

Endurance Flying:

The Pilots and Planes

Thirty-three and a half hours to Paris, 3600 miles distant. The pilot--Charles Augustus Lindbergh, the plane--the Ryan NYP "Spirit of St. Louis", the engine--the 225 hp Wright J-5 Whirlwind.

Thanks to 225 horses in a Wright radial which kept panting continuously for 33.5 hours through all sorts of weather, Charles A. Lindbergh fulfilled his dream of reaching Paris nonstop. Spanning the Atlantic back in 1927 was quite an undertaking and the whole world was quick to praise the flying ability and courage of the "flyin' kid" from St. Louis.

With the flight of the "Lone Eagle" a success, the Wright company wasted no time in climbing aboard the bandwagon. In the nation's leading magazines they widely publicized the fact that the Atlantic had been conquered by a Wright-powered aircraft.

Lucky Lindy's crossing of the Atlantic gave a tremendous boost to the acceptance and sale of the radial engine and monoplane designs. Previously water-cooled powerplants like the Packard, Liberty and Curtiss D-12 were standard equipment on most aircraft while the monoplane was still somewhat of a novelty of the future, and the biplane still reigned over private flying. Orders for the now-famous Wright Whirlwind poured into Patterson, New Jersey while in San Diego the Ryan plant was busily at work on the construction of planes built to the expression - like Lindy's.

Giving Lindbergh somewhat of a guarantee as to the reliability of the Wright radial, Clarence D. Chamberlin and Bertrand B. Acosta had climbed into the air over Long Island in mid-April to set the first endurance record of significance. For 51 hours, 11 minutes, 25 seconds the two fliers kept their Bellanca WB-2 "Columbia" (NX237) suspended over Roosevelt Field. Maurice Drouhin and Jules Landry of France had held the previous record--set in 1925 at more than 45 hours. Their plane, a single engined Farman, was powered by a water-cooled Lorraine engine of 450 hp.

Later, in June of 1927, both Acosta and Chamberlin were to follow Lindbergh's path across the Atlantic. With Charles A. Levine, Chamberlin made the flight early in the month, reaching Germany after nearly 44 hours. Acosta made the trip later in the month with Comdr. Richard E. Byrd, Lt. George O. Noville and Norway's Bernt Balchen in the Fokker F-VH-3M "America". Having been in the air for more than 46 hours, the quartet ditched off the coast of France at Yer-sur-mer when their fuel ran out after two fruitless attempts to pierce the weather over Paris.

The 1925 National Air Races, staged at Long Island's Mitchel Field had seen Clare Chamberlin nearly lose his life when he and Lawrence Burnelli dove a 1918 monoplane into the ground. Burnelli was killed instantly, while Chamberlin escaped with a broken ankle and back injuries. Averaging 110.19 mph, Chamberlin flew his Crescent monoplane to third place in Event 18 at the 1929 Nationals. During 1930 and 1931 Clare was instrumental in the flights of Ruth Nichols and her famed Lockheed Vega "Akita". With her frequent crack-ups, Chamberlin sewed the "Akita" back together many a time. At Roosevelt Field in January of 1932 Clare climbed high into the sky to set a diesel engine altitude mark of 19,393 ft.

Acosta too was well known by those of the aviation world. A Curtiss test pilot of considerable note, Acosta had been the victor of the 1921 Pulitzer Race, America's premier racing classic. Flying a Curtiss R-1, he averaged 176.7 mph to beat out contender Clarence

Coombs and cop the trophy. In November of 1921, with this same 400 hp racer, Acosta had set a new landplane speed record of 197.8 mph.

The high-wing WB-2, with its airfoil-shaped fuselage, was a prototype of the Bellanca Pacemaker monoplane of later years. Designed by Gieuseppe M. Bellanca, the WB-2 had been built in 1926 by the Wright Aeronautical Corporation as a test plane for their new nine cylinder Whirlwind radial. It was planned to have the WB-2 put into production by the Huff-Daland company but these plans were later dropped. In late 1926 a young airmail pilot, Lindbergh by name, sought to acquire the WB-2 for a proposed Atlantic hop, but no dealings were made. In early 1927 Bellanca organized the Columbia Aircraft Corporation and repurchased his "Columbia" from the Wright people. Eager to have his "Columbia" make the ocean flight, Gieuseppe made further plans. Young Russell A. Hosier was first chosen to pilot the "Columbia" across the Atlantic, but later it was decided that Chamberlin and Lloyd W. Bertaud, another airmail pilot, would sit at the controls. Trouble in the Bellanca camp finally resulted in the decision that Chamberlin would pilot the plane with Charles A. Levine, then head of the newly-formed Columbia Corporation, going along as passenger. So with Chamberlin and Levine in the cockpit, the "Columbia" flew to Germany.

In 1928, another Atlantic flight was planned for the WB-2. Roger Q. Williams and the Italian Bonelli, chosen to man the craft, ended this venture with a crash on take-off. In October of 1930 the WB-2 crossed the Atlantic for the second time--this time reaching England after 28 hours, 10 minutes. J. Erroll Boyd and Harry P. M. Connor performed the cockpit duties. Earlier in the year Roger Williams had joined forces with Boyd and Connor and together they piloted the "Columbia" from New York City to Bermuda and back in 17 hours, 1 minute. With three records to her credit, the "Columbia" took a rest following the Bermuda flight, but in July of 1933 she was back in the headlines--this time with a New York City to Port-au-Prince, Haiti record. Boyd, Robert Lyon and H. P. Davis did the piloting.

In late 1927 the endurance record went to Germany when two German fliers, Cornelius Edzard and Johann Risztics, established a new record of a little more than 52 hours. They used a Junkers W-33 monoplane.

On January 17-19, 1928 Australian, famed-flier-to-be, Capt. Charles E. Kingsford-Smith made his bid for the world's endurance record. Taking off from Mills Field, San Francisco with Lt. George R. Pond at his side, Smitty stretched his fuel supply to keep him aloft over San Francisco Bay for 50 hours. Then, like a faltering bird, he sputtered in for a landing. The plane used was the Fokker F-VII-3M "Southern Cross" (VH-USU, American license 1985).

The "Southern Cross" was one of those planes that never seemed to die but just grew old gracefully. At the request of polar explorer, Sir Hubert Wilkins, the plane was built in 1925 for arctic use. The 1925 configuration sported a single engine and the name "Detroit-er". In 1927, minus its engine, the plane was sold to Charles Kingsford-Smith. From the U. S. Navy, Smitty acquired three Wright J-5C Whirlwinds, each rated at 200 hp. For the endurance attempt and other flights that followed, the original 320 gallon fuel capacity was increased to 1298 gallons. This fuel was spread out in six tanks--a main fuselage tank of 807 gallons, four wing tanks of 96 gallons each, and a 107 gallon



The Bellanca WB-2 "Columbia" which set the first endurance record of significance, 51 hours, 11 minutes, 25 seconds, during April of 1927. (Leslie N. Forden)

tank situated beneath the pilot's seat. (For the endurance attempt an additional 225 gallons was carried in the fuselage in the form of 45 five-gallon tins.) Old as she was, the "Southern Cross" set many records in the years that followed. May and June of 1928 marked the first claim to fame for both Kingsford-Smith and the aging Fokker. With fellow-Australian, Capt. Charles T. P. Ulm, and Americans, James Warner and Harry W. Lyon, Smitty pioneered the Pacific air trails linking the USA and Australia in just 83 hours, 15 minutes. Rounding out 1928, Smitty and Ulm joined ranks with H. A. Lichfield and C. McWilliams, to set two more records with the "Southern Cross". In September they linked Australia and New Zealand in 26 hours, 25 minutes. Setting another record, they made the return trip in 22 hours, 23 minutes the following month. In June of 1930 Smitty

added an Atlantic hop to his exploits by flying between Ireland and Harbor Grace, Newfoundland in 30 hours, 28 minutes. With his original destination being New York, Smitty later flew on to Roosevelt Field in 15 hours, 55 minutes. The 1930 crew of the "Southern Cross" included Evert Van Dyk, J. Patrick Saul and John W. Stannage. Today the "Southern Cross" rests in the Brisbane Museum as a monument to Australia's contribution to aviation pioneering in the Golden Age.

Not content with these laurels, Kingsford-Smith piloted his Avro Avian "Southern Cross Junior" between England and Australia in 9 days, 21 hours, 40 minutes, to set still another record. Other flights followed. In 1933 flying his Lockheed Altair "Lady Southern Cross", Kingsford-Smith lowered the England-Australia mark which he had chalked-up in his Avian. This time he covered the distance in 7 days, 4 hours, 50 seconds. With Capt. P. G. Taylor, Smitty and his "Lady" flashed to a 1934 Australia-England record. Smitty was finally to be lost in November of 1935 while attempting to pilot the "Lady Southern Cross" between England and Australia.

With the German endurance record of 52 hours still unbroken, others sought to establish a new one and bring the title for endurance flying back to Uncle Sam. To noted aircraft designer-builder Edward A. "Eddie" Stinson and George W. Haldeman went this honor. Taking off from Jacksonville, Florida on the morning of March 28, 1928 the two were successful in keeping their Stinson SM-1 "Sally Sovereign" aloft for 53 hours, 36 minutes, 30 seconds.

Powering the high-wing "Sally Sovereign" was a Whirlwind J-5 of 220 hp. The wing of the SM-1 was of two-spar wood construction and utilized the M-6 airfoil. Fuselage construction was of welded chrome molybdenum steel tubing. Tubular struts of streamline section braced the wings to the fuselage. Like the fuselage, the tailplane was also built of welded steel tubing. Both the fuselage and the tailplane were fabric covered.



The Fokker "Southern Cross", piloted by Charles E. Kingsford-Smith, arriving at New York on June 26, 1930 after flying down from Harbor Grace, Newfoundland following its Atlantic crossing. (Photo - International News Photo)



The highly modified Stinson SM-4, "Sally Sovereign".

Haldeman wasn't new at record breaking. In October of 1927 with Ruth Elder, he had spanned the Atlantic in Stinson SM-1 "American Girl". February of 1929 saw George Haldeman piloting a Bellanca monoplane between Canada and Cuba in 12 hours, 56 minutes. Bringing his 300 hp Wright-powered Bellanca to the 1929 Nationals at Cleveland, Haldeman placed first in two events. Averaging 130.22 mph he beat out two other Bellancas and a Fairchild in Event 10. In Event 18 it took only 119.97 mph to win. At the 1930 Chicago Nationals Haldeman sat in the cockpits of two Bellanca aircraft. In Event 27, flying a 240 hp Wright-powered Pacemaker, George buzzed around the course at 136.1 mph to place third. With a Bellanca Airbus, Haldeman also placed third in Event 29 at 123.32 mph. In the same Bellanca Pacemaker, he had flown at the 1930 Chicago races, Haldeman set an altitude mark of 30,453 feet in February of 1930.

To pioneer plane builder Eddie Stinson the setting of an endurance record was "old hat". In December 1921 back in the days when pilots flew by the seat of their pants, Stinson and Lloyd W. Bertaud had set an endurance mark of 26 hours, 18 minutes, 35 seconds. They flew a Junkers JL-6.



Billy Brock and Ed Schlee used the Stinson SM-1, "Pride of Detroit" to set a new endurance record of over 59 hours on October 1, 1928. (Photo - A. Van Hoorebeeck)

San Diego, Calif., saw the next attempt on the worlds record for endurance flying. William S. "Billy" Brock had cleaned-up his year-old Stinson SM-1 "Pride of Detroit" (NC857) and announced his intentions of taking a stab at the record in October. With Edward F. "Ed" Schlee, Brock lifted his "Pride of Detroit" into the air on the morning of October 1, 1928. They stayed in the air 59 hours, 19 minutes, 15 seconds, this being sufficient to set a new record.

Brock's high-wing "Pride of Detroit" had been built early in 1927. Eddie Stinson had flown it to victory in the 1927 Ford Tour to prove the reliability of all Stinson products. In late July of 1927, NC857 was acquired by Billy Brock. With a long distance record in mind, Brock fitted the craft with extra fuel tanks and dubbed her the "Pride of Detroit". In August, with companion Ed Schlee, Brock flew the Stinson between Newfoundland and Tokyo, Japan to break all distance records. The two fliers completed their journey in 18 days elapsed time. Their time aloft was 145 hours, 30 minutes.

Billy Brock made his debut at the National Air Races in 1929. In Event 20, with his hand on the stick of a Bach tri-motor, Billy barreled around the course at 134.46 mph to win second place honors and \$300. Piloting a Lockheed Vega destined to become Ruth Nichols' famed "Akita", Brock and Schlee set two records in June of 1930. The first was a Jacksonville-San Diego transcontinental hop, accomplished in 13 hours, 55 minutes. The return trip, also a record, was made in 16 hours, 30 minutes. Later in the year Billy and the Akita-to-be romped to fourth place in the Los Angeles-Chicago Derby. Flying solo, Billy flashed between the two points in 9 hours, 53 minutes, 57 seconds. In late 1930 and early 1931, Billy signed on as a test pilot for the B. F. Goodrich Rubber Company of Akron, Ohio. While with Goodrich, Billy sat at the controls of the 1930 Thompson winning Laird "Solution" and also did some de-icer test work on the Lockheed Vega "Miss Silvertown".

Next to take a crack at the endurance record was the U. S. Army. It was typical of the Army to choose a large multi-engined craft for experimental projects, and the setting of an endurance record was no exception.

Selected for the flight was a Fokker C2-3 (C-2A). Not sure whether or not they would be successful in their refueling project, the Army dubbed the craft the "Quest-



The Fokker C-2A, "Question Mark", being refueled by the Douglas C-1, during record endurance flight. (AF 46756AC)

ion Mark" (AC 28-120). With Maj. Carl A. Spaatz and Capt. Ira C. Eaker at the controls, and a crew of Lt. Harry A. Halverson, Lt. Elwood R. Quesada and Sgt. Roy Hooe, the wheels of the fuel-laden "Question Mark" lifted from Mines Field, Los Angeles on the morning of January 1, 1929. Hours later, a large biplane took to the air with Capt. Ross C. Hoyt in command, this was the refueling plane. For 150 hours, 40 minutes, and 15 seconds Spaatz and Eaker hung their "Question Mark" in the sky over the Los Angeles area. After guzzling 5205 gallons of fuel and 202 gallons of oil the "Question Mark" settled back to earth on the 7th of January.

The Fokker C2-3 "Question Mark", like previous endurance planes, was powered by the Wright Whirlwind, three of them. All modifications necessary for the endurance record were made at the Middletown Air Depot in Pennsylvania (now Olmstead Air Force Base). Modifications included the installation of fuel tanks in the fuselage, the strengthening of the landing gear, and the construction of a steel tube framework on the nose of the Fokker. This structure made possible the in-flight servicing of the center Whirlwind engine. In later years the "Question Mark" was based at Washington D.C.'s Bolling Field.

Both Eaker and Spaatz stepped in and out of the "public eye" through the years. During World War II, both served as commanding officer of the 8th Air Force. For Ira Eaker, claim to fame first came in 1926. Piloting a Curtiss 0-1, Eaker sped to victory in the Liberty Engine Builders Trophy Race with a speed of 142.2 mph.

In 1927, with the Loening OA-1A "San Francisco", Ira took part in the Army's goodwill flight to South America. The 1931 National Air Races saw Ira Eaker in Cleveland in the cockpit of a stripped-down Lockheed Altair. In the Thompson race, he skirted around the pylons at 192.82 mph to bring home fifth place money. Also entered in the Bendix race, Ira streaked between Los Angeles and Cleveland in 10 hours, 59 minutes, 45 seconds to place fourth.

By 1929 the radial, aircraft engine had proven itself a reliable and efficient power plant and record/endurance flights continued apace.

The women, too, were trying their luck at endurance flying. In the cockpit of a Golden Eagle monoplane, young Evelyn "Bobbie" Trout climbed into the air on the Second of January 1929. For 12 hours Bobbie kept her Golden Eagle in the air, this being sufficient to set a world's endurance mark for the "fairer sex".

The Golden Eagle was designed by Mark Campbell of California and built by the R. O. Bone Company. A five cylinder Velie radial of 70 hp powered the trim little craft. Fuselage construction was of welded steel tubing while the wing was of spruce construction. The built-up ribs utilized the Warren truss principle. To eliminate any chances of flutter, the wing was plywood covered from the leading edge back to just aft of the front wing spar.

A month later, in early February, Elinor Smith boosted Bobbie's mark to 13 hours, 16 minutes. Then,



Above, Evelyn "Bobbie" Trout, and right, Louise Thaden, two girls who during the year 1929 set early women's endurance records of 12 and 22 hours. (Photos - National Archives, 306-NT-153458C and 306-NT-156090C--right)



on February 10-11, 1929 Miss Trout again climbed into the cockpit of her Golden Eagle parasol, this time setting a mark of 17 hours, 5 minutes, 37 seconds.

Shortly afterward on March 16-17, 1929 Louise Thaden boosted the women's record even higher. With a Wright J-5 powered Travel Air biplane she stayed aloft for 22 hours, 3 minutes, 12 seconds. Later in 1929 Louise flew this same Travel Air to first spot in the Women's Santa Monica-Cleveland Derby. Averaging 135.97 mph she crossed the continent in 20 hours, 2 minutes, 2 seconds. In Events 28 and 31 Louise copped two seconds with speeds of 131.43 mph and 136.83 mph. In 1936, flying a Staggerwing Beechcraft C-17R, Louise and Blanche Noyes sped from New York to Los Angeles in 14 hours, 55 minutes, 1 second to win the Bendix race and its \$7,000 cash prize. Later in 1936 Louise flew this same C-17R biplane to a new women's speed record of 197.958 mph.

(Jetting back to the men, at Roosevelt Field, New York 28 year-old Martin "Marty" Jensen kept a Wright J-5 powered Bellanca monoplane in the air for 35 hours, 33

minutes, 20 seconds, to set a new record for non-refueled flight. This was on March 27-28, 1929.

Everyone knew of Martin Jensen. He was the man who, with Paul Schluter, ventured out across the Pacific in August of 1927 to take second place honors in the famed Dole Race. With their Breeze "Aloha", Jensen and Schluter negotiated the 2400 miles between Oakland and Honolulu in 28 hours and 16 minutes. On June 2, 1929 Marty set another record. At the controls of a P & W powered Fairchild monoplane, Jensen climbed high into the sky to



Martin Jensen standing in front of his Bellanca, "The Green Flash", above, before abortive attempt at endurance record, January 30, 1929, and right, before he set new altitude record, June 2, 1929. (Int. News Photos)





The Ryan Brougham, "Fort Worth", flown to a new endurance record on May 19, 1929. (National Archives 306-NT-155005C)

set an altitude record of 26,600 feet. In 1931 Marty joined America's racing fraternity. With his self-designed Jensen Special, he polished the pylons with the nation's best.

In April of 1929 a further assault on the women's record was made by 17 year-old Elinor Smith. With her Bellanca Pacemaker "Tom", Elinor raised the record to 26 hours, 21 minutes, 32 seconds at New York's Roosevelt Field on April 23-24. The young Elinor Smith was quite a flier. At 16 she had flown a Waco 9 under all four existing suspension bridges in New York City. In March of 1930 Elinor boosted the women's altitude mark to 27,418 feet.

"Tom" was a standard Bellanca Pacemaker owned by the Irvin Air Chute Company of Buffalo, New York. Powering the craft was a supercharged Wright Whirlwind. Wings were of spruce construction being fabric covered. The leading edge of the wing was plywood covered as far back as the first spar. Square section tie rods braced the wings to the fuselage.

Accompanied by Bobbie Trout, Elinor boosted her own mark to 45 hours and 5 minutes in May of 1929. Once friendly rivals, Elinor and Bobbie now jointly shared the laurels.

Meanwhile, the men's refueled endurance record had been unchallenged since January. Taking to the air on May 19, 1929, fliers R. L. Robins and Kelly remained aloft for 172 hours, 32 minutes. This record, set with a Wright J-5 powered Ryan Brougham, "Fort Worth", bettered the previous Army record by more than 22 hours.

The Ryan Brougham was the Ryan company's bid for a commercial follow-up to Charles Lindbergh's famed Ryan NYP "Spirit of St. Louis". After Lindbergh's ocean flight in May of 1927, Ryan sales climbed skyward and there was a great demand for "a plane like Lindy's". In an effort to fill the bill the San Diego Ryan plant rolled from their workshops the Ryan Brougham. Wingspan of the five-place Brougham was somewhat smaller than that of the Lindbergh plane but in design it followed the general lines of the clean-looking "Spirit of St. Louis".

Focusing their eyes on the record previously set by Robins and Kelly the month before, Byron K. Newcomb and Roy L. Mitchell lifted their Stinson SM-1 "City of Cleveland" from the runway at Cleveland, Ohio on June 29, 1929. They remained aloft for 174 hours, 59 minutes, besting the previous record by only 2 hours, 27 minutes

--a slim margin.

Fuselage construction of the 220 hp Wright J-5 powered "City of Cleveland" was of welded steel tubing covered with fabric. The wing was of two-spar spruce construction with built-up ribs of spruce and plywood. Tubing, streamlined with balsa and then covered with fabric, braced the wings to the fuselage.

In July of 1929, Dale "Red" Jackson and Forrest O'Brine set out in quest of the world's record for prolonged flight. For 420 hours and 21 minutes Jackson and O'Brine and their Curtiss Robin "St. Louis Robin" (NR-59H) sat in the air over St. Louis. Refueling of the "St. Louis Robin" was done by C. Ray Wassail and Percy V. Chaffee. Chaffee was later to be seen at the 1935 Nationals in the cockpit of Steve Wittman's Pobjoy Special.

Powering the "St. Louis Robin" was a 6 cylinder Curtiss Challenger radial of 190 hp. Fuselage construction was of welded steel tubing utilizing the Warren truss principle. Fabric covering was employed. The semi-cantilever wing was of two-spar spruce construction and utilized the Curtiss 72 airfoil. Haskelite plywood covered the leading edge, fabric the remaining surfaces. Tail surfaces were of tube construction and fabric covered.

In 1930, Jackson climbed into the cockpit of the



Flown by Dale Jackson and Forrest O'Brine, the Curtiss Robin, "St. Louis Robin", upped endurance record past 420 hour mark in July 1929. (Gulf Photo from J. Harvey)



John and Ken Hunter after setting a new endurance record of 553 hours, 41 minutes, 30 seconds during the month of June 1930. (Photo - National Archives 306-NT-161964c)

Travel Air Mystery R, which Doug Davis had flown in 1929, and sped "between Montreal and New York in just 1 hour, 55 minutes. He turned to air racing in 1931 and showed up at the Nationals in the cockpit of the Laird LC-DW-300 "Sweet Kiss", the revamped 1930 Thompson winning Laird "Solution". Despite hitting a tree which slowed him down, Red Jackson flew on to take third with a speed of 211.183 mph.

Although they set no new records for refueled flight, Lt. N. B. "Nick" Mamer and Arthur "Art" Walker demonstrated in August of 1929, the possibility of a nonstop transcontinental airline or airmail service. Leaving Felts Field, Spokane, Washington on August 20 in their Texaco sponsored Buhl CA-3 "Spokane Sun God" (NR9628), Mamer and Walker headed cross-country to Mitchel Field, Long Island, New York and then, without landing, retraced their route back to Spokane. Crossing the continent twice in 115 hours, 45 minutes, 10 seconds, Mamer and Walker replenished their fuel supply 11 times enroute. The nonstop transcontinental airmail service never materialized as the money saved on getting the mail across the country in one hop only had to be spent on fuel, refueling crews and the like.

An overnight celebrity, Mamer took part in Chicago's 1930 Nationals, flying a Wright J-5 engined Stearman monoplane. Flying between Seattle and Chicago in 18 hours, 47 minutes, 46 seconds, Nick took second spot in the Men's Class "A" Pacific Derby.

The "Spokane Sun God" was powered by a 300 hp Wright Whirlwind. The CA-3 had a total fuel capacity of 440 gallons. This was spread out in three tanks--a main fuselage tank of 200 gallons and two wing tanks of 120 gallons each. Painted in large print on both fuselage sides were the words SPOKANE SUN GOD. The Texaco star emblem adorned both the wing tips and rudder.

Next to make a bid for the record were John and Ken Hunter. For the attempt they had acquired a Stinson monoplane which they christened "We Will", confident that they could set a new record. But "We Will" didn't. After only 26k hours in the air, the Hunter brothers were

forced to bring their weary Stinson monoplane back to earth nearly 160 hours short of the Jackson-O'Brine record. This attempt was made in Chicago on October 1-11, 1929.

Persistent, Chicago's Hunter brothers took to the air again at 4:40 P.M. on June 11, 1930. Take-off point was again Sky Harbor (near Chicago). They chose for their mount the Stinson SM-1F "City of Chicago". During the flight their SM-1F was refueled 223 times. The refueling plane was the Stinson "Big Ben", owned by Chicago's Big Ben Beverage Corporation. At the controls of "Big Ben" were none other than Albert and Walter Hunter, making the entire flight a family project. After remaining aloft for 553 hours, 41 minutes, 30 seconds, they brought the old Stinson down at 6:21 on the Fourth of July.

The Stinson SM-1F "City of Chicago" was built in August of 1928. Power was supplied by a 300 hp Wright J-6. For in-flight servicing of the J-6 radial, a catwalk of tube construction was built on the nose of the plane. As the "City of Chicago" was refueled 223 times, it is assumed that the plane was fitted with SM-1 fuel tanks of normal capacity.

Not content with having held the record once, Red Jackson and Forrest O'Brine set out on August 17, 1930 to recapture the record that had been theirs. They again chose a Curtiss Robin monoplane and this time remained in the air for 647 hours, 28 minutes, 30 seconds. The plane used was the Curtiss Robin "Greater St. Louis" with St. Louis again being the scene of the attempt.

The year 1930 had seen its last endurance record with Red Jackson and Forrest O'Brine, and it wasn't until January 9, 1931 that news of another record hit the front pages--the women were at it again. Edna May Cooper and endurance pro Bobbie Trout remained aloft over the City of Los Angeles for 122 hours, 20 minutes, to break by more than 77 hours the previous women's mark, which, incidentally, had been held by Bobbie herself.

By April of 1931, while the Wright Aeronautical Corporation had been busy turning out Whirlwind engines, Packard had come up with a new type of engine which was to be rather economic fuel wise. This was the 225 hp Packard Diesel, a 9 cylinder radial which ran on diesel fuel, and in Jacksonville, Florida plans were afoot to set a record for this new type engine. Walter E. "Wally" Lees and Frederick A. Brossy had acquired one of the new Packard powerplants and installed it in the nose of a



Frederick A. Brossy and Walter E. Lees with diesel powered Bellanca in which they remained airborne for 73 hours and 48 minutes in the Jacksonville, Florida area in April 1931. (National Archives 306-NT-167125C)

modified Bellanca Pacemaker. So it was that on the morning of April 12, 1931 Wally Lees and Fred Brossy eased their fuel laden Pacemaker into the air from a small field on the outskirts of Jacksonville. But this first attempt at setting a record for non-refueled flight was unsuccessful. After 73 hours, 48 minutes in the air, Lees and Brossy touched down on April 14th.

Both men remained eager to set a record for this new type radial, and another attempt was made in May with Jacksonville again the hopping-off point. With 481 gallons of Texaco fuel aboard Lees and Brossy lifted their heavily loaded Bellanca into the wild blue yonder over Jacksonville on May 25, 1931. This time they remained aloft 84 hours, 30 minutes, 38 seconds to win for themselves the record for non-refueled flight. With 13 gallons of fuel still in their Pacemaker's tanks, they landed on the 28th of May.

Unlike most endurance aircraft, the Lees' Pacemaker sported a cowled engine, this consisting of a Townend type ring. The fuselage was constructed of chrome molybdenum steel tubing covered with fabric. The standard 46 foot, 4 inch Pacemaker wing was replaced by one of 50 foot span, the larger wing being better suited for the plane's role as an endurance craft. Housed within the fabric covered, two-spar, wood wing were two fuel tanks. The entire leading edge was plywood covered, and square section tie rods braced the wing to the fuselage. Attached beneath the fuselage was a 60 gallon dropable belly tank. The majority of the fuel necessary to keep the Pacemaker aloft for a record time was carried in five-gallon tins in the fuselage. These were gradually emptied into the belly tank.

Mississippi's Key brothers set America's last significant endurance mark in July 1935 at New Orleans, Louisiana. Using a Curtiss Robin which they dubbed "Ole Miss" (NC526N) Fred and Al Key sat in the air for 653 hours, 34 minutes, 3 seconds. That is a few hours more than 27 days—27 days of monotony. John and Ken Hunter had described their endurance flight as, "plain hell, the last word in misery," and that summed it up quite well. Days without sleep, a month without fresh

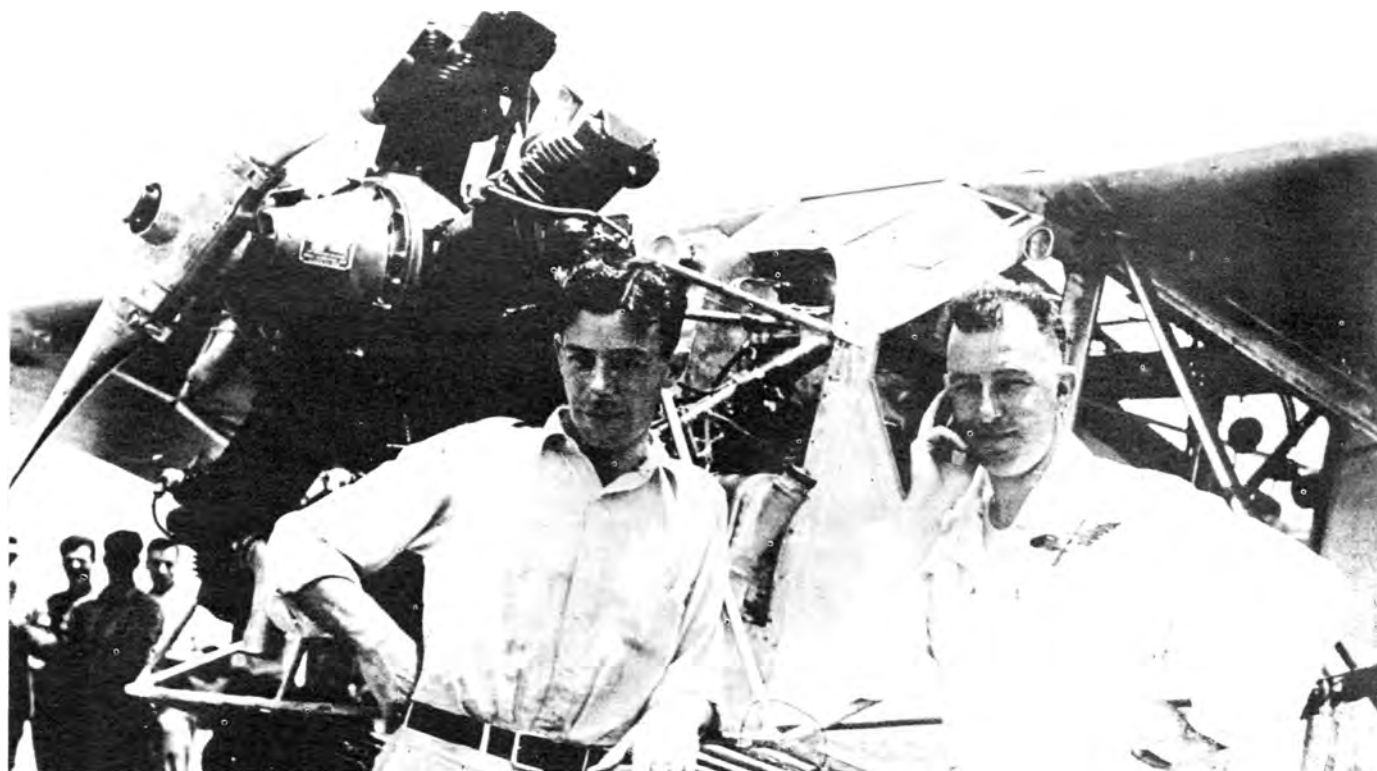


Curtiss Robin "Ole Miss" was kept in the air for over 27 days by the Key brothers, Fred and Al, during July of 1935. (Photo - Wayne Sheldon from J. H. Harvey)

clothes or a good meal, the pungent odor of gasoline, and the continuous, deafening roar of the engine—this was the routine of endurance flying.

The "Ole Miss" was owned by W. H. Ward, who, with James Keeton, assisted in its refueling. Fuselage markings included the Mississippi state flag with the words, OLE MISS, painted above it. A later paint job showed the addition of the Ring Free motor oil and BG spark plug emblems. Also added were a pair of crossed keys with the words, FLYING KEYS, printed above. On July 1, 1935, Fred and Al Key flew the "Ole Miss" from Meridian, Mississippi to Washington, D. C. where it was donated to the National Air Museum, Smithsonian Institution.

With the Key brothers' flight, the curtain came down on the endurance flights of the Golden Years. The numerous flights won many laurels for both the fliers and manufacturers of equipment used and helped to prove the reliability of the airplane and its engine.



Last of the great endurance fliers, Fred and Al Key after July 1935 flight. (National Archives 306-NT-104950)



The Fokker C-2A, "Question Mark", being refueled by the Douglas C-1, during record endurance flight. (AF 46756AC)

ion Mark" (AC 28-120). With Maj. Carl A. Spaatz and Capt. Ira C. Eaker at the controls, and a crew of Lt. Harry A. Halverson, Lt. Elwood R. Quesada and Sgt. Roy Hooe, the wheels of the fuel-laden "Question Mark" lifted from Mines Field, Los Angeles on the morning of January 1, 1929. Hours later, a large biplane took to the air with Capt. Ross C. Hoyt in command, this was the refueling plane. For 150 hours, 40 minutes, and 15 seconds Spaatz and Eaker hung their "Question Mark" in the sky over the Los Angeles area. After guzzling 5205 gallons of fuel and 202 gallons of oil the "Question Mark" settled back to earth on the 7th of January.

The Fokker C2-3 "Question Mark", like previous endurance planes, was powered by the Wright Whirlwind, three of them. All modifications necessary for the endurance record were made at the Middletown Air Depot in Pennsylvania (now Olmstead Air Force Base). Modifications included the installation of fuel tanks in the fuselage, the strengthening of the landing gear, and the construction of a steel tube framework on the nose of the Fokker. This structure made possible the in-flight servicing of the center Whirlwind engine. In later years the "Question Mark" was based at Washington D.C.'s Bolling Field.

Both Eaker and Spaatz stepped in and out of the "public eye" through the years. During World War II, both served as commanding officer of the 8th Air Force. For Ira Eaker, claim to fame first came in 1926. Piloting a Curtiss 0-1, Eaker sped to victory in the Liberty Engine Builders Trophy Race with a speed of 142.2 mph.

In 1927, with the Loening OA-1A "San Francisco", Ira took part in the Army's goodwill flight to South America. The 1931 National Air Races saw Ira Eaker in Cleveland in the cockpit of a stripped-down Lockheed Altair. In the Thompson race, he skirted around the pylons at 192.82 mph to bring home fifth place money. Also entered in the Bendix race, Ira streaked between Los Angeles and Cleveland in 10 hours, 59 minutes, 45 seconds to place fourth.

By 1929 the radial, aircraft engine had proven itself a reliable and efficient power plant and record/endurance flights continued apace.

The women, too, were trying their luck at endurance flying. In the cockpit of a Golden Eagle monoplane, young Evelyn "Bobbie" Trout climbed into the air on the Second of January 1929. For 12 hours Bobbie kept her Golden Eagle in the air, this being sufficient to set a world's endurance mark for the "fairer sex".

The Golden Eagle was designed by Mark Campbell of California and built by the R. O. Bone Company. A five cylinder Velie radial of 70 hp powered the trim little craft. Fuselage construction was of welded steel tubing while the wing was of spruce construction. The built-up ribs utilized the Warren truss principle. To eliminate any chances of flutter, the wing was plywood covered from the leading edge back to just aft of the front wing spar.

A month later, in early February, Elinor Smith boosted Bobbie's mark to 13 hours, 16 minutes. Then,



Above, Evelyn "Bobbie" Trout, and right, Louise Thaden, two girls who during the year 1929 set early women's endurance records of 12 and 22 hours. (Photos - National Archives, 306-NT-153458C and 306-NT-156090C--right)



on February 10-11, 1929 Miss Trout again climbed into the cockpit of her Golden Eagle parasol, this time setting a mark of 17 hours, 5 minutes, 37 seconds.

Shortly afterward on March 16-17, 1929 Louise Thaden boosted the women's record even higher. With a Wright J-5 powered Travel Air biplane she stayed aloft for 22 hours, 3 minutes, 12 seconds. Later in 1929 Louise flew this same Travel Air to first spot in the Women's Santa Monica-Cleveland Derby. Averaging 135.97 mph she crossed the continent in 20 hours, 2 minutes, 2 seconds. In Events 28 and 31 Louise copped two seconds with speeds of 131.43 mph and 136.83 mph. In 1936, flying a Staggerwing Beechcraft C-17R, Louise and Blanche Noyes sped from New York to Los Angeles in 14 hours, 55 minutes, 1 second to win the Bendix race and its \$7,000 cash prize. Later in 1936 Louise flew this same C-17R biplane to a new women's speed record of 197.958 mph.

(Jetting back to the men, at Roosevelt Field, New York 28 year-old Martin "Marty" Jensen kept a Wright J-5 powered Bellanca monoplane in the air for 35 hours, 33

minutes, 20 seconds, to set a new record for non-refueled flight. This was on March 27-28, 1929.

Everyone knew of Martin Jensen. wa's the man who, with Paul Schluter, ventured out across the Pacific in August of 1927 to take second place honors in the famed Dole Race. With their Breeze "Aloha", Jensen and Schluter negotiated the 2400 miles between Oakland and Honolulu in 28 hours and 16 minutes. On June 2, 1929 Marty set another record. At the controls of a P & W powered Fairchild monoplane, Jensen climbed high into the sky to



Martin Jensen standing in front of his Bellanca, "The Green Flash", above, before abortive attempt at endurance record, January 30, 1929, and right, before he set new altitude record, June 2, 1929. (Int. News Photos)





The Ryan Brougham, "Fort Worth", flown to a new endurance record on May 19, 1929. (National Archives 306-NT-155005C)

set an altitude record of 26,600 feet. In 1931 Marty joined America's racing fraternity. With his self-designed Jensen Special, he polished the pylons with the nation's best.

In April of 1929 a further assault on the women's record was made by 17 year-old Elinor Smith. With her Bellanca Pacemaker "Tom", Elinor raised the record to 26 hours, 21 minutes, 32 seconds at New York's Roosevelt Field on April 23-24. The young Elinor Smith was quite a flier. At 16 she had flown a Waco 9 under all four existing suspension bridges in New York City. In March of 1930 Elinor boosted the women's altitude mark to 27,418 feet.

"Tom" was a standard Bellanca Pacemaker owned by the Irvin Air Chute Company of Buffalo, New York. Powering the craft was a supercharged Wright Whirlwind. Wings were of spruce construction being fabric covered. The leading edge of the wing was plywood covered as far back as the first spar. Square section tie rods braced the wings to the fuselage.

Accompanied by Bobbie Trout, Elinor boosted her own mark to 45 hours and 5 minutes in May of 1929. Once friendly rivals, Elinor and Bobbie now jointly shared the laurels.

Meanwhile, the men's refueled endurance record had been unchallenged since January. Taking to the air on May 19, 1929, fliers R. L. Robins and Kelly remained aloft for 172 hours, 32 minutes. This record, set with a Wright J-5 powered Ryan Brougham, "Fort Worth", bettered the previous Army record by more than 22 hours.

The Ryan Brougham was the Ryan company's bid for a commercial follow-up to Charles Lindbergh's famed Ryan NYP "Spirit of St. Louis". After Lindbergh's ocean flight in May of 1927, Ryan sales climbed skyward and there was a great demand for "a plane like Lindy's". In an effort to fill the bill the San Diego Ryan plant rolled from their workshops the Ryan Brougham. Wingspan of the five-place Brougham was somewhat smaller than that of the Lindbergh plane but in design it followed the general lines of the clean-looking "Spirit of St. Louis".

Focusing their eyes on the record previously set by Robins and Kelly the month before, Byron K. Newcomb and Roy L. Mitchell lifted their Stinson SM-1 "City of Cleveland" from the runway at Cleveland, Ohio on June 29, 1929. They remained aloft for 174 hours, 59 minutes, besting the previous record by only 2 hours, 27 minutes

--a slim margin.

Fuselage construction of the 220 hp Wright J-5 powered "City of Cleveland" was of welded steel tubing covered with fabric. The wing was of two-spar spruce construction with built-up ribs of spruce and plywood. Tubing, streamlined with balsa and then covered with fabric, braced the wings to the fuselage.

In July of 1929, Dale "Red" Jackson and Forrest O'Brine set out in quest of the world's record for prolonged flight. For 420 hours and 21 minutes Jackson and O'Brine and their Curtiss Robin "St. Louis Robin" (NR-59H) sat in the air over St. Louis. Refueling of the "St. Louis Robin" was done by C. Ray Wassail and Percy V. Chaffee. Chaffee was later to be seen at the 1935 Nationals in the cockpit of Steve Wittman's Pobjoy Special.

Powering the "St. Louis Robin" was a 6 cylinder Curtiss Challenger radial of 190 hp. Fuselage construction was of welded steel tubing utilizing the Warren truss principle. Fabric covering was employed. The semi-cantilever wing was of two-spar spruce construction and utilized the Curtiss 72 airfoil. Haskelite plywood covered the leading edge, fabric the remaining surfaces. Tail surfaces were of tube construction and fabric covered.

In 1930, Jackson climbed into the cockpit of the



Flown by Dale Jackson and Forrest O'Brine, the Curtiss Robin, "St. Louis Robin", upped endurance record past 420 hour mark in July 1929. (Gulf Photo from J. Harvey)



John and Ken Hunter after setting a new endurance record of 553 hours, 41 minutes, 30 seconds during the month of June 1930. (Photo - National Archives 306-NT-161964c)

Travel Air Mystery R, which Doug Davis had flown in 1929, and sped "between Montreal and New York in just 1 hour, 55 minutes. He turned to air racing in 1931 and showed up at the Nationals in the cockpit of the Laird LC-DW-300 "Sweet Kiss", the revamped 1930 Thompson winning Laird "Solution". Despite hitting a tree which slowed him down, Red Jackson flew on to take third with a speed of 211.183 mph.

Although they set no new records for refueled flight, Lt. N. B. "Nick" Mamer and Arthur "Art" Walker demonstrated in August of 1929, the possibility of a nonstop transcontinental airline or airmail service. Leaving Felts Field, Spokane, Washington on August 20 in their Texaco sponsored Buhl CA-3 "Spokane Sun God" (NR9628), Mamer and Walker headed cross-country to Mitchel Field, Long Island, New York and then, without landing, retraced their route back to Spokane. Crossing the continent twice in 115 hours, 45 minutes, 10 seconds, Mamer and Walker replenished their fuel supply 11 times enroute. The nonstop transcontinental airmail service never materialized as the money saved on getting the mail across the country in one hop only had to be spent on fuel, refueling crews and the like.

An overnight celebrity, Mamer took part in Chicago's 1930 Nationals, flying a Wright J-5 engined Stearman monoplane. Flying between Seattle and Chicago in 18 hours, 47 minutes, 46 seconds, Nick took second spot in the Men's Class "A" Pacific Derby.

The "Spokane Sun God" was powered 'by a 300 hp Wright Whirlwind. The CA-3 had a total fuel capacity of 440 gallons. This was spread out in three tanks--a main fuselage tank of 200 gallons and two wing tanks of 120 gallons each. Painted in large print on both fuselage sides were the words SPOKANE SUN GOD. The Texaco star emblem adorned both the wing tips and rudder.

Next to make a bid for the record were John and Ken Hunter. For the attempt they had acquired a Stinson monoplane which they christened "We Will", confident that they could set a new record. But "We Will" didn't. After only 26k hours in the air, the Hunter brothers were

forced to bring their weary Stinson monoplane back to earth nearly 160 hours short of the Jackson-O'Brine record. This attempt was made in Chicago on October 1-11, 1929.

Persistent, Chicago's Hunter brothers took to the air again at 4:40 P.M. on June 11, 1930. Take-off point was again Sky Harbor (near Chicago). They chose for their mount the Stinson SM-1F "City of Chicago". During the flight their SM-1F was refueled 223 times. The refueling plane was the Stinson "Big Ben", owned by Chicago's Big Ben Beverage Corporation. At the controls of "Big Ben" were none other than Albert and Walter Hunter, making the entire flight a family project. After remaining aloft for 553 hours, 41 minutes, 30 seconds, they brought the old Stinson down at 6:21 on the Fourth of July.

The Stinson SM-1F "City of Chicago" was built in August of 1928. Power was supplied by a 300 hp Wright J-6. For in-flight servicing of the J-6 radial, a catwalk of tube construction was built on the nose of the plane. As the "City of Chicago" was refueled 223 times, it is assumed that the plane was fitted with SM-1 fuel tanks of normal capacity.

Not content with having held the record once, Red Jackson and Forrest O'Brine set out on August 17, 1930 to recapture the record that had been theirs. They again chose a Curtiss Robin monoplane and this time remained in the air for 647 hours, 28 minutes, 30 seconds. The plane used was the Curtiss Robin "Greater St. Louis" with St. Louis again being the scene of the attempt.

The year 1930 had seen its last endurance record with Red Jackson and Forrest O'Brine, and it wasn't until January 9, 1931 that news of another record hit the front pages--the women were at it again. Edna May Cooper and endurance pro Bobbie Trout remained aloft over the City of Los Angeles for 122 hours, 20 minutes, to break by more than 77 hours the previous women's mark, which, incidentally, had been held by Bobbie herself.

By April of 1931, while the Wright Aeronautical Corporation had been busy turning out Whirlwind engines, Packard had come up with a new type of engine which was to be rather economic fuel wise. This was the 225 hp Packard Diesel, a 9 cylinder radial which ran on diesel fuel, and in Jacksonville, Florida plans were afoot to set a record for this new type engine. Walter E. "Wally" Lees and Frederick A. Brossy had acquired one of the new Packard powerplants and installed it in the nose of a



Frederick A. Brossy and Walter E. Lees with diesel powered Bellanca in which they remained airborne for 73 hours and 48 minutes in the Jacksonville, Florida area in April 1931. (National Archives 306-NT-167125C)

modified Bellanca Pacemaker. So it was that on the morning of April 12, 1931 Wally Lees and Fred Brossy eased their fuel laden Pacemaker into the air from a small field on the outskirts of Jacksonville. But this first attempt at setting a record for non-refueled flight was unsuccessful. After 73 hours, 48 minutes in the air, Lees and Brossy touched down on April 14th.

Both men remained eager to set a record for this new type radial, and another attempt was made in May with Jacksonville again the hopping-off point. With 481 gallons of Texaco fuel aboard Lees and Brossy lifted their heavily loaded Bellanca into the wild blue yonder over Jacksonville on May 25, 1931. This time they remained aloft 84 hours, 30 minutes, 38 seconds to win for themselves the record for non-refueled flight. With 13 gallons of fuel still in their Pacemaker's tanks, they landed on the 28th of May.

Unlike most endurance aircraft, the Lees' Pacemaker sported a cowled engine, this consisting of a Townend type ring. The fuselage was constructed of chrome molybdenum steel tubing covered with fabric. The standard 46 foot, 4 inch Pacemaker wing was replaced by one of 50 foot span, the larger wing being better suited for the plane's role as an endurance craft. Housed within the fabric covered, two-spar, wood wing were two fuel tanks. The entire leading edge was plywood covered, and square section tie rods braced the wing to the fuselage. Attached beneath the fuselage was a 60 gallon dropable belly tank. The majority of the fuel necessary to keep the Pacemaker aloft for a record time was carried in five-gallon tins in the fuselage. These were gradually emptied into the belly tank.

Mississippi's Key brothers set America's last significant endurance mark in July 1935 at New Orleans, Louisiana. Using a Curtiss Robin which they dubbed "Ole Miss" (NC526N) Fred and Al Key sat in the air for 653 hours, 34 minutes, 3 seconds. That is a few hours more than 27 days—27 days of monotony. John and Ken Hunter had described their endurance flight as, "plain hell, the last word in misery," and that summed it up quite well. Days without sleep, a month without fresh

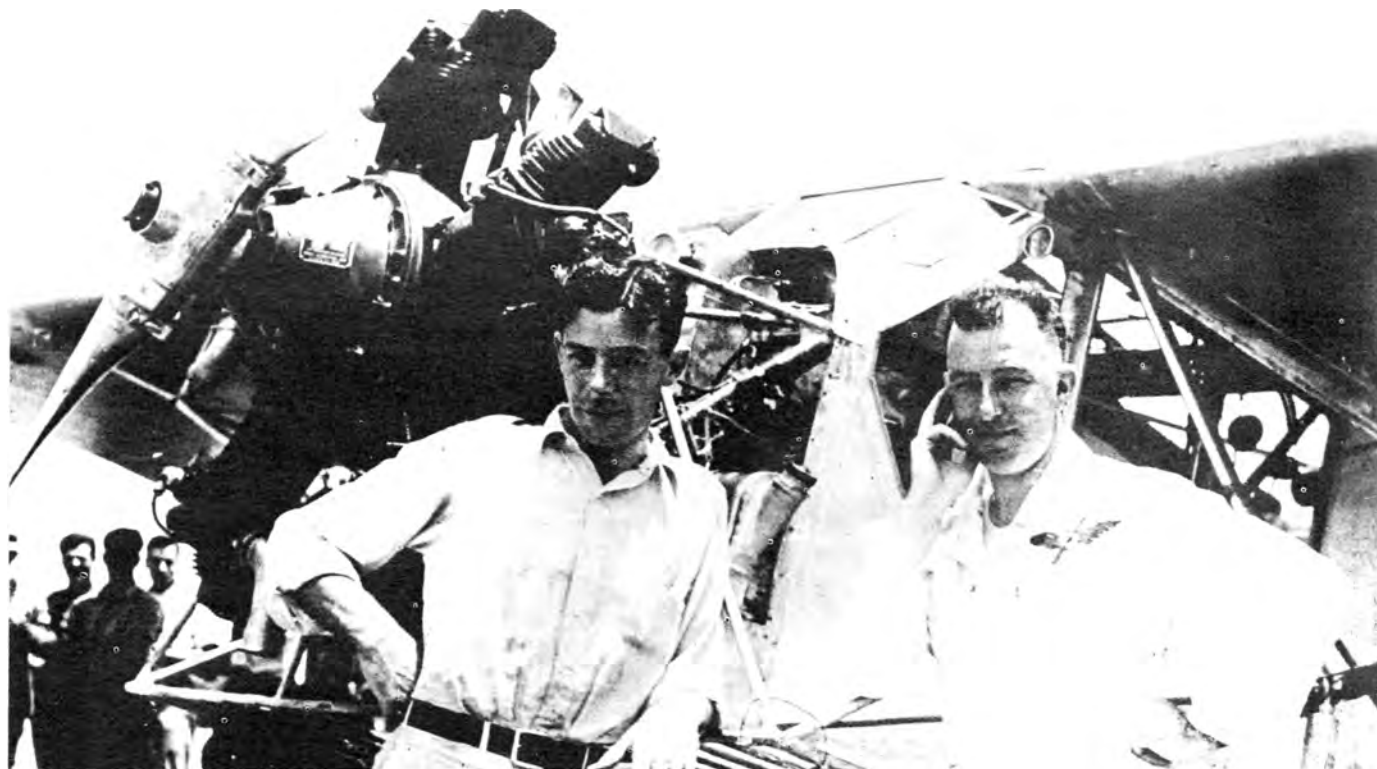


Curtiss Robin "Ole Miss" was kept in the air for over 27 days by the Key brothers, Fred and Al, during July of 1935. (Photo - Wayne Sheldon from J. H. Harvey)

clothes or a good meal, the pungent odor of gasoline, and the continuous, deafening roar of the engine—this was the routine of endurance flying.

The "Ole Miss" was owned by W. H. Ward, who, with James Keeton, assisted in its refueling. Fuselage markings included the Mississippi state flag with the words, OLE MISS, painted above it. A later paint job showed the addition of the Ring Free motor oil and BG spark plug emblems. Also added were a pair of crossed keys with the words, FLYING KEYS, printed above. On July 1, 1935, Fred and Al Key flew the "Ole Miss" from Meridian, Mississippi to Washington, D. C. where it was donated to the National Air Museum, Smithsonian Institution.

With the Key brothers' flight, the curtain came down on the endurance flights of the Golden Years. The numerous flights won many laurels for both the fliers and manufacturers of equipment used and helped to prove the reliability of the airplane and its engine.



Last of the great endurance fliers, Fred and Al Key after July 1935 flight. (National Archives 306-NT-104950)