also impressed in Panama. Its serial Number was 42-79555 (Piper serial number 1323) ex R-11E.
YO-59 Four aircraft for evaluation. They were serial numbered 42-460 through -463. The engine was the O-170-3 with 65 hp.
O-59 The initial production model or which 140 were built. Serial numbers were 42-7813 through -7952.
O-59A Same as the O-59, but with enlarged cabin windows; 948 were built. The serial numbers were 42-15159 through -15329 (Piper serial numbers 8278 through 8448), 42-36325 through -36824 (Piper serial numbers 8449 through 8948), 42-38380 through -38457 (Piper serial numbers 8949 through 9020), and 43-29040 through -29240, (Piper serial numbers 10339 through 10537).
TG-8-P1 Three-seat training glider; 250 production models were built. The serial numbers were 43-3009 through -3258 (Piper serial numbers G1 through G250). An additional 3 were ordered for the U.S. Navy as the LPN-1 with serial numbers 43-12499 through -12501. Serial numbers 43-3065, -3070, and -3075 became XLNP-1s using Bureau of Aeronautics numbers 36425 through 36527.
HE-1 Ambulance version of the Model J-5C "Cruiser" with hinged fuselage top decking for access to a stretcher and an O-235-2 engine. 100 were built for the U.S. Navy. They were BuA numbers 30197 through 30296. It was redesignated as the AE-1 in 1942.
NE-1 Same as the L-4B-P1 but for the U.S. Navy. It had a 65 hp O-170-2 engine, dual controls and tandem seats. 230 were built, BuA numbers 26196 through 26425.
NE-2 Same as the NE-1 but with different radios, 20 were built. Serial numbers BuA 29669 through 29688. Another 10 canceled with BuA numbers 29682 through 29691.
XLNP-1 Three TG-8-Ps (43-3065, -3070, -3075) were diverted to the U.S. Navy as BuA 36425 through 36427.

Stinson L-5 Sentinel

Interest in aviation in San Antonio, Texas began to swell soon after the arrival of the first Wright aeroplanes at Ft. Sam Houston in 1910. The first aviation was almost exclusively military, but one family saw the potential for civil aviation and established the first civilian flying school in the state of Texas. The name of the family was Stinson, a name that soon symbolized the best in airplane manufacturing.

In February 1941, Stinson Aircraft introduced what became a very popular and much used plane. Known as Model 10-A Voyager, a 90 hp Franklin engine and the addition of one more seat made the 10-A a very popular and sought after airplane. About 760 Model 10's were built and sold by the time they had to stop production in 1942.

A large rancher and landowner in Brazil is said to have purchased 27 Model 10's to oversee his land holdings. Several Model 10-A's were used in France for observation and patrol duty during the early part of World War II. To prevent the planes from being taken when the Nazis overran France, they were flown to England.

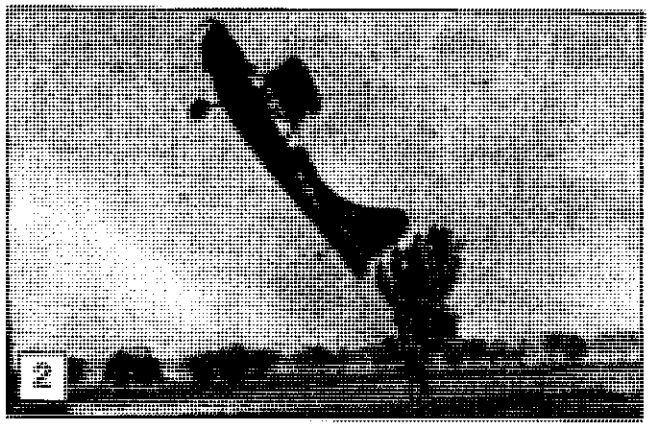
When Eddie Stinson first began to build airplanes he planned to build the best possible and to make them adaptable for many uses. He did not live to see his dream totally fulfilled in the Stinson L-5 Sentinel.

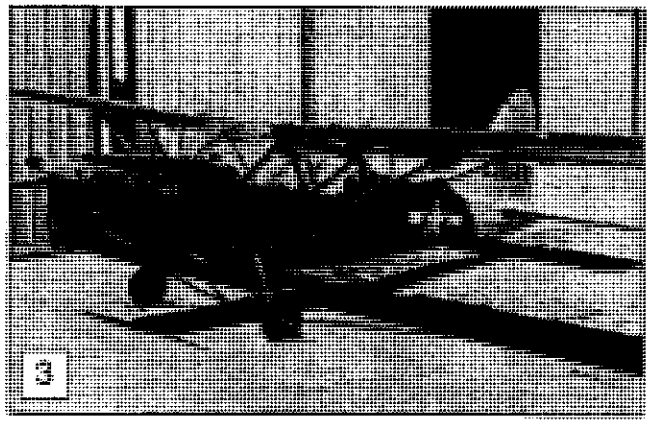
The L-5 Sentinel was really a wartime adaption of the Model 10-A, with a larger fuselage and bigger engine.

Because of is size and horsepower, the L-5 was not a true "Grasshopper." It was truly a remarkable plane and a credit to Stinson Aircraft.

L-5 was the only L airplane used by all branch-

1 – 173rd Liaison Squadron L-5 near Remagen Bridge over the Rhine River Germany, 1945
–F. Malinek





1 — First Stinson L-5 out of factory at Wayne, Mich., 1941 —*R. Tichnor*
2 — 72nd Liaison Squadron L-5 over Italy —*H. Baker*
3 — 25th Liaison Squadron L-5 the "Guinea Short Lines" —*N. James*

es of the military and in all theaters of World War II. They were even used in Korea in 1950-51.

From 1942 on, a total or 4,200 L-5's were manufactured, second only to the L-4 output. Many remained active in USAF and Marine inventories well into the 1950's. The L-5 was used by the Coast Guard in post-war illegal whiskey still spotting. When the war was over the L-5 was scattered all over the world. Several thousand were sold in the U.S. as war-surplus. Aggressive characteristics and a tough rugged frame made them excellent for flying in the bush country of Alaska, Canada, Australia, New Zealand, Mexico, India and many other places in the world.

A modification to the fuselage to introduce an upward-hinged hatch aft of the cabin and provisions for a stretcher made the L-5 a useful ambulance for front line operations and in this role the Sentinel served particularly in the Pacific Theatre during World War II, and in Korea.

The ambulance version was designated L-5B and 679 were built. The 200 L-5C's had a provision for K-20 reconnaissance camera in the fuselage, and the 558-L5E's were like the C's but had drooping aileron which operated in conjunction with the flaps.

A single XL-5F had an O-435-2 engine and other changes, and the final production version, with 225 built, was the L-5G with a 190-h.p. O-435-11.

A few commercial Stinson Voyagers were taken over by the Army in 1941. Eight were provisionally labeled AT-19A's and later became L-9A's with 90-h.p. Franklin engines. Twelve Model 10-A's with the 90-h.p. Franklin 4-AC-199-EJ became L-9B's.

The figures show that the L-5 was larger, faster and could carry more than the L-2, L-3 or L-4. When the Allies invaded France in 1944 many of the L-5's were flown directly into combat areas from their home bases in England.

Col. Sid Hess of Waco tells of seeing L-5's equipped with extra gas tanks and flown over water from the northern island of the Philippine group to Okinawa to help in the invasion and assault. That was at least a five hour over-water flight with no rest stops in between. "I was not a part of this action but those boys that flew that route really did a good job," said Col. Hess.

The L-5 was a rugged plane built to take punishment. It could land in cow pastures, wheat fields, swamps, on railroads, sand beaches and occasional-

ly even on a nice paved runway.

Col. Hess relates another incident that attests to the ruggedness of the L-5: "One of our L-5's was on a routine mission when it developed engine trouble. Having seen an opening in the jungle, the young pilot sought to make a landing he could walk away from. To his surprise and amazement the clearing turned out to be an abandoned fighter strip. He had no trouble landing. The pilot was able to work his way back to base and report his difficulties. My crew chief and I decided to fly over, find the plane, assess the damage and return to base. When we found the L-5 we landed beside it and found no real damage to the plane but the engine seemed to have a stuck exhaust valve. By pulling the spark plug on that cylinder the engine ran fairly well. I decided it could be flown back. But one pilot and two planes? I asked my crew chief if he could fly my L-5 and I would fly the sick engined one. As I said before, this was an abandoned fighter strip so I figured if something else happened I could re-land. I watched as my crew chief took off and circled, then it was my turn. We had removed the spark plug and both wire to reduce the chance of fore. When I opened the throttle the noise was a combination of purrs and pows. Surprisingly enough, the plane performed rather well and by the time I got back to base the engine noise had seemed to abate. I do not recommend this procedure to the novice pilot, but it was, I felt, better than going out and changing the engine."

STINSON O-54/L-5 SENTINEL

L-5-VW Same as the O-62-St;an additional 1731 were built. The serial numbers were 42-14798 through -15072, and 42-98036 through -99573 with the 185 hp O-435-1 and a 12 volt electrical system.

L-5A-VW Same as the L-5-VW but with a 24 volt electrical system; a total of 688 were converted from L-5-VWs.

L-5B-VW This version had a deeper fuselage with a side loading hatch, internal provisions for a stretcher or 200 pounds of cargo; 730 were built. Serial numbers were 42-99574 through 99753, and 44-16703 through -17252.

L-5C-VW Same as the L-5B but with a K-20 camera in the fuselage; 200 were built. The serial numbers were 44-17253 through -17452.

L-5D-VW Project canceled; nothing built or developed.

L-5E-VW Same as the L-5C-VW but with drooping ailerons operated in conjunction with the flaps for better STOL performance; 750 were built. The serial numbers were 44-17453 through -18202.

XL-5F-VW One converted L-5B (44-17103) was re-engined with a 183 hp O-435- 2 engine.

L-5G-VW Same as the L-5E but with a 190 hp O-435-11 engine; 115 were built. The serial numbers were 45-34911 through -35025.

YO-54 Six Stinson 10 Voyagers were acquired for evaluation. The serial numbers were 41-143 through -148. They were powered by the 80 hp O-170-1 engine. 600 were ordered by France, but none were delivered before Germany invaded that country.

O-62 Stinson Model V-76 version of the Voyager with an enlarged fuselage, 185 hp O-435-1 engine; 275 were built. The serial numbers were 42-14798 through -015072.

L-9A-ST Eight impressed Model 10 Voyagers powered by 90 hp O-200-1 engine. Serial numbers were 42-88666 through -88673. They were previously designated AT-19As.

L-9B-ST Twelve impressed Model 10A Voyagers powered by a 90 hp Franklin 4-AC-199-E3 engine. The serial numbers were 42-94130 (c/n 8254, ex-NC39454), 42-94136 (c/n 7804, ex-NC31559), 42-97051 (c/n 8256, ex-NC39456), 42-97430 (c/n 7919, ex-NC32271), 42-97432 (c/n 7787, ex-NC31538), 42-97434 (c/n 7780, ex-NC31530), 42-107278 (c/n 7797, ex-NC31540), 42-107406 (c/n 7845, ex-NC31596), 42-107407 (c/n 7906, ex- NC32258), 42-107408 (c/n 7764, ex-NC31514), 42-107409 (c/n 8002, ex-NC34602), and 42-107410 (c/n 7830, ex-NC31589).

OY The U.S. Marine Corps version; a total or 306 were transferred from the U.S. Army. They were BuA 02747 through 02756 (ex 42-99512 through -99521), 02751 through 02766 (ex 42-99690 through -99699), 02767 through 02776 (ex 44-16857 through -16866), 02777 through 02788 (ex 44-16957 through -16960), 03862 through 04008 (L-4E range), 04009 (ex 44-18137), 04010 through 04020 (L-4E range), 60460 through 60475 (ex 42-98448 through 98463), 60476 through 60491 (ex 42-98528 through -98543), 60492 through 60507 (ex 42-98737 through - 98752), 75159 through 75170 (ex 42-98948 through -98959), 75271 through 75182 (ex 42-99040 through 99051), 120442 through 120446 (initially ordered at 04021 through 04025) (L-4E range), and 120447 through 120373 (L-4E range).

L-5-VW) Forty were transferred to the RAF as Sentinel Is with the serial numbers KJ368 through KJ407. An additional 152 L-5s were transferred to the U.S. Navy retaining the original USAAF serial numbers; 26 OY-1s were canceled. They were BuA 02789 through 02790, and 121415 through 121438. 29 OYs were fitted with modified equipment to become OY-2s.

L-5B-VW 60 were transferred to the RAF a Sentinel IIs with the serial numbers KJ408 through KJ476.

STINSON O-54/l-5

Wing Span 34 feet 0 inches; Length 24 feet 1 inch; Height 7 feet 11 inches; Wing Area 155 square feet; Empty Weight 1,550 pounds; Gross Weight 2,200 pounds; Engine Lycoming 0-435-1 at 195 hp; Crew one or two; Maximum Speed 130 mph; Cruise Speed 115 mph; Range 420 miles; Stalling Speed 43 mph; Ceiling 15,800 feet; Rate of Climb;875 feet per minute.

Interstate L-6 Cadet

The Interstate Engineering Corporation was a parts jobber building WW II bomb shackles, hydraulic units and the like for airplanes, in the former Moreland plant in El Segundo, California. They bought the plant for their expansion and there was still room enough to build airplanes.

Deciding that a primary trainer for the CPTP program was the most logical way to go for a small outfit like theirs, Don Smith engaged Ted A. Woolsey to do the designing and engineering. After Woolsey laid out the basic design, it became a school project because most of the detail work was handled by students of the Wiggins Trade School.

Various power plants were considered. Continental Motors were building a 50 hp, 65, 75 and 85 hp engine. Lycoming was building a small 65 hp and Franklin Motors was also building a 65, as well as a geared 90 hp. It was very doubtful as to which or how many engines would be available. Piper had contracted for the bulk of Continental's small engines production.

Interstate decided to certify is plane for all engines-50 through 90 hp. It was found that the 50 hp engine would hardly fly the plane with one person, so this was scrapped in favor of 65-90 hp.

Most CPTP models used the 65 because parts were more available and this engine was more economical than the other engines. This little plane was a late comer to the airplane industry and was never as well known as Piper, Aeronca or Taylorcraft, but this truly was a nice plane to train pilots in.

When the United States became involved in World War II, contracts went out to produce more and more planes. Planes for every purpose were needed no Interstate secured a contract to build a liaison plane. The Interstate "Cadet" was redesigned, a counter-balanced rudder, flaps, and expanded cockpit with the greenhouse slanting outward so the pilot and observer could see directly below as well as directly above them. The horsepower was increased to 102 using the Franklin O-200-5 engine. The contract was for 250 planes to be produced as soon as possible.

Jerry Casey flew a L-6 in the great Southern maneuvers in 1941. Here's a story he wrote in Private Pilot in August 1984: "My logbook entry shows the date November 19, 1941. At that time I was employed as an experimental and production test pilot for Interstate Engineering Corporation in El Segundo, California. International Engineering is best known for producing a popular two-place trainer called the Interstate Cadet. Our small factory was across the street from giant North American Aviation and we did our fight-testing from Mines Field, now Los Angeles International Airport.

"Two of us had been dispatched by the company to fly and participate in the Carolina War Maneuvers with the U.S. Army. Most of the other lightplane manufacturers had sent their pilots and planes, too, and all were hoping to impress the Army brass enough to wangle a production contract for observation airplanes.

"We were dubbed by the military as the 'Grasshopper Corps.' And the type of flying made the name quite appropriate. Intense competition between the various pilot groups made the flying constantly perilous. Each field we flew from became smaller than the last. Soft ground and obstructions on climb-out were sought-for rather than avoided. It was no surprise to anyone there when accidents narrowed the competitive field. I was lucky to get through the experience with a mild brush with a ditch on a landing rollout on a narrow dirt road.

"At the command post base near Waxhaw, North Carolina, the Army brass were facing the crucial problem-a major maneuver that would determine whether the Red or Blue army won the mythical war.

"When I was alerted to fly a mission with General George S. Patton, I confessed that to me, he was only a name. I had no knowledge of his reputation as 'iron pants.'

"Patton swaggered to my plane and barked, 'Let's go! No need to stall around!'

"We went. When Patton gave an order, you moved. No warmup or magneto checks. Once over the area

where a combat problem was in progress, we watched as a Red Army sergeant stepped in front of a long column of Blue Army mechanized equipment, waved a frying pan and (we leamed later) shouted 'Chow! Turn in here!'

"Instantly Gen. Patton saw and understood that the enlisted man had duped and captured the Blue Army regiment with his lure of food.

"I thought the General would leap from my airplane sans parachute. Above the noise of the engine he cursed and raved and when he saw a number of his own tanks apparently parked and the men talking instead of fighting a problem.

"'Land! Land!' His voice volume strained the Plexiglas windows. I studied the terrain below and noted that the only possible landing spot was on a curving dirt road with low brush and fences on each side. To make matters worse, there was a fairly deep ditch between the fences and the road surface.

"Suddenly I heard a rush of wind and turned my head just in time to see my passenger bail out of the seat though the airplane was still moving about 20 mph. Unceremoniously, Gen. Patton rolled head-over-rear into the ditch, picked himself up and raced to the tank commander. I watched in awe as Patton berated the man for a steady 10 minutes.

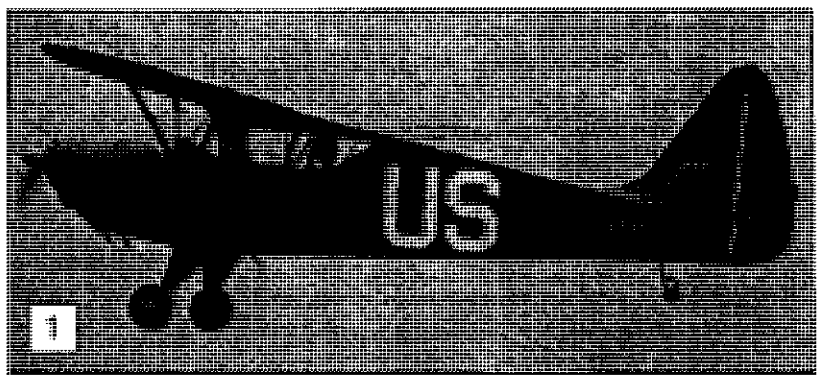
"Unaware of his torn and dirty uniform and face glowing red with anger, he returned to the plane and ordered me to fly back to the command post. Gen. Patton ranted and raved and shouted about the dubious ancestry of his tank commander all the way back. I couldn't help wondering if I were flying a madman or a genius.

"Before we landed, I suggested to the general that he might wait a bit on the landing rollout before exiting the plane to give me time to slow down. At his glowering look of censure I added, 'Sir, you might break the door by rolling out before we stop.'

"His reply was not printable.

"Despite my misgivings about this weird mission, our company received a contract and manufactured many of the Interstate L6's for the U.S. Army.

"I decided that if this experience was only a 'mock' war, that I wanted no part of the real thing. An as the real thing evolved and I read account of Gen. George S. Patton, I could only shake my head in wonder."



1

Production went at an accelerated pace, but soon problems began to crop up. The engine had severe overheating problems. New baffling and cowling was designed...no better. Later a large oil cooler was added that helped somewhat but it did not totally solve the problem. Most pilot training schools were located in the South and the weather seemed only to add to the problem.

There were not as many men trained in the L-6 as there should have been. This was a well-constructed plane with forgiving qualities for the novice. The cockpit was not as small as the L-2, L-3 or L-4 and it could be flown from either front or rear seat. The rear seat did make landing a bit more difficult but the plane performed well enough either way.


2

When the war ended, the remaining L-6 Interstates were declared surplus by the War Surplus Board. Many were bought for a very low price. Some

1 – XL-6 Interstate Cadet in flight –*B. Stratton*
2 – L-6 at factory –*Smithsonian*

were simply junked and some were used as spare parts. Interstate Aircraft Company was sold to Call-Air merely for the metal and supplies that were on hand.

Many of the surplus L-6 planes were put into civilian configuration and a Continental 85 hp was used to replace the Franklin that had caused so much overheating.

The L-6, like the L-2, was never used in combat. The L-6 was a little faster in flight but could land and take off in very short distances just like the L-3 and L-4. Had the L-6 been used in the war zone in combat there is no doubt that it would have performed well. Perhaps it was expedient to use primarily the L-4 because it lessened the need for a variety of spare replacement parts. Only a handful of L-6's remain today.

Some L-6 models were sent to Mexico in the lend-lease program, and used throughout the mountains where they could fly in and out of very small strips. Some pilots who flew the L-6 said they could land and/or take off out of a shoe box if necessary.

In general, the airplane was quite gentle, but had tendency to build up to re-lined speed quite quickly. It was necessary to keep your wits about you when flying this airplane.

The specifications and performance data for the "Interstate" Model S-1-B1 (L-6) as powered with the Franklin O-200-5 engine rated 113 hp. at 2700 rpm at sea level. Length overall 23 ft. 5 in.; height overall 7ft. 4 in.; wingspan 35ft. 6 in.; wing chord 60 in.; total wing area 173.8 sq. ft.; airfoil NACA-23012; weight empty 1225 lbs.' useful load 550 lbs.; payload with 20 gals. fuel, 422 lbs.; max speed 114; cruising speed 105; landing speed with flaps 48-50 mph.

FOREIGN LIAISON AIRCRAFT

British

Taylorcraft Aeroplanes Ltd. was established at Britannia Works, Leicester in May of 1939 by English industrialist A. Lance Wykes. He was an ex-RFC pilot from World War I who was very impressed with the Taylorcraft. He imported one and called it a Model A. He received a license and began producing his first aircraft which he called an improved Model B or a Plus C. The first flight was on May 3, 1939. These models used an American engine at first; however one Taylorcraft was modified to take a Blackburn "Cirrus" Minor engine. This change was due to the fact that war was anticipated to star soon and the unavailability of American powerplants. This aircraft became the proto-type for all Austers produced later. Only 23 pre-production aircraft had been built when the war began on September 3, 1939. These pre-production aircraft were modified to become Plu C-2 or Model Ds. They were in service with the RAF in very small numbers in France prior to the Dunkirk evacuation.

The Plus C had a 55 hp Lycoming engine and was used for communication duties by the RAF. They were later modified to take the Cirrus Minor Engine.

The British Army used the Model C "side-by-side" with a 90 hp Cirrus Minor engine for artillery spotting work; these were called Air Observation Posts or AOPs.

The Models A through C were mainly limited pre-production experimental models.

The British military had the same thoughts ins the late 1930s on Army artillery spotting and liaison aircraft as the American Army. The British developed the Westland Lysander, but like the Curtis Owl, it was too fast at 315 mph, too big with a wing span of 50 feet and too powerful with its 900 hp British Bristol Mercury XII engine to be an effective liaison type aircraft. The Lysander, nicknamed the "Lizzie", had good short field take-off and landing characteristics, and was very rugged. Therefore it was more towards the right direction of aircraft than the Curtis O-52 Owl. The versatility of the Lysander made it a much more capable aircraft that the forgettable Owl.

Tests and trials conducted by the British Army in 1940 were witnessed by the U.S. Army's chief of artillery. He was suitably impressed and retumed to America to persuade his superiors of the potential value of liaison aircraft.

The success of the Taylorcraft led to larger production. The Auster I was the first fully militarized Taylor craft, and 100 were built. They entered service with the No. 651 Squadron in July 1941; later they were with the No. 652 Squadron, RAF. They went to North Africa, where it was found to be a little underpowered in that

hot climate. Because of this, an American Lycoming 0-290 with 125 hp was installed. It was called the Auster II but only two were built due to the shortage of the American engine.

The next production variant was the Auster III. It was powered by the De Havilland Gypsy Major, a 130 hp engine, giving it a top speed of 130 mph, and a range of 250 miles. There were 467 Auster IIIs built.

The next production model was the Auster IV of which 255 were built. It was powered by the 130 hp Lycoming engine. By this time, 1943, it was again available from America. The Auster IV had a third seat also.

The following production version was the Auster V; 790 were built using the American Lycoming 0-293-3 engine. The Lycoming engines were available because in 1943 the American supply lines were flowing freely across the Atlantic to England. The Auster V had a blind-flying panes modification. The last Auster V was delivered on January 15, 1946. At this time the company name was changed to Auster Aircraft Ltd. The last production model was the Auster AOP IX powered by a Blackburn "Cirrus" engine with 180 hp.

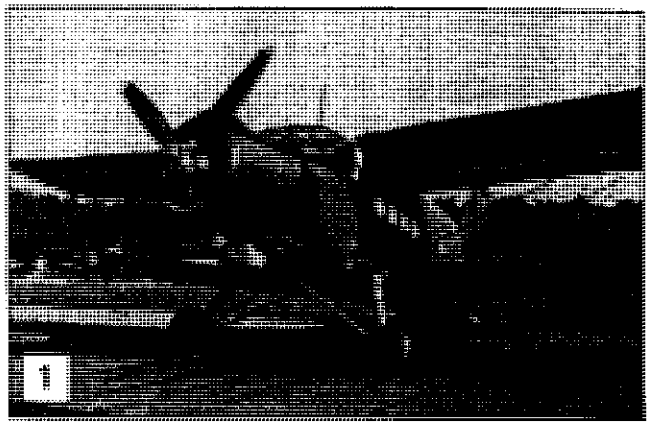
The Austers served in all theatres of operation and with most Commonwealth countries. Austers also served in Korea and in Malaysia.

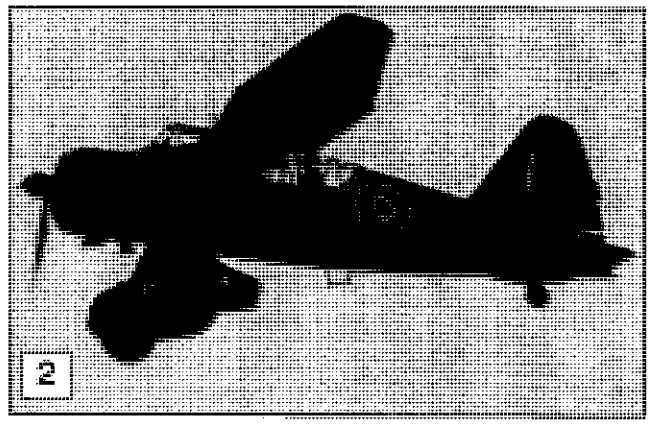
German

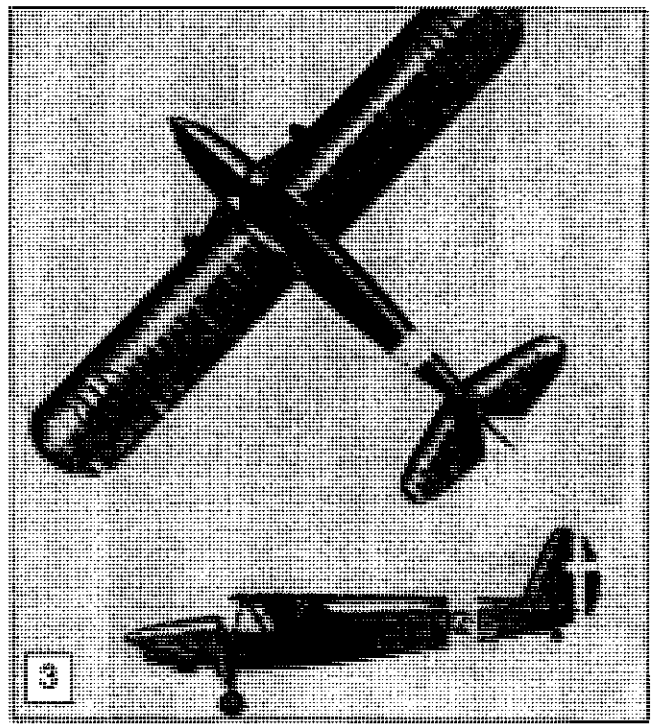
The original idea of a liaison-type aircraft originated with the Germans and their product was the Fieseler Fi-156 Storch. This ungainly looking aircraft was manufactured by Gerhard Fiesler Werk GMBH and entered production in 1938. It wa powered by an Argus A 510C-3, eight cylinder inverted engine rated a 240 hp. There were two crew members; the plane carried a semi-fixed MG-15 machine gun facing rearward and manned by the observer.

The "Stork" was so named because of its long, thin, landing gear legs. The "Stork" attended the Cleveland Air Show in 1938 and its performance there inspired the U. S. Army to demand an equal. Thus U. S. Army aviation was born. This led to the Stinson L-1 series, America's first purpose-built liaison aircraft. They were very similar aircraft. The Storch also inspired the Japanese to produce the Ki-76 which ultimately bettered the German aircraft's performance.

The Storch was used by the German Luftwaffe on all fronts. It was used for transport, reconnais-







1 – Russian "Antonov AN-2T 817" *–M. Kroeger*

2 – British Westland "Lysander" *–J. Battersby*

3 – Italian "Romero 63", 1941 *–I. Battioli*

sance, supply and even as an air ambulance. After the fall of France in 1940, many Storchs were produced in France by slave labor. Some aircraft were delivered with concealed sabotage. Other Storch production was done in Czechoslovakia.

The construction of the plane was very simple: the fuselage was built from fabric-covered tubing, the wings and tail being made from fabric-covered wood. The landing gear was comprised of two long-stroke hydraulically-dampened gear legs. The two "long legs" could absorb extremely heavy landing shocks. This enabled the aircraft to land on the most rugged terrain. These long legs are what earned the nickname "Stork" for the Storch.

The cabin had lots of room for three, and it was fitted with plexiglass panels all around. These panels enabled the crew unbelievable observation viewing. The great maneuverability and slow speed of the Fi-1`56 proved to be a great defensive weapon. It was attached to almost every Luftwaffe bomber and fighter group.

The other German liaison aircraft was the Messerschmidt Me-108. It was sleek, graceful, and had great handling characteristics. It was unarmed and very comfortable. It was originally designed for sport air competitions and a basis for its most famous brother, the Me-109. The Me-108 first flew in 1935; its was built entirely of stress duraluminum and powered by an Argus 20C or R engine. It had a cruising speed of 165 mph.

The "low-wing" Me-108 Tailfuns were a pilots' dream to fly. They were used for transportation and staff liaison, but not in the artillery spotting role. It saw service with many Luftwaffe units on all fronts during the war. There were approximately 686 Me-108s built during the war.

Japan

During World War II the Japanese use three aircraft to fulfill their liaison needs. One was the Mitsubishi K3M3 "Pine" which was built from 1929 until 1939. It was primarily built as a trainer and around 624 were constructed. One version, the K3M3-L was manufactured as a light transport and it was this version which was used for liaison purposes.

The Yokosuka KtY1 was produced from 1933 until 1945 and was used primarily as a trainer. It was comparable to the American Stearman PT-17. Approximately 770 aircraft were built; its was used occasionally in the liaison role.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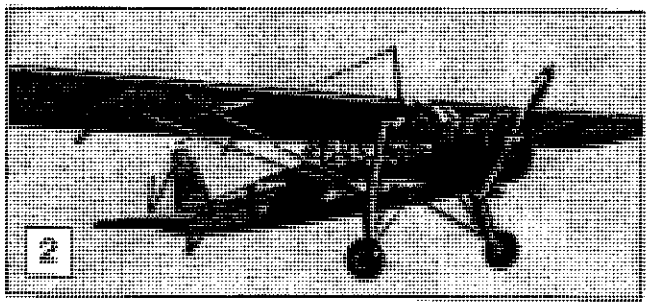
2

1 – German Fiesler Storch

2 – Japanese Kokusai KI-76, 1942 –*J. Battersby*

Only one, the Ki-76 was conceived and built as a liaison aircraft. The Kokusai Ki-76 was code named "Stella". It owed its conception and design to the German Fieseler Fi-156 Storch but it was not a copy. Due to the use of Fowler flaps and a more powerful 310 hp radial engine, all flight characteristics were improved except landing roll-outs. This was demonstrated in actual side-by-side competitive test held in mid-1941 using an Fi-156 and a Ki-76.

The Ki-76 entered production in late 1942 and served throughout the war years as a liaison and artillery observation aircraft. Production was halted in late 1944 with an undetermined number of craft built - surely less than 1000.

Italy

In November of 1938, the Commander-in-Chief of the Italian Air Force saw a demonstration of the Fieseler Fi-Storch. Taking the Storch as a reference he asked for an aircraft with similar performance.

Owing to the particularities of the theatre of operations in North Africa, STOL capacity from hot, high altitude, unprepared strips with a 375 mile range and

capacity for three people were specified. The winning design was submitted four months later by I.M.A.M. - Insustrie Meccaniche Aeronautcle Meridionali (Romeo). It embodied sophisticated technical solutions to achieve the same STOL performance as the Storch's with greater range and speed.

Designated the IMAM ro-63, the airplanes had a stalling speed of 34 mph, could take off or land in about 150 feet, had a range of 500 miles at 110 mph, service ceiling of 20,000 feet and 980 pounds of payload. The only problem was that the suitable Italian engines were still under development. This led to the adoption of the German Hirth 508D engine with 280 mph. In due course, difficulties on obtaining engine from German were to severely curtail production of the aircraft.

In December 1941, the Air Ministry decided to equip the Ro-63 with the Isotta-Franschini Beta engine. They did this hoping to speed up production but the engine was not up to par and quite a few failures occurred. Due to the engine supply difficulties, production eventually ended in late 1942. No Ro-63s survived the war.

Another Italian liaison-type of aircraft was the Saiman 202 which was similar to the "low-wing" Messerschmidt M-108. It started production in 1936 and continued until 1943. The 202 was a two-place aircraft and was followed by the model 204 which was slightly larger, had a more powerful engine and carried four people. These were excellent aircraft and fulfilled all required of them. Hey served the Italian military units into the 1950s and eventually were sold to flying clubs and individuals.

Russian

If the Russians had a liaison aircraft, it would by the Polikarpov Po-2 bi-plane. It was designed as a trainer and general utility aircraft in 1928. It ceased production in 1952; almost 20,000 were built. It was quite similar to the American PT-17 built by Stearman.

The Po-2 was powered by an M-11 5 cylinder air cooled radial engine of 100 hp; it produced a top speed of 93 mph. The aircraft had a wingspan of 37 feet 5 inches, was 26 feet 9 inches in length, and weighed 2, 167 pounds. It had a ceiling of about 13,000 feet and a range of 329 miles; it held a crew of two.

During World War II the aircraft trained pilots, supplied and supported partisans, dropped agents behind enemy lines and served as the Russian equivalent of "Bed Check Charlie". The Po-2 operated in the Korean War and served long after with other counties.

Postwar Liaison and Korea

When North Korea invaded South Korea in June of 1950 there were two U.S. infantry divisions station in Korea. Generic to them were quite a few L-4s and L-5s. They assumed a schedule of dawn-to-dusk aerial observation of the retreat and North Korean advances. These L-4s and L-5s were war-weary from WWII five years earlier and were now nursed into the air for mission after mission. Everything was in short supply including such luxuries as aviation fuel. The gas from trucks and jeeps was once again used to keep the planes going just as it had in those critical days following D-Day in Normandy.

Spare parts for the L-4s and L-5s were none-existent. All repairs were improvised. Some of these included using gas tanks that were stripped from wrecked jeeps and installed in the rear of the L-4s for longer flight times. But in spite of these obstacle the Army planes continued their low and slow flights over the battle zones, directing accurate and devastating artillery fire on the enemy.

Army Aviation was a basic part of General Douglas MacArthur's amphibious invasion of Inchon, Korea in September 1950. In one instance, and Army Captain took off in his L-5 to fly to Kimpo Airport near Seoul. He was forced to return, however, when he found the airfield in enemy hands. During the following two months of fighting the Army lost only six liaison aircraft and only one pilot and one observer.

In July 1949, the U.S. Air Force decided to use their L-5s for fighter-bomber direction. The USAF L-5 pilots were trained by the Army Aviation pilots. The USAF operations were named "Mosquito". The USAF used observers from the U.S. Army. The L-5 "Mosquito" would later be supplanted by the North American T-6.

Since most of Army Aviation Aircraft were well worn L-4s and L-5s a replacement was sorely needed. Aeronca L-16 then the Cessna L-19/O-1 Birddog which was being built by the thousands. The Army had an increasingly urgent need for a modern fixed-wing, two-placed observation and liaison aircraft to replace the

obsolete L-4 and L-5 vintage aircraft that were left over from World War II.

On February 16, 1951 the first Cessna L-19 Birddog was delivered to the front lines units in Korea. The arrival of the new liaison aircraft brought a replacement for the beaten L-4s and L-5s. They were replaced on a one-on-one basis. For the experienced Grasshopper pilots stepping into an L-19 for the first time was like driving a Cadillac after years on a farm tractor. The L-19 was ordered in such large quantities that the unit cost dropped to almost $13,000.

From July 4, 1950 through December 31, 1951, liaison L-4s and L-5s of the U.S. Eighth Army flew 186,372 hours for flying during 140,792 missions. Of these missions, 64,541 were combat sorties. Over 90% of all UN artillery fire was adjusted by L-4 and L-5 aircraft. Also during this period only 10 planes were lost in action, while non-combat accidents reached 122, mainly due to weather. By 1952, the Cessna L-19 had taken over most liaison missions.

In 1952, Army liaison aircraft flew 117,593 administrative missions, evacuated 7,654 sick and wounded soldiers; ten pilots were killed in action and two were listed missing in action.

Every branch of the service used liaison aircraft in missions ranging from carrying the mail to evacuation of the wounded to carrying hot meals, including the North American L-17.

Afterword –

The next time you see an old, tired liaison airplane in the back of a hangar or tied down in an out of the way, little used part of an airport, consider and remember: it was once a proud war-bird. Pause for a moment and look her over. Glance into the cramped cockpit through the cracked and discolored plastic, and imagine the excitement and terror of war the little craft once knew. Visualize a sweaty right hand grasping the stick, while the left bends the throttle against the stops...trying to force one more ounce of power our of an already screaming, red-lined engine, as the little plane skims, zigzagging, over the tree tops, trying to evade the ever-present enemy fighters. Yes, here is a true war bird; a legitimate combat veteran. She has been there and come back. By modern standards, she may appear frail and she may not look like much, but remember this well: in her day, she accomplished all that was asked of her and often much more. Pause and toss a salute to this time-worn relic. Then, thank God for the men and women who built her and for the men who flew her. She has well earned your respect.

Wise King Solomon, quoted in the Book of Ecclesiastes, offer this admonition: "Let us hear the conclusion of the whole matter: Fear God and keep his commandments..."

To which, in all modesty, I would add, for all the pilots past, present, and future: "Fear God and keep his commandments...and respect your mechanics."

Hardy Cannon
San Antonio, Texas
June 1985