Lillie-Vought Biplane

Chance M. Vought's Early Designs of World War I Era

by Arthur L. Schoeni

Piecing together the whole story of an old-time airplane may take time and research by many aviation historians.

In the case of Chance Milton Vought's first airplane design in 1913, the company he founded had the full picture only after 60 years.

For decades its public relations people thought the dynamic aviator and designer's first aircraft was the 1914 Mayo-Vought *Simplex* trainer of World War I days. He designed that sleek little plane for the Mayo Radiator Works of New Haven, Conn., which had merged with the Simplex Automobile Co. They wanted an airplane to sell to the British government and hired Vought to design it.

The British did not buy it. But soon they joined the French in clamoring for the U.S. to build thousands of aircraft and engines to counter the swarming German Fokker, Pfalz and Albatross fighters.

The historical photograph file at Chance Vought contained several pictures of the *Simplex* but no planes with earlier dates. So the Mayo plane appeared to be Chance's earliest effort, built two years after he learned to fly in a Wright B. at Cicero, Ill., in 1912.

The *Simplex* wore the "crown" until the 1970s when two large photo albums belonging to Chance Vought surfaced. They were in the hands of his son, Peter Vought. Chance had died in 1930 at the young age of 40 years. History buffs in the Vought corporation found in the valuable albums a pictorial gold mine of aviation information. At first they did not know it, but the crown jewels were three small contact prints of a rustic-looking, 780-pound biplane.

Vought had photos of scores of U.S. and foreign planes of the 1910-1925 era pasted in the albums. He had served as technical editor of an aero and hydro magazine in the early years of that period. He collected small prints of many aircraft which had been published in the magazine, as well as photos he took of his own planes. A clue to the plane in the three mystery prints was found on the back of one.

In his handwriting were the words: "Chance Vought first design. Rotary Motor." That then apparently was his first design, but what was it? The photos only partially opened the door to the answer.

Half a century after the pictures had been taken, Vought company still had no data on such a plane. In the same albums was an autobiographical list of his achievements through the 1920s. It was written on the letterhead of Lewis and Vought company which he had founded in 1917 to produce planes for the U.S. in World War I.

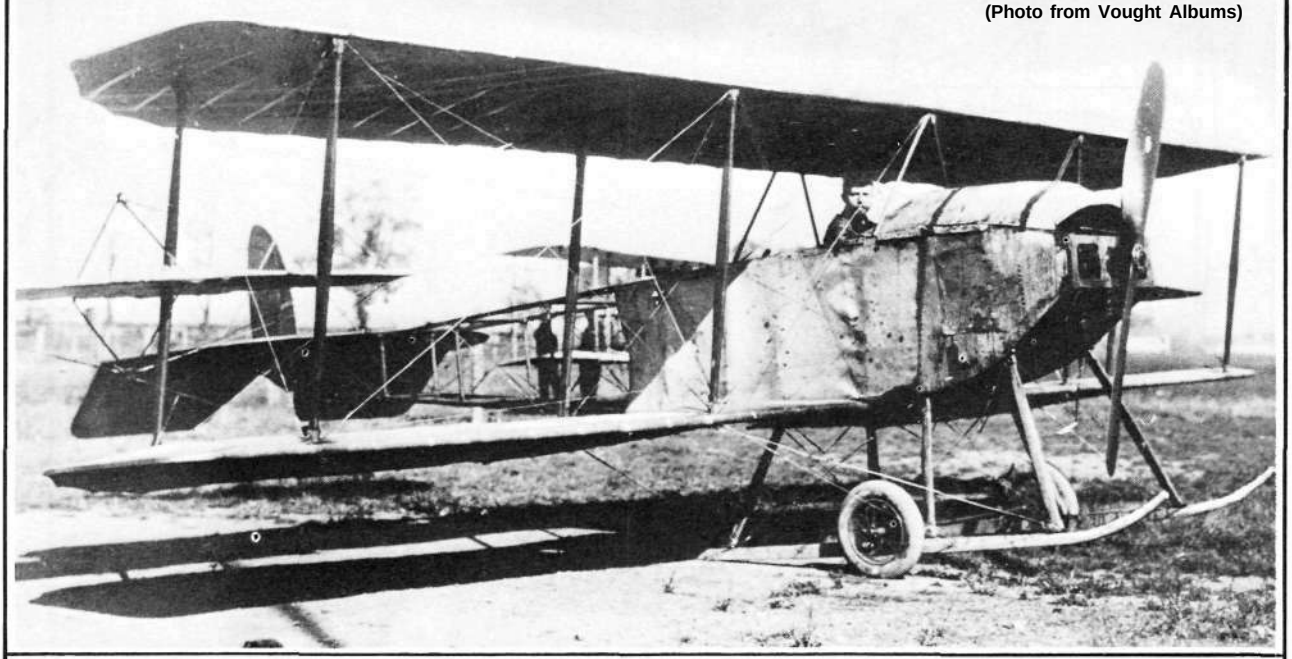
At the top of the listing of planes which he had designed and built was the 1914 Mayo-Vought *Simplex.* That seemed to indicate that it had been his first design. It did not mention the 1913 biplane, although it listed 11 other planes from his aeronautical drawing board between 1914 and the 1920s. Given the beautiful lines and aerodynamic efficiency of those designs, could it be that Vought did not claim it as his first effort because it did not measure up to the others?

Vought carried on his writing and drawing sideline with the magazine at the same time he was a flight instructor and engineer at the Max T. Lillie aviation school at Cicero, in Chicago's outskirts. It was then one of America's largest and busiest airports under the financial leadership of Harold F. McCormick, president of International Harvester and head of the Aero Club of Illinois.

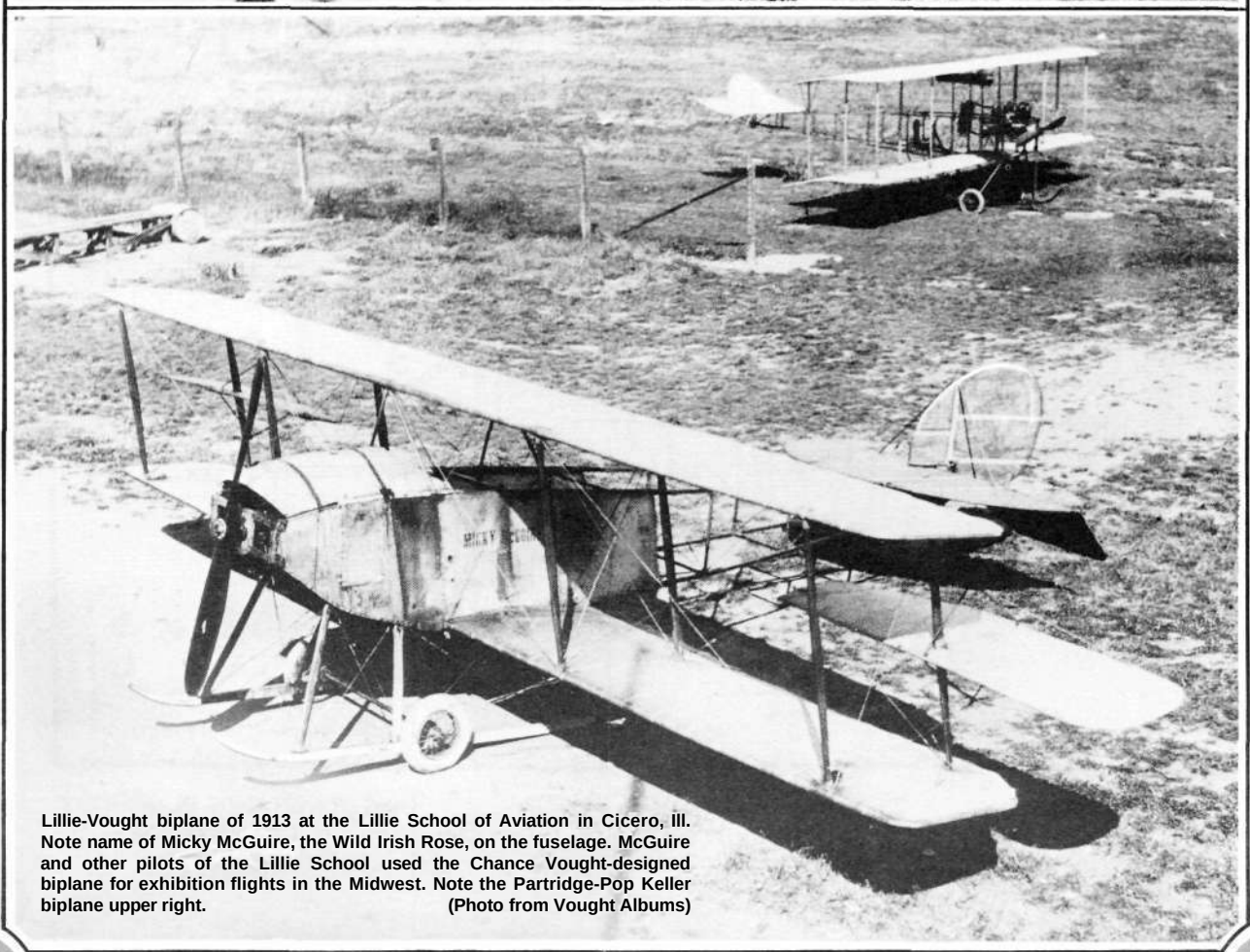
While he was flying Wrights, Nieuports and Curtisses at the field, Vought turned out many technical articles and drawings of U.S. and foreign monoplanes and biplanes of the era for the magazine. The article which Molson uncovered was entitled "Lillie Tractor Reflects Credit on Late Pilot." Lillie, a former seaman from Sweden, had just been killed Sept. 15, 1913, at Galesburg, Illinois. The wing of his Wright B collapsed during a tight turn in an exhibition flight.

Vought served as editor of the 10-cent weekly magazine for a time while editor E. Percy Neal went to Europe to report on World War I aviation. The article and engineering drawing of the Lillie plane cleared up for Vought Corporation the 60-year-old mystery of Chance's first design. Company historians could begin revising their accounts of the firm's beginnings.

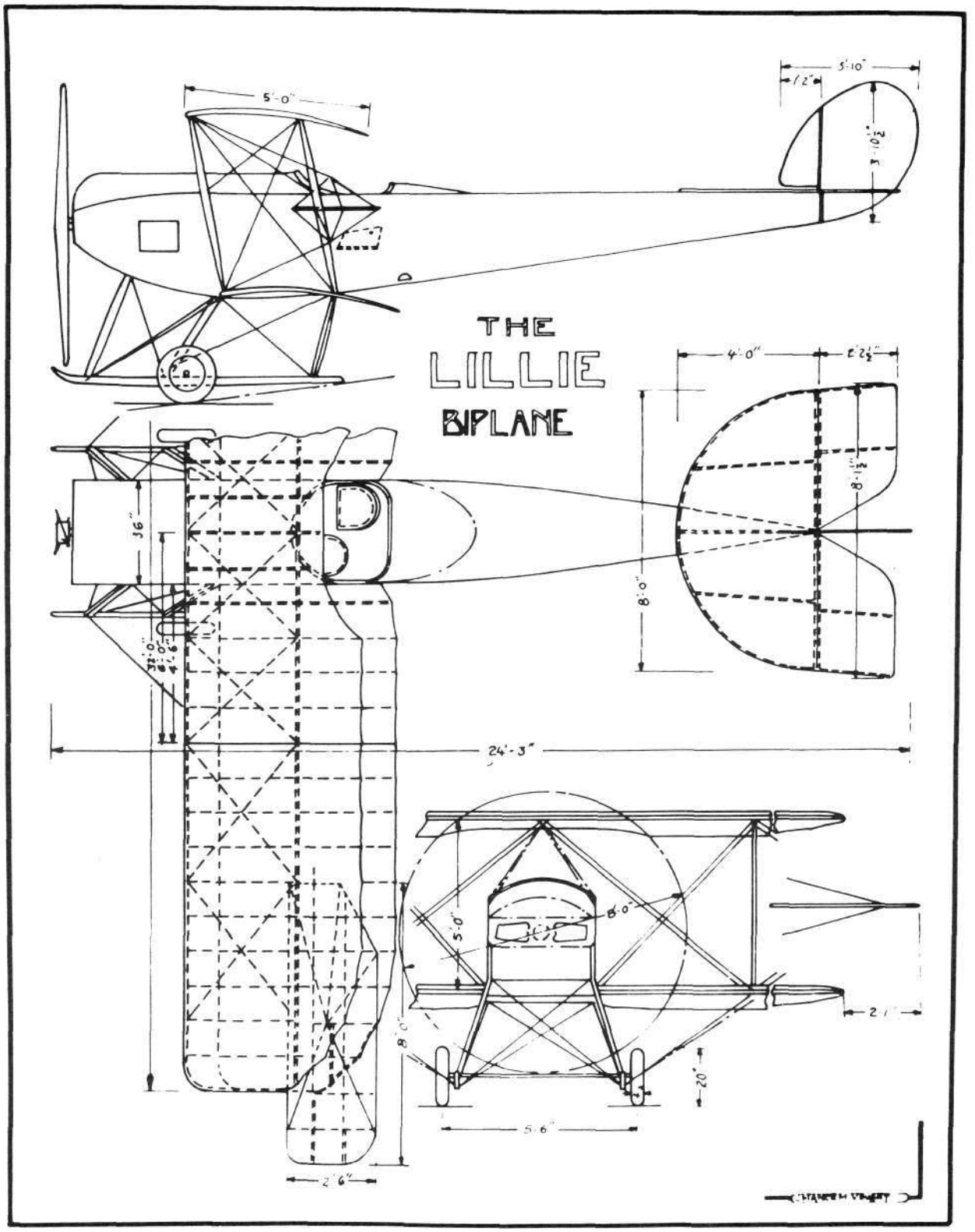
Chance Milton Vought at the controls of a Wright B biplane used at the Max Lillie School of Aviation to train fliers. Vought always was a dapper dresser —note the high collar. (Photo from Vought Albums)



W.C. Robinson, who got his pilot's license a week after Chance Vought at Cicero, at the controls of the Liltie-Vought biplane. The plane had a 50-hp Gnome rotary engine which gave it a speed of 50 mph. The plane had no tail skid but balanced itself on extended skids in front of and behind the two main landing gears. The plane at first was designed to use the Wright system of wing-warping for banking but between-wing ailerons were later installed. Robinson used the plane in a publicity flight, flying first copies of the new *Montreal Daily Mail* from Montreal to Ottawa and way points.
(Photo from Vought Albums)



Lillie-Vought biplane of 1913 at the Lillie School of Aviation in Cicero, Ill. Note name of Micky McGuire, the Wild Irish Rose, on the fuselage. McGuire and other pilots of the Lillie School used the Chance Vought-designed biplane for exhibition flights in the Midwest. Note the Partridge-Pop Keller biplane upper right. **(Photo from Vought Albums)**



DWG. BY CHANCE M. VOUGHT
AERO & HYDRO. NOV. 15 1913

Three-view drawing **of Liliie-Vought** biplane. **(From** *Aero **and** Hydro* **magazine, Nov. 15,1913)**

LILLIE TRACTOR REFLECTS CREDIT ON LATE PILOT

When the Lillie company decided to increase its activities during the 1913 season by engaging in exhibition flying as well as its usual school work, a special Gnôme-motored tractor biplane was constructed which lent itself more readily to the particular requirements of the work than its other machines.

The accompanying scale drawings show the machine as it is now after undergoing some changes in design which have helped its efficiency and air-worthiness. Recently W. C. Robinson piloted this machine in a cross-country flight from Montreal to Ottawa, Canada, and during the season just closed different Lillie pilots used the biplane *en tour*.

The chief characteristic of the machine is its staggered planes, an innovation in American practice. The wings are built in sections, four comprising the lower wings and four the upper. Originally, the outer sections of the planes were warped to maintain lateral stability, but later the whole cellule was made rigid and ailerons substituted. The planes are staggered forward 11 degrees and follow closely the well-known Wright plan-form, and in fact, the Wright system of plane construction. The span of both planes is 32 feet, and the chord is 5 feet, with an equal gap separating the planes.

Because of the very long panels between the plane struts, the main spars are of large cross-section, the front one, forming the entering edge, measures 2⅛ inches by 2 inches. The rear spar is 1⅝ inches by 2¼ inches. The wing-section employed is a typical Wright curve and the ribs are built up of the usual spruce web blocks and battens. The wings are cross braced internally with heavy plated wire, though all inter-plane wiring is of stranded cable.

The substantially designed struts are of spruce, except the two rear ones which originally carried the warping pulleys through their bases. Special vanadium steel fittings are used to secure the sections together and to attach the struts. Thus any strut is readily removable by withdrawing a cottered pin.

The wings are surfaced with brown linen, treated with Emaillite and varnished and present a very taut and efficient lifting area. The covered fuselage and stabilizing members in the rear are also similarly treated.

Interposed between the main planes will be found the 8-foot by 2½-foot ailerons. These are so mounted that they are partially balanced; that is, they pivot some 9 inches back from the front edge and are centrally mounted to each outside rear strut, while the intersection of the rear diagonal bracing wires provides the other point of support. The ailerons are interconnected in their action, each assuming opposite and equal incidences to the relative wind. The area of each aileron is 18½ square feet.

Another interesting feature of the Lillie tractor is the substantial fuselage which houses the Gnôme motor forward of a generous cock-pit (36 inches in width) seating the pilot and passenger, and aft supporting the *empennage*. The longitudinals forward are of ash, 1¾ inches square in section, tapering to 1 inch at the rear. These members are of spruce back of the seating compartment, as are all the struts and cross-members, though in keeping with the forward longitudinal specification, ash is there used for all compression members. Plated wire, in conjunction with Macadamite fittings of Nieuport design, properly supplies the diagonal bracing which gives rigidity to the structure. Provision is made to ship the fuselage, or body, in two sections, their union being by means square tubular brass sleeves.

The 50-horsepower Gnôme motor, driving an 8-foot Flottorp tractor screw, is placed in front in the conventional steel mounting and is protected by an aluminum cowl. Hand holes plates are fitted so that the mechanism is easily accessible. The cowl is extended back to the cock-pit and serves to house the tanks as well. These are located approximately at the center of gravity so that their varying weights have no effect upon the balance of the machine. Gasoline to the extent of 9 gallons are carried and 3 gallons of castor oil.

A very simple landing gear supports the machine. This is composed of two ash skids, with three pairs of ash struts. No lateral member, except the flexibly mounted tubular axle, is employed, heavy cable insuring the requisite stiffness. Two 20-inch wheels, with 4-inch tires, on a rubber sprung axle serve the chassis as shock absorbers and rolling members.

The tail is composed of a semi-circular non-lifting surface to which are hinged the elevator flaps, and the oval-shaped vertical rudder. Steel tubing, ⅝ inch in diameter, 20-gauge wall, makes up the frames of all parts of the tail unit.

Brazed steel arms are used to operate the controlling areas and an excellent job of brazing is to be found in the tail framing. The Wright control levers operate the stability organs and are placed in the cock-pit in front of the pilot, together with the motor controls.

The principal dimensions of the Lillie tractor are as follows: Span 32 feet, chord 5 feet, wing area 290.5 square feet gap 5 feet, area of fixed tail 25.15 square feet, area of elevators 14.3 square feet, area of rudder 10.25 square feet, length overall 24 feet 3 inches, weight (empty) 780 pounds, speed about 50 miles per hour.

From the Compass Points

New Aerohydro Brought Out in California.—Stanley Hiller of Alameda, Cal., has constructed a new aerohydro plane and is assembling the craft in Lincoln Park. The machine will be tested in San Leandro bay and later quartered at the Aeolian Yacht Club quarters.

James Quits Aviation.—Sidney V. James, lately in charge of the McCormick experimental station at Cicero, Ill., has given up his aeronautical pursuits since the demise of the "Umbrella plane" and others of the McCormick experiments. He is now installed with the western branch of the National Board of Fire Underwriters, in the capacity of engineer.

Five New Military Aviators.—Five officers of the army were officially declared qualified military aviators this week. They are Second Lieut. Carleton G. Chapman, 7th Cavalry, First Lieut. Frank P. Lahm, 7th Cavalry; Second Lieut. Herbert A. Dargue, Coast Artillery Corps; Second Lieut. Joseph E. Carberry, 6th Infantry; Second Lieut. Walter R. Taliaferro, 21st Infantry.

Stephens to Enter Cycle-Car Manufacture.—James S. Stephens, vice-president of the Aero Club of Illinois and a prominent figure in American aviation, has embarked in the cycle-car industry. With his son Ralph, he has produced a very natty looking small car of surprising ability, the first model of which has been on the road undergoing exhaustive tests for some time past. Two others are coming through the shop, and after being given severe road tests, the cars will be manufactured in quantities by the company which Mr. Stephens has formed.

Penn Balloon Does Mile-a-Minute.—The balloon Pennsylvania I made a record flight on November 5, when, after ascending at 1:45 p. m. at Holmesburg, it landed 25 minutes later at Medford, N. J. Ground was covered at the rate of a mile a minute. The balloon, with Clarence P. Wynne as pilot and Dr. Jerome Kingsbury and T. H. Bridgeman, of New York, as passengers, rose in a high wind at the House of Correction grounds. It took 40 men to hold the big bag to the earth as the passengers climbed in. The balloon first struck a lamp post when it was released, knocking it over. Several electric light wires were hit, and the roof of one of the buildings grazed. The passengers were compelled to cling tightly to the basket for safety, as the bag hit the roof. Wynne said the trip to Medford was one of the fastest he had ever experienced.

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New English Bristol Tractor Biplane.—Considerable interest attaches to the new Bristol 80-horsepower Gnome motored tractor biplane which recently appeared at Salisbury Plain, England. This machine is one of the last to be built for the Roumanian government and is similar in most respects to that which was exhibited at the aero show held at Olympia early in the season, the principal difference being the fitting of the Gnome motor instead of the 70-horsepower eight-cylindered Renault. The extra horsepower, with the saving in head-resistance and weight have made the newer machine much faster and a better climber. The machine is to be shipped immediately to the Roumanian army flying headquarters, where already a large number of Bristol machines are doing fine work.

Chance M. Vought with Max B. Lillie, center, and Andrew Drew, an instructor at the Lillie School of Aviation. Drew held F.A.I. license No. 50, Vought No. 156, and Lillie No. 73. Both Lillie and Drew were killed in aircraft accidents in 1913, Lillie when his plane lost a wing in a tight turn and Drew when his engine quit and the plane dived to earth and exploded. (Vought Albums)

''When the Lillie company decided to increase its activities during the 1913 season by engaging in exhibition flying as well as its usual school work," Chance Vought's article began, "a special Gnome-motored tractor biplane was constructed which lent itself more readily to the particular requirements of the work than its other machines."

Those machines at Cicero, judging from photos in the Vought albums, included the Wright B, Nieuport monoplane, Curtiss and Farman biplanes, also an assortment of interesting if weird aircraft. These included the Clarence Day tractor, the Partridge-Keller biplane, the McCormick-Romme Umbrellaplane, the Sexton and Blaney monoplanes, the McCormick-James "Mustard Plaster" and the Dwight-Lund plane of multiple wings. Cicero field was the gathering place for many an aircraft destined to be one-of-a-kind flops.

Vought's article about the Lillie tractor biplane said its original design had been changed to improve its efficiency and airworthiness. "Recently W.C. Robinson piloted this machine in a cross-country flight from Montreal to Ottawa, Canada, and during the season just closed different Lillie pilots used the biplane *en tour*.

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"The span of both planes is 32 feet and the chord is 5 feet, with an equal gap separating the planes. . . . The wings are surfaced with brown linen, treated with Emaillite and varnished and present a very taut and efficient lifting area. The covered fuselage and stabilizing members in the rear are also similarly treated."

The Lillie plane, unlike a number of "'open-air" planes at Cicero, afforded some protection to the pilot with the front half of the fuselage covered with the doped fabric. Later in its career it had the entire fuselage covered.

Both fuselage and wings were designed for quick disassembly and transport. The front ash longerons were spliced to rear spruce longerons aft of the cockpit by a brass sleeve. Planes of the 1913 era were notably short-ranged and had to be crated and transported by rail for exhibitions any distance from the home airport.

One of three photographs of Chance Vought's first aircraft design In his personal albums was this shot. The occupant in the cockpit is seated in the rear of two seats shown in the engineering drawing made by Vought for *Aero and Hydro* magazine. Identity of the man is not known but it may have been DeLloyd Thompson, a Lillie student and instructor, who made a few flights in the Lillie-Vought biplane. (Photo from Vought Albums)

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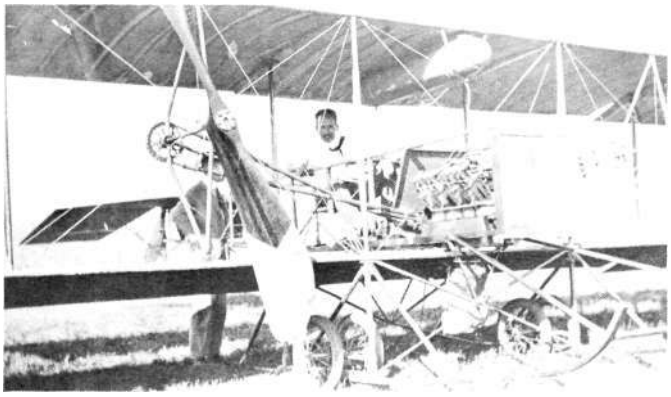
In his research of the Lillie-Vought biplane, Molson determined the plane was first flown in June 1913 by DeLloyd Thompson, Lillie's assistant. He flew it to Anna, Illinois, for an exhibition on July 4. He also did most of the flying in July and August. Mickey McGuire, another Lillie pilot, took it on an exhibition tour after new

Max T. Lillie (right) with student W.C. Robinson, who won his F.A.I. license No. 162 a week after Chance Vought won his No. 156 at Cicero field. Robinson later became a well-known exhibition pilot and founded his own aircraft company at Grinnell, Iowa. On the back of this small photo in Vought's albums was this note: "Note double levers and Disco starter on engine. Robinson worked out the lever system. It is different from the Wrights—one set of wires only being required." This note was not in Vought's handwriting. (From Vought Albums) Robinson flew the Lillie-Vought biplane from Montreal to Ottawa to distribute first editions of the new *Montreal Daily Mail* newspaper.



Snapshot in Chance Vought's personal photo album shows one of his early projects—redesigning a Wright B biplane into a tractor plane. Man in photo is Andrew Drew, instructor in Max Lillie flying school.

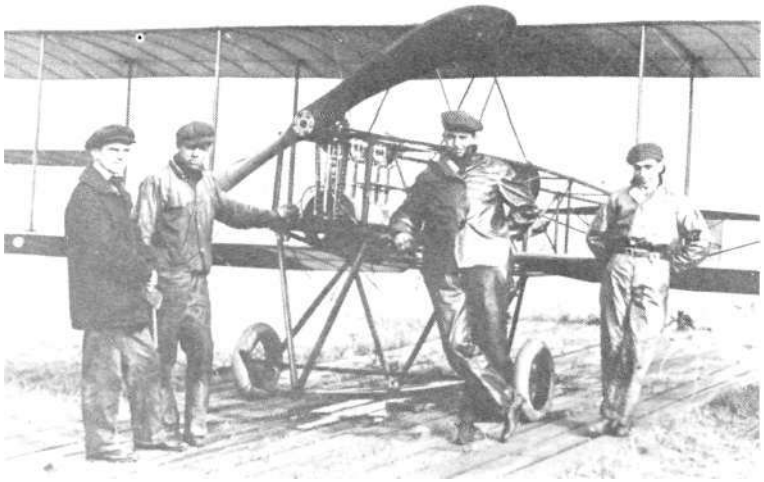
ailerons were fitted.

Probably the outstanding use of the Lillie biplane came when William Curtis (Billy) Robinson, another Lillie pilot, was commissioned to fly it 115 miles from Montreal to Ottawa as a publicity stunt. The newly formed *Montreal Daily Mail* wanted to make the first airmail delivery of newspapers. He was to fly copies to the capital, dropping off copies at three stops en route.

This newsmaking event was chronicled by Molson in the *Canadian Aviation Historical Society Journal,* Winter 1973. Originally Robinson was slated to make the flight in a Bleriot monoplane, but the Lillie plane was selected instead.

Before the flight he selected a departure point at Snowden Junction and picked the exhibition grounds at Ottawa Landsdowne Park as his landing place. For his route he elected to follow the "iron compass" of the Canadian Pacific railroad tracks. Though touted as a nonstop flight, the Lillie biplane lacked fuel to do that since he was to stop and deliver papers at Choisy, Caledonia Springs and Leonard Station en route.

Robinson paved the way for his flight in advance by laying cotton strips at each scheduled stop and stockpiling supplies of gas and castor oil. A number of high Canadian officials were on hand on October 8, 1913, to see the flight off. The plane's two-wheel, no-tail-skid landing gear almost caused grief on takeoff as the plane hit uneven ground and almost turned over. He narrowly missed a fence



Quartet of prominent early aviators at the Aero Club of Illinois field at Cicero, III., in Oct. 1912. Left to right: Chance Vought, Mickey McGuire, DeLoyd Thompson and Andrew Drew. All but McGuire were on the faculty of the school as instructors. The plane was designed by Charles Day of Los Angeles with a Hall-Scott motor. Open framework of the fuselage made for a cold ride for the pilot in Chicago climate. This is one of the few pictures of Chance Vought without a moustache as his 1912 pictures show him with one. McGuire, the "Wild Irish Rose" exhibition flier of early days, went to Mexico to fly for Pancho Villa and was reported shot there in lieu of paying him his $500 a month wages. (Photo from Vought Albums)

but took off safely.

Robinson's luck did not hold for long. Ten minutes later he landed on a farm field because of a leaking fuel pipe. Frank Burns, his mechanic, following him on the route by car, fixed the leak. After turning down an offer by bystander Leo Fortin to pay him ''all the money I had" to fly along with him, Robinson took off for Ottawa in hazy weather.

Twenty minutes later a wire broke loose from a spark plug and he had to land at Ste. Anne de Bellevue and reattach it. He got to his first stopping place at Choisy with only a quart of gas left. He finally got to Ottawa after stops at Caledonia Springs and Leonard. The total elapsed time for the 115-mile flight was 7 hours and 10 minutes.

Robinson's flight was hampered by headwinds and at one point he reported a railroad train passed him headed west. "I saw the farmers in the fields, and on the roads, and in each of the places where I came down the people gathered in great crowds," Robinson wrote later in the *Daily Mail. '* 'I left a parcel of papers in each place, and got a fine sendoff every time I flew away again.

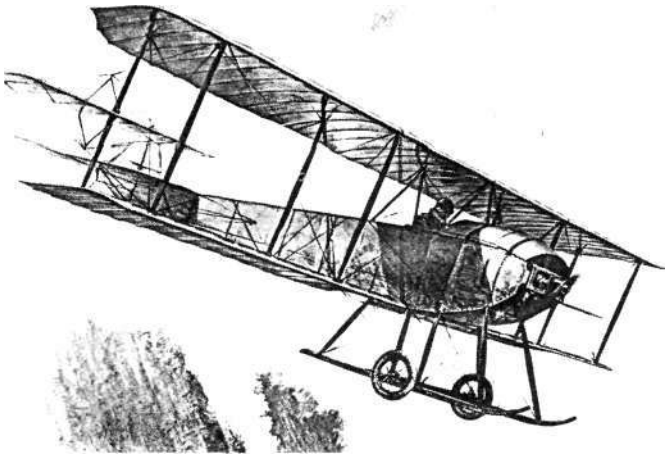
"The ride was an enjoyable one. It is like riding on a big locomotive, for you feel the powerful throbbing of the engine but you float through the air so smoothly and evenly that the sensation is a very soothing one."

On arriving over Ottawa, Robinson ran into a new problem. The exhibition grounds where he planned to land was covered with people including Mayor Ellis. He also feared coming in downwind so wheeled the Lillie plane and landed on a field across the canal.

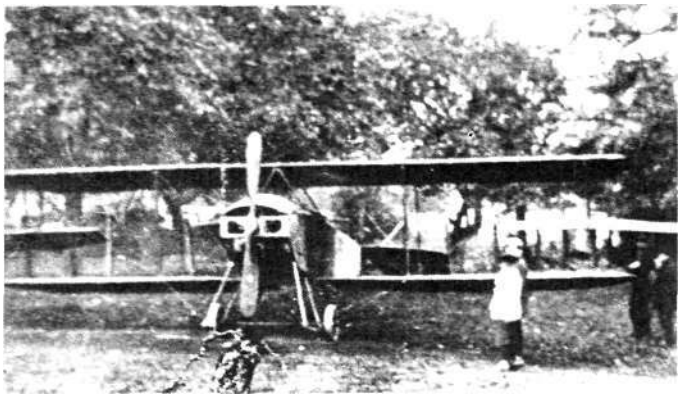
"There, just in landing, I had one of the most exciting experiences of the whole trip," he wrote. "There was a horse in the field but I reckoned by running along the other side I could avoid it. As I came down, however, the animal ran in front of me, and I had to raise one wing and make a very sharp turn to miss striking it. In the other fields where I landed there were cattle but I had no trouble with them."

The crowd at Ottawa had started to gather at noon but because of the emergency landings and other problems, Robinson did not arrive overhead until 5 P.M. When he diverted to Slattery's field in Ottawa East there was no one to greet him, but a crowd soon gathered.

The next day Robinson tried to fly the Lillie biplane back to Montreal. The rotary engine stopped at 50 feet altitude. The aircraft hit a fence, damaged its undercarriage and broke its propeller.



This artist's painting of the Lillie-Vought biplane appeared on the front cover of the *Canadian Aviation Historical Society Journal,* Winter 1973, featuring the Lillie article by K.M. Molson on the Montreal-Ottawa flight by W.C. Robinson in 1913. (Painting by R.W. Bradford)



The Lillie tractor at Slattery's Field, Ottawa, 8 Oct. 1913, after W.C. Robinson, who piloted it from Montreal to Ottawa, had delivered the *Montreal Daily Mail* newspapers carried on the publicity flight. The plane crashed when Robinson was trying to return it to Montreal and the parts were shipped back to Cicero field. (Photo via K.M. Molson)

Max Lillie, at the time of his untimely death in an airplane wreck in 1913, was one of America's most experienced pilots. He had more than 4,000 flights in various types of early aircraft. For his accomplishments he was awarded the Aero Club of America Expert Aviator's Certificate No. 1, Sept. 14, 1912. Andrew Drew made 1,700 flights before he was killed in a plane crash at Lima, Ohio, June 21, 1913.

Robinson received only a few light injuries. Three nearby children were not hurt and the mechanics started disassembling the aircraft for shipment back to Chicago. Robinson's cross-country exploits sounded similar to many such trips by early aviators of the era—anything they walked away from was a success.

The Montreal-Ottawa trip was the highlight of the Lillie biplane's history. Molson did not stop there, however. Searching other aviation publications, he determined that in April 1914 Frank Pendhayn, a former Lillie student, bought the plane, rebuilt it and installed an 80-hp *Gyro* motor.

He rebuilt it again in June after Charles L. Wiggins turned it over on landing and it caught fire. The saga of the Lillie tractor faded then although Robinson is reported to have bought the remains from Pendhayn and rebuilt it in Grinnell, Iowa. It weighed only half as much as a modern-day Volkswagen Beetle. If Robinson refilled his nine-gallon gas tank three times on his 115-mile Ottawa trip he was averaging about four miles a gallon.

Although he neglected to list the Lillie plane in an aeronautical summary found in his albums, Chance Vought did claim credit for being the "designer and constructor" of the following early planes:

Mayo-Vought *Simplex* military biplane.
Curtiss 93-ft. (H8) Flying-Boats for Admiralty.
Mayo 110-hp 3-seater Flying-Boats.
P-L-V Military 2-place Tractor Biplanes.
Wright 150-hp Hispano-Motored Military Tractor.
Wright 150-hp H-S Motored 3-place Flying-Boat.
Stadlman Exhibition Biplane, 90-hp Curtiss Motor.
Schaap Single-seater Scouting Biplane, 50-hp *Gnome.*
Vought 150-hp Hispano-Motored Advanced Training Airplanes for U.S. Army Air Service (VE-7 Model).
Vought 300-hp Hispano-Motored Fighting Single-seater (Browning guns) for U.S. Army. (VE-8).
Vought 90-hp 3-seater Flying-Boat (VE-10).

Before his death in 1930, Vought also designed a score of other VE-type aircraft, none of which was built. Following planes listed above, Vought in his Long Island, N.Y., plant designed and delivered 140 UO-1 scout observation planes to the Navy. Then, in a business tie-up with Pratt & Whitney engine company, he designed his finest aircraft—the highly successful 02U/03U/SU series of biplane *Corsairs* with P&W's new *Wasp* engines. The Vought company sold 803 of those world record-setting *Corsairs* to U.S. and foreign governments.

But back to Chance's listing of his early plane designs above. The Mayo-Vought *Simplex* had a 90-hp *Gyro* engine, flew at 80 mph and landed at 40 mph. As with the Lillie plane, he incorporated features for easy disassembly. The *Simp/ex* could be assembled from crates in 28 minutes and dismantled in 20 minutes.

One aviation magazine writer described the *Simp/ex* as: ''Without doubt one of the finest examples of modern aeroplane design and construction which has yet been produced either in this country or abroad."

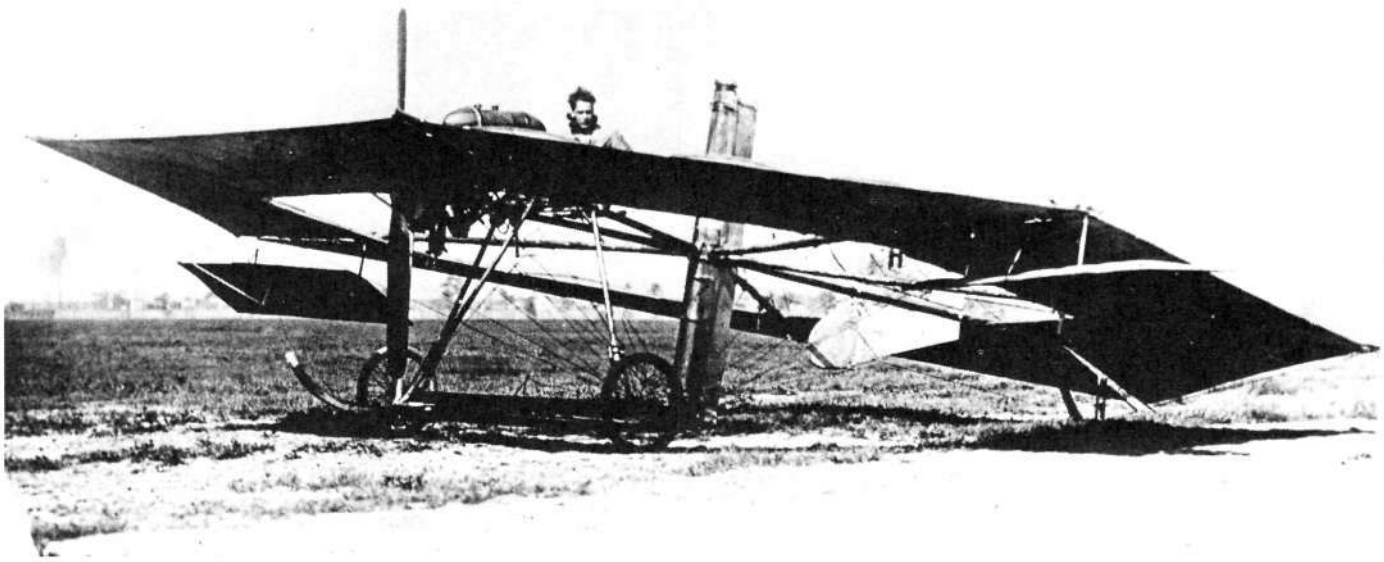
Chance Vought apparently was proud of his *Simp/ex* design. On the back of a side-view photograph of the plane in his albums, he wrote this note to his sister Adeleine: "Sweetheart Sis: This is the beetle I've been trying to get for the last few months. What do you think of it? We will test out tomorrow."

He sent a copy of the photograph to a military man for his approval, with this caption on the back: "My dear Captain: What do you think of this regular machine? Speed 42-85 mph. Climb (pilot and 4 hrs. fuel and oil), 975 feet first minute. Best regards from Chance Vought."

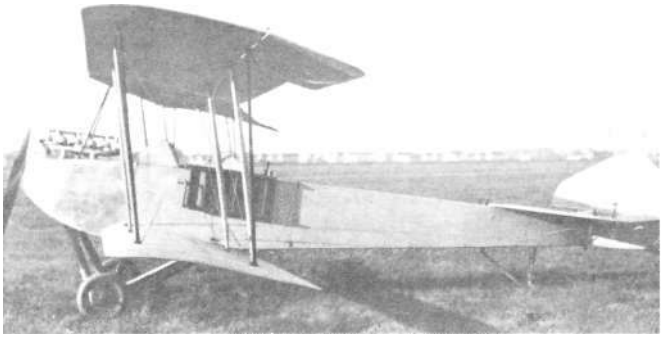
As for the P-L-V biplane in Chance's listing, a few facts and photos are available. The design was his and the plane was built in the Chicago plant of Frank Pontkowski and John Lichorsilk. *Aero and Hydro* on August 29, 1914, ran a cover photograph of the 75-hp biplane at Cicero with the following news note:

"The P-L-V tractor biplane is a new type incorporating many of the features of the highly efficient German military aeroplanes. It was constructed to the designs of Chance M. Vought, the aeronautic engineer. It has been flying most successfully at the Cicero field under the pilotage of Earl S. Daugherty, the California flier."

A couple of other early Vought designs on the list are the Tony Stadlman exhibition biplane and the obscure C. Jackson Schaap rotary engine single-seater. The latter plane may be the "sleeper" No. 2 in Vought's list, if only because it was equipped with a rotary engine like the Lillie-Vought tractor. But little is known about it or when it was built. Other planes of the "Select Dozen" were fitted

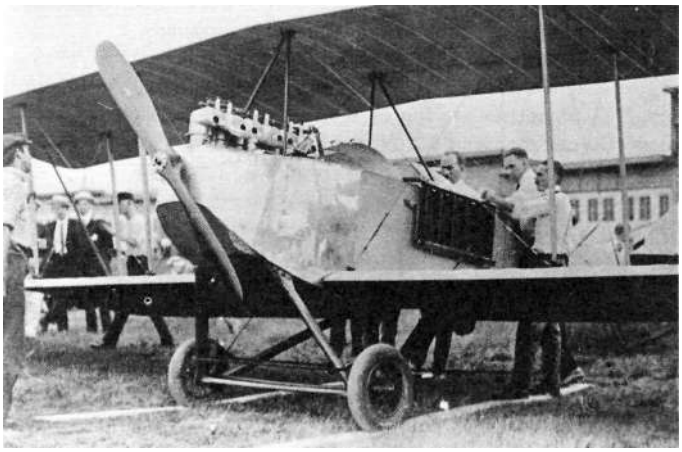


The McCormick-Romme *Umbrellaplane* of 1911-13 on which Chance Vought served his apprenticeship in aviation at Cicero. The doughnut-shaped plane in this 1912 photo has Lillie Instructor Andrew Drew in the cockpit. The plane at first had no ailerons and could not bank or turn but Vought put ailerons on it, one seen here below the left wing. The plane had its propeller in three different positions—in front of the wing, behind the wing and at the rear. Vought's photo albums contained numerous photographs which he may have taken himself. He made seven drastic configuration changes in his attempts to make the odd plane fly. This plane was described fully in the AAHS *Journal,* Fall 1972, in an article by Robert Casari. (Photo from Vought Albums)



Although listed far down in Chance Vought's biographical summary, this 1914 design, the P-L-V biplane may have been his second design, a year behind the Lillie-Vought biplane. The P-L-V was built in the machine shops of Frank Pontkowski and John Lichorsik in Chicago. In comparison to the Mayo-Vought-Simplex aircraft, this plane was a bit less sophisticated in design than the Simplex, but ahead of the Lillie-Vought biplane of 1913. Although the small photo in the album had the caption "Earliest design of tractor biplane—Chance Vought," it is Vought's second aircraft design. (Photo from Vought Albums)

For 60 years Vought had this lone photograph of a doughnut-shaped flying machine in its history files. AAHS *Journal* ran a print in an effort to help find information about it, without success. When Chance Vought's personal photo albums were uncovered in 1972 they contained a dozen pictures of the same plane. But there still was no information about it until Robert Casari took the prints, researched old aviation magazines and found out it was the McCormick-Romme *Umbrellaplane* of 1912-13 at Cicero field. Note ailerons under the wing, a configuration change installed by Vought since the plane, until then, could not bank or turn. (Photo from Vought files)



The Pontkowski-Lichorsik-Vought (P-L-V) biplane constructed in the machine shops of the first two men, to Vought's designs. Roy Francis, the pilot, in the cockpit. Chance Vought standing alongside. Exhaust stacks were installed on the engine later to vent fumes away from the pilot. On the back of this photo in the Vought album was this note to his mother: "Mother, this picture was snapped just as we were trying the motor for the very first time. Ray Francis is in the cockpit seat. C.M.V. standing beside machine, giving directions, as usual." (Photo from Vought Albums)

with progressively larger, more powerful engines as they were developed.

A news note in the October 10, 1914, *Aero and Hydro* commented: "J-E. Roth and Anthony Stadlman and their assistants are constructing a new exhibition biplane designed by CM. Vought, the aeronautic engineer and pilot, and they expect to be out on the field in about seven weeks. The plane will be powered with a new *Gyro* duplex motor and the designer is guaranteeing a speed range of 80 miles per hour." Stadlman later was factory superintendent of the Lockheed airplane company.

Vought and a fellow aviator, Jack Vilas, saved Stadlman's life in June 1914. He was trying out his hydroplane on Lake Michigan when

First plane, a VE-7, built by Lewis & Vought Corp., for the U.S. Army Signal Corps Air Service. Delivered to Hazelhurst Field, Long Island, Feb. 11, 1918, for entry in advanced trainer competition. Plane went to McCook Field, Dayton, Ohio, in March that year for flyoffs and won. Plane was built in 91 days, from contract award to completion. Note "Aeroplanes Vought" sign on vertical fin and small ventilation slits on side of nose. 150-hp Hispano-Suiza engine. JN-4s in rear. Hall-Scott engines' extended stacks.

Mayo-Vought-Simplex biplane built for the British in WWI as a trainer. Mayo Radiator Works and Simplex Auto Company merged to go into aircraft production in war, with Vought briefly as chief engineer. This plane was rated excellent in flying qualities. Vought designed the plane in 1914 before the war had started. It was built in 1914. (Photo from Vought Albums)

Wright-Martin V designed by Chance Vought for the aircraft company he worked for briefly as chief aeronautical executive engineer. The company was formed during World War I by merging the Wright Aircraft Company, the Glenn L. Martin and the Simplex Automobile Co. The Wright-Martin V was the first American plane to have the European Hispano-Suiza 150-hp engine so successful during the war. The company devoted so much of its energy to developing the engine it did not push the plane design, only one of which was built and first flew in 1915. (Photo from Vought Albums)

it plunged into the water. From the shore Vought and Vilas saw the crash and rushed out in Vila's airboat and untangled him from his plane's wires, while the beach crowds cheered.

One of the best known of Chance Vought's early designs was the "Wright 150-hp Hispano-motored military tractor" mentioned in his summary. This is better known as the Wright-Martin V biplane, designed by Vought, then chief aeronautical engineer of the company formed by merger of the Wright, Simplex and Glenn L. Martin companies.

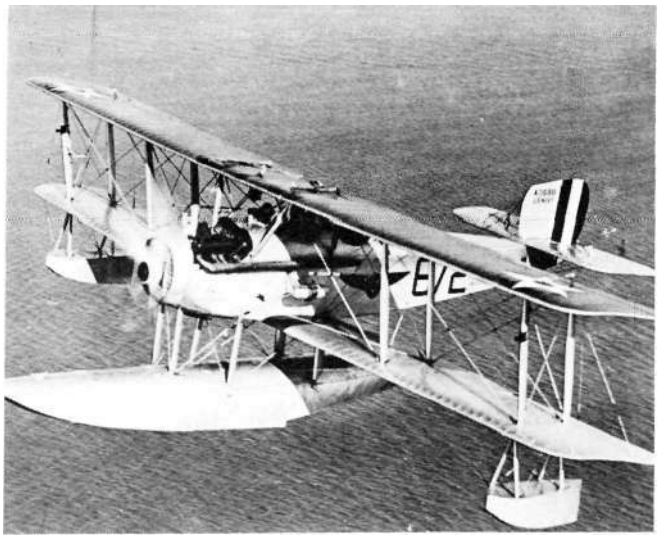
The plane was the first American aircraft to use the new European Hispano-Suiza powerplant. Vought was commissioned in 1916 to design a plane to take the engine. The engine was built by the Simplex Automobile division, which produced American versions of the 150-hp engine. Production of the "V" aircraft never materialized, possibly due to the Wright-Martin firm's heavy involvement in mass production of the engines for the warring nations.

When he was associated with the Curtiss company in 1915, Vought designed the Curtiss 93-ft. (H8) Flying Boat for the British Navy. The plane was the last of the flying boats with pusher propellers. Curtiss produced a number of flying boats, designated the H-l through H-16.

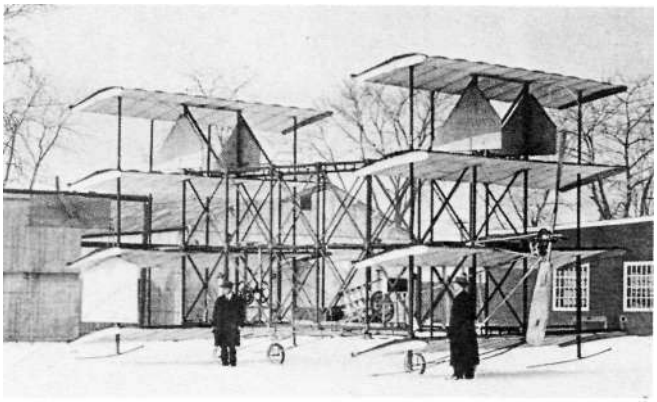
The last three planes on Vought's autobiographical listing were the VE-7, VE-8 and VE-10. These were built after Chance set up his own airplane factory on Long Island. The Navy bought 60 of the VE-7s. They operated off its first carriers and on battleships and cruisers to spot gunfire. The VE-8 substituted a 300-hp Suiza for the 150-hp engine of the VE-7 but sold only four, the plane being sluggish and overweight.

Not included on Vought's list for some reason was the VE-9. This 1921 "advanced trainer" sold well also, the Navy procuring 21 and the Army 27. They had the Wright E-3 engine of 180 horsepower. The VE-10 of 1919 was Vought's only flying boat built at his Long Island plant. Only one of the "Bat Boats" was built, the plane having poor water-handling characteristics.

Although the design was William Romme's instead of his, Chance Vought put a lot of his engineering know-how into the McCormick-Romme "Umbrellaplane" of 1911-13. McCormick and Romme



The Naval Aircraft Factory, using plans **from Vought, built 69 VE-7SF aircraft. The NAF's versions had larger tail surfaces, with square vertical fin, as on this VE-7SF float plane, BuNo A-3698. The SF version had emergency flotation gear, a single seat, fixed Vickers machine gun and SE-1345 radio set.** **(Photo from Vought Files)**



Dwight-Lund multiple-plane on field during snow at Cicero. It was one of **numerous oddball aircraft which were assembled and tried to fly there during Vought's days as a Lillie instructor and engineer in 1912-14.** **(Photo from Vought Albums)**

moved the plane from Long Island to Cicero where McCormick put up $50,000 to finance it. Vought, just out of University of Pennsylvania mechanical engineering school, shouldered his first job—making the problem-filled Romme plane flyable. A less-dedicated engineer might have thrown in the towel and gone into selling life insurance.

During its three-year history, the *Umbrellaplane* made a few hops off the ground, crashed at least once. Vought changed the configuration seven times in his efforts to make the odd plane fly.

Procuring the two Vought albums a dozen years ago not only cleared up the question of his first aircraft design but solved a secondary mystery. In the Vought photo files was a lone picture of a doughnut-shaped airplane in front of a hangar. Some thought it might have been Chance's first attempt at an airplane but there was no information on it.

Vought even sent the *AAHS Journals,* print to publish, requesting its readers to identify it. When the two albums surfaced they were full of photographs of the same plane, which turned out to be the McCormick-Romme *Umbrellaplane* on which Vought was the engineer. The AAHS photo showed it in its later stages as it had ailerons below the circular wing and the propeller in front. So the albums scored again!

There is an interesting conjecture linking the Lillie and the Romme planes. The Lillie-Vought biplane had a 50-hp *Gnome* rotary engine. Both planes were housed at Lillie's Cicero hangar. When the *Umbrellaplane* was scrapped in 1913 its $3,500 (plus 45% tariff) rotary engine may well have wound up in the 1913 Lillie biplane, Vought's next project.

Reading about Chance Vought's 1912-14 beginning days as an aeronautical engineer leads to the conclusion the dynamic, ambitious 22-year-old led a hectic life.

Besides learning to fly in 1912 and serving as engineer and instructor at the Lillie School of Flying at Cicero, he worked hard on the Romme program, designed and built the Lillie tractor in the Lillie hangar, wrote more than a dozen feature articles *tot Aero and Hydro* on various planes and illustrated them with engineering drawings, designed the Stadlman and Schaap experimental planes and the Mayo-Vought *Simplex.*

It is no wonder he did not find time to get married until 1920 at the age of 30.

LILLIE-VOUGHT BIPLANE
SPECIFICATIONS

Length:	23 feet 3 inches
Wingspan:	32 feet over wings
	36 feet 2 inches over ailerons
Chord:	5 feet
Gap:	5 feet
Stagger.	11-5/8 inches
Area:	290.5 sq. ft.
Empennage areas:	Fixed tail 25.16 sq. ft.
	Elevators 14.3 sq. ft.
	Rudders 10.25 sq. ft.
Engine:	50-hp 7-cylinder Gnome Omega
Weights:	Empty 780 lbs.
	Gross (estimated) 1180 lbs.
Speed:	50 mph (approx.)

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Chance M. Vought photographic albums, two volumes, 1911—1920. All photos accompanying this article copied from albums with exception of Lillie biplane at Ottawa, via K.M. Molson.

ABOUT THE AUTHOR

Arthur L. Schoeni at Vought Corporation in Dallas shortly before retirement in 1972. A graduate of University of Oregon journalism school in 1930, he was managing editor of Medford (Ore.) *Daily News* before joining United Press. He served in Salem and Portland bureaus before taking over in 1933 as bureau manager in Olympia, Wash., where he served 10 years. Joining the Navy in 1942, he was feature editor of *Naval Aviation News* and, after the war, was editor for eight years. He toured Korea gathering aviation articles on Navy and Marine squadrons and carriers in 1952. During his Navy career and with Vought he made sea trips on 20 aircraft carriers photographing flight operations. During his work for Vought he took more than 20,000 photographs of its planes—the F7U *Cutlass,* F8U *Crusader,* A-7 *Corsair* II and XC-142A V/STOL—as well as of the *Regulus* I and II guided missiles. Scores of his negatives are now on file in the American Aviation Historical Society's negative library. During his 20 years at Vought he placed black and white and color photos of these planes which he took on the covers of 164 U.S. and foreign aviation magazines. Since retirement he has written numerous historical feature articles and a book on Vought and its planes and missiles for U.S. and foreign aviation magazines.