

Clyde, Walter, Lloyd,
Clarence, and William

The Creators of The Cessna,
Beech, Stearman, Taylor, and
Piper Aircraft Companies

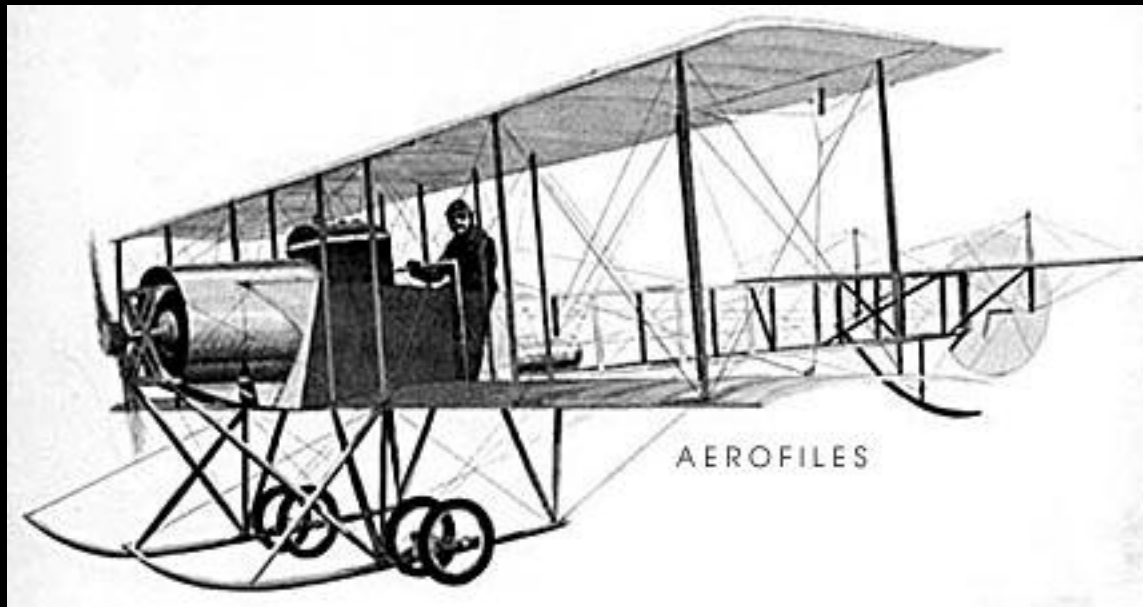
Marty Maisel

Clyde V. Cessna

- Born December 1879 in Hawthorne, Iowa, family moved to Kingman County, Kansas in 1881.
- Self-taught mechanic - innovated and improved new mechanical farm equipment.
- One of the first automobile owners in his area, he established a successful auto sales agency in Enid, Oklahoma.

Cessna, Early Aviation Interest

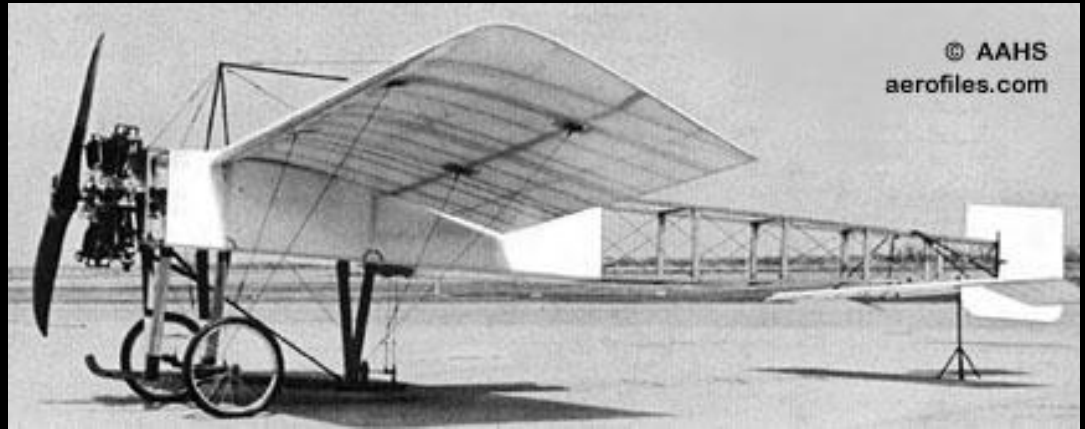
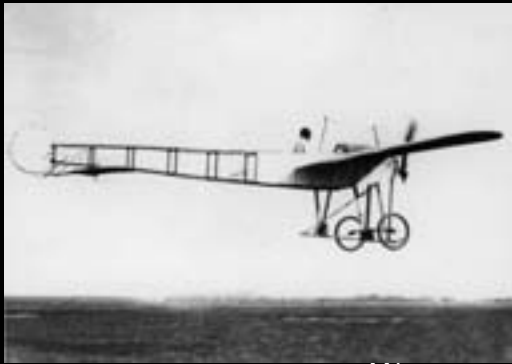
- Intrigued by reports of Wright Bros. and Bleriot flights, Cessna moved to New York City & briefly worked for the **Queen Aircraft Co.** (1911-1913) where he learned about aircraft construction.



1911 Queen-Martin

Cessna, First Airplane

- Cessna purchased a fuselage from Queen Aircraft and returned to Oklahoma to build his first airplane, a copy of the Bleriot design (he named the “SilverWing”) using a two-stroke 40 hp Elbridge Marine engine converted for aircraft use.



- Learned to fly by himself - - after surviving thirteen crashes.
- Became one of the the first American to accomplish powered flight West of the Mississippi in December 1911.

Cessna, Aviation Entrepreneur

- Between 1912 and 1915, recognizing that the SilverWing was not a very good airplane, Cessna intuitively designed and built several monoplanes, all powered by Anzani radial engines producing 40-60 hp.

Clyde Cessna
and his 1914 monoplane



- Flying his aircraft at country fairs, the **Cessna Exhibition Co.** became a successful enterprise. Cessna soon felt he could make more money by manufacturing aircraft and abandoned the automobile business.

Cessna, continued

- In 1916, Cessna moved to Wichita, Kansas, set up shop, and started a flight training school at his “factory”.
- In 1917, WWI interrupted his exhibition and flight training business, so he returned to farming wheat for the war effort.



Clyde Cessna and his “Comet” in front of the Cessna Aircraft “factory” and flight school, 1917.

Cessna, Aircraft Owner

- While Cessna had discontinued his manufacturing and flight school activity during WWI, he retained an interest in flying. Owned two Laird Swallows which he flew in the early 1920s.

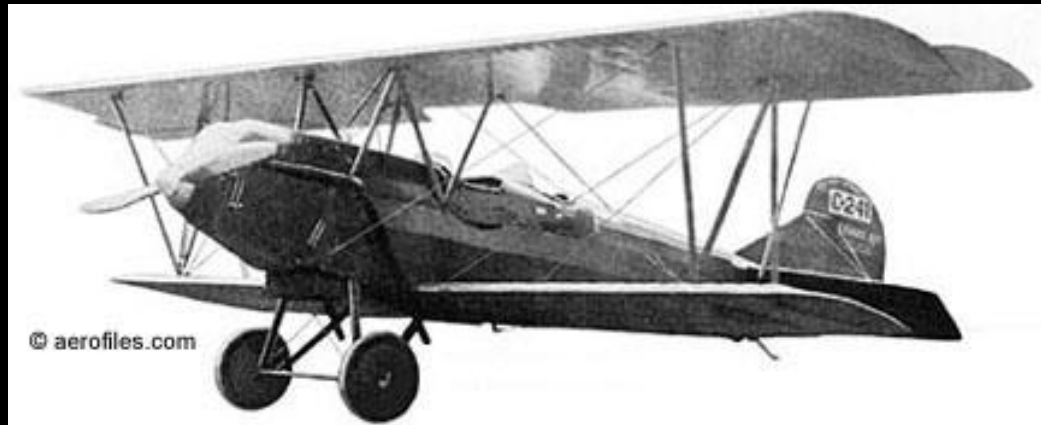


1920 Laird Swallow

Cessna, Return to Manufacturing

- In 1924 Cessna was approached by **Lloyd Stearman** and **Walter Beech** who asked him to join them in their new **Travel Air Manufacturing Company**. Stearman and Beech had been key employees of the Swallow Co. (formerly Laird) headed by cantakerous "Jake" Moellendick.
- In return for his participation and investment, Clyde Cessna was made President of the company. First "factory" was in downtown Wichita, Kansas.
- Early Travel Air designs were biplanes designed principally by Stearman.

Travel Air 1000





"Maiden Wichita," first airplane produced by the Travel Air Manufacturing Co. powered by Wright J4 radial engine.

Cessna, Monoplane Production

- In 1926 Cessna convinced Beech that small airline companies would buy an enclosed cabin monoplane.



Travel Air 5000

- The 1926 Travel Air 5000, based on a monoplane designed by Cessna, sold well.
- Despite the success of the 5000, Cessna wanted to control his own company. In Jan. '27 he sold his stock and resigned from Travel Air.

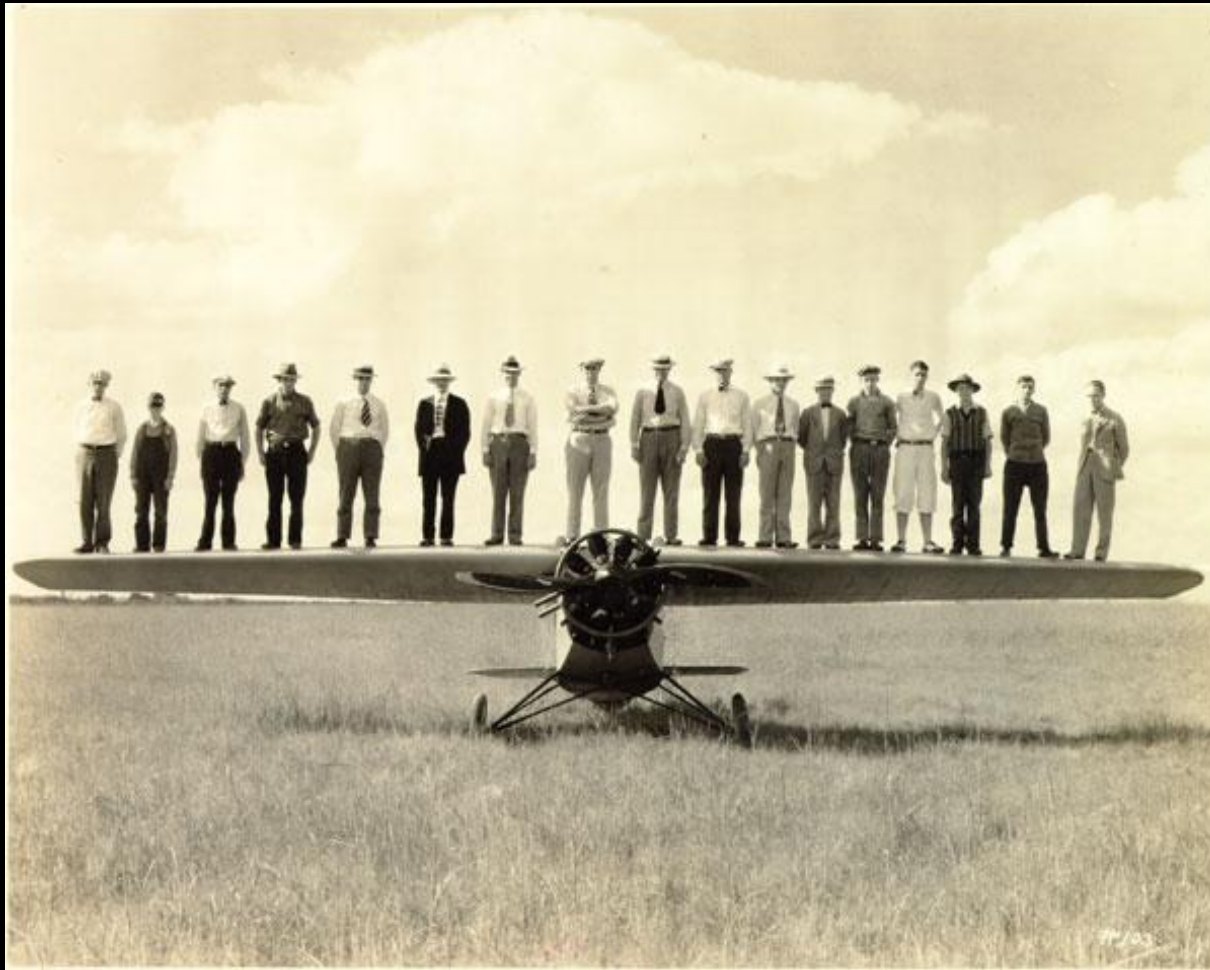
Cessna, New Aircraft Company

- Shortly after leaving Travel Air, Clyde Cessna formed the **Cessna Aircraft Company** with partner Victor Roos in Wichita.
- From 1927 to 1929 Cessna Aircraft produced a series of 4- and 6-place monoplanes, based on Cessna's "Phantom".



Cessna Aircraft Phantom, 1927

Cessna, Don't Try This at Home



Cessna Model AW, 1928 Publicity Photo

Cessna, Hard Times

- Following the Stock Market crash in the fall of 1929, the customer base for light airplanes evaporated.



Cessna EC-2, 1930

- By 1931, facing bankruptcy, the board of directors voted to dismiss Cessna and shut down operations.

Cessna, One More Time

- Still intent on remaining in aviation, Clyde and his son Eldon founded the **C.V. Cessna Aircraft Company** to custom-build small racing aircraft. (Air racing continued to be popular during the 1930s).



Cessna CR-2

Cessna, The End of an Aviation Career

- In 1933 Roy Liggett, a close friend of Clyde Cessna was killed in a crash of a CR-2.

Roy Liggett with his
Cessna CR-2 Racer



- Cessna was deeply affected by the loss of Liggett.
He withdrew from aviation and retreated to his farm in Rago, Kansas.

Cessna Aircraft

- In 1934, Cessna's nephew, **Dwane Wallace** (aero. engineer), with the help of his brother **Dwight Wallace** (lawyer) managed to gain control of the defunct Cessna Aircraft Company and introduced the Cessna C-34 monoplane.



Cessna, continued

- From the time he left his aircraft company in 1933, Clyde Cessna limited his involvement to a ceremonial capacity only.
- Dwane Wilson successfully steered the company through the economically turbulent 1930s, developing aircraft such as the C-38 Airmaster and the T-50 Bobcat.



C-38 Airmaster, 1937



T-50 Bobcat, 1939



Dwane Wallace and Clyde Cessna (circa 1950)

Cessna, Final Chapter

- Clyde Cessna died in November 1954, just over two decades after he walked away from the aircraft business.
- With only a rudimentary education, he made significant contributions to early aviation.
- His unshakeable determination to succeed in the aircraft business made his name among the most recognized and his legacy company among the most respected in the industry.
- Inducted into the National Aviation Hall of Fame in 1978 and the International Aviation Hall of Fame in 1983.
- Clyde Cessna never bothered to obtain a pilot's license.

Walter Herschel Beech

- Born near Pulaski, Tennessee in Jan. 1891, 6th grade formal education.
- Fascinated by mechanical things, moved to Minneapolis, MN to apprentice as auto mechanic and chauffeur.
- In 1914, repaired a friend's damaged Curtiss airplane and, according to some sources, taught himself to fly.
- Served in the Army during WWI as an aircraft mechanic. After the war became an Army enlisted airman.
- Left the Army due to funding cuts in 1919. Barnstormed.
- Moved to Wichita in 1921 to work as demonstration pilot for the **Laird Airplane Co.**



Walter Beech (rear seat), Demonstration Pilot for the Laird Aircraft Co.
in a Laird Swallow, 1922.

Walter Beech

- Beech becomes known in the mid-west as daredevil aviator.
- In 1922 **Matty Laird** departs and company is renamed the **Swallow Aircraft Manufacturing Co.** under leadership of Jake Moellendick.
- **Beech** and co-worker **Lloyd Stearman** resign from Swallow after difficulties with Moellendick and form the **Travel Air Manufacturing Co.** in Feb. 1925. Seeking his experience and financing, **Cessna** is persuaded to join Travel Air.
- **Olive Ann Mellor** is hired as secretary and bookkeeper (12th employee and only non-pilot).



Walter Beech, The Need for Speed



400 HP modified
Wright R975 engine

1929 Travel Air Model R
“Mystery Ship”

First Civilian A/C to Defeat a
Military A/C in Open Competition
(1929 National Air Race)



Walter Beech, The End Of The Roaring Twenties

- By the late 1920s Cessna and Stearman depart, leaving Walter Beech in charge of Travel Air.



1927



1929

Beech and the Travel Air B-6

Walter Beech, Industry Leader



Charles Lindbergh and Walter Beech, Travel Air Model 6000, 1929

Walter and Olive Beech

- Faced with dwindling sales after the stock market crash, Beech sold his company to the **Curtiss-Wright Airplane Co.** in 1929. Travel Air becomes a division of Curtiss-Wright, (which, in addition to Travel Air, included Curtiss-Robertson, Curtiss-Caproni, Keystone, Loening, Moth and Wright Aeronautical (engines)).



Keystone B-6, 1931

- In 1930 Walter and wife Olive (married Feb. 24, 1930) moved to NYC where he assumed the **presidency of the Curtiss-Wright Co.**

Walter and Olive Beech, Continued

- Wanting to be more directly involved in the development of new aircraft, Beech left Curtiss-Wright, returned to Wichita and formed the **Beech Aircraft Company** in 1932 - in the depths of the Great Depression.
- His wife Olive is Secretary-Treasurer.

Walter and Olive Beech



Model 17 Beech "Staggerwing"



- With lead engineer Ted Wells and a staff of 20, the first Beech Aircraft product, the Model 17, was flown in November 1932.
- 18 Model 17 aircraft were sold in 1933.
- Retractable landing gear Models were introduced in 1934.



Walter Beech and the Model 17



- The demand for the Model 17 “Staggerwing” grew inspite of the economic depression and within a few years significant facility expansion was required.

Beechcraft - WWII

Beechcraft prospered during WWII - producing over 7400 military aircraft.

Time Magazine, Jan. 5, 1942:

“Beech had three assets: 1) energy, 2) a smooth tongue, 3) a twin-engined commercial transport readily convertible into a bomber trainer.”



UC-43



AT-11



UC-45

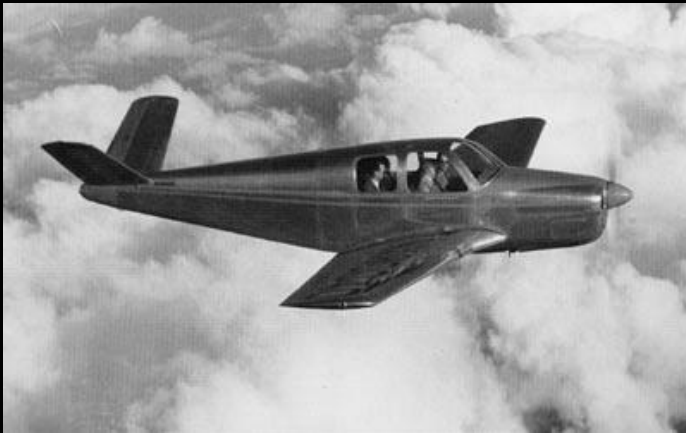
- During the war years, in addition to major production activities Walter Beech continued to explore innovative aircraft designs.



Beech XAT-10A, 1942

Post-War Beechcraft

- As WWII was coming to an end, Walter Beech anticipated a demand for personal aircraft. In 1945 the Beech Model 35 was under development.
- Sales of the Beechcraft A35 began in 1947.
- By 1977 over 10,000 of this series had been sold.



Beechcraft Model 35
First Flight March 25, 1945



Beechcraft A35

Walter and Olive Beech

- Walter Beech died on November 29, 1950. He was 59 years old.
- Beech never got past the seventh grade.
- He held a Transport Pilot Certificate and logged over 15,000 flight hours.
- Walter Beech was inducted into the National Aviation Hall of Fame (NAHF) in 1977 and the International Aerospace Hall of Fame (IAHF) in 1982.
- Following his death, the company Walter Beech founded continued to prosper and develop successful aircraft under the leadership of his wife Olive.
- The Beech Aircraft Company was acquired by Raytheon in 1980.
- Olive Ann Beech retired in 1982. She died in 1993.
- Olive Beech was inducted into the NAHF in 1980 and the IAHF in 1995.

Lloyd Carlton Stearman

- Born in Wellsville, Kansas, October 1898.
- Studied Engineering and Architecture at Kansas State College.
- Enlisted in the U.S. Naval Reserve in 1918. Learned to fly Curtiss N-9 seaplanes at San Diego.



- Hired as a mechanic in 1920 by “Jake” Moellendick (Matty Laird’s partner and financier) of the **Laird Aviation Co.**, manufacturer of the Laird Swallow.

Stearman, Early Manufacturing Experience

- Co-worker Walter Beech helped Stearman improve his piloting skills.
- In 1923 Laird and Moellendick dissolved their partnership. Laird returned to Chicago and “Jake” re-organized the firm as the **Swallow Airplane Co.** in Jan. 1924.



SIDE VIEW OF "NEW SWALLOW" SHOWING HOW PERFECTLY THE SWALLOW IS STREAMLINED. NOTICE THE MOTOR IS COMPLETELY COWLED MAKING MINIMUM FRONTAL RESISTANCE

Stearman, Creative Forces

- Stearman was assigned as Chief Engineer.
- Stearman and Beech worked on revising the Swallow structural design. Jake rejected their plan.
- Moellendick had a reputation of being an extremely difficult boss.
- By late 1924, Stearman and Beech had enough of Moellendick and decided to leave to form their own company.

Stearman, Business Ventures

- **Travel Air Manufacturing Co.** was incorporated in Feb. 1925 and Clyde Cessna was recruited for his experience and funding.
- Stearman, interested in creating his own aircraft designs, resigned from Travel Air in 1926, moved to Venice, CA where he started the **Stearman Aircraft Co.** in early 1927.



First Stearman Product: Model C2

Stearman, Wichita Calls

- California business not as good as hoped. A friend and investor persuaded Stearman to move back to Wichita.
- By the end of 1927 Wichita-built Stearman aircraft are being rolled out.
- Stearman Aircraft grows and in Aug. 1929 is sold to **United Aircraft and Transportation Corp.** (including: United Air Lines, Hamilton Aero (Propellers), Standard Steel Propellers, Pratt and Whitney Aircraft (Engines), Boeing Airplane Co., Sikorsky Aircraft and Chance Vought Aircraft.)
- In 1931, Stearman designed the Model 6 “Cloudboy” (Army YPT-9) which, years later, evolves into the primary trainer of WWII.



Stearman Model 6

Stearman, California Calls

- Difficulties with the United Aircraft corporate leadership result in Stearman resigning his post in 1931. Stearman moved to Alameda, CA, where he formed his next company: **Stearman-Varney**.
- Shortly after formation of his new company, the **Lockheed Aircraft Co.**, near bankrupt, went up for sale.
- Stearman-Varney purchased Lockheed for \$40K.
- Stearman headed Lockheed and, with aeronautical engineer Hall Hibbard, developed the Model 10 “Electra”.



The Electra was Clarence “Kelly” Johnson’s first Lockheed project

Stearman Model 75 Kaydet

- In 1934 Stearman Aircraft became a division of Boeing Aircraft.



PT-13, Lycoming Engine

PT-17, Continental R-670 Engine

PT-18, Jacobs Engine

- Over 8500 “Stearman” Kaydets were built between 1936 and 1944 – long after Lloyd Stearman left the company.

Stearman, Wanderlust

- In spite of his talents, Stearman's career continued to meander:
 - Leaves Lockheed in 1935 to work for the **CAA**.
 - Partnered with Dean Hammond (**Stearman-Hammond Co.**).
 - VP of **Transair Co.** (San Francisco), 1938-39.
 - Manager of the airplane division, **Harvey Machine Co.**, 1941-1945 (design & manufacture of engine cowlings).
 - Founded the **Stearman Engineering Co.** in 1945 to develop agricultural aircraft (but too many surplus Model-75 around).
 - Started **Inland Aviation Co.** (Los Banos, CA) to modify Model-75 for agricultural use.
 - Joined **National Aircraft Co.**, Van Nuys, CA, Model-75 mods and agricultural equipment.



Stearman-Hammond Y-1S

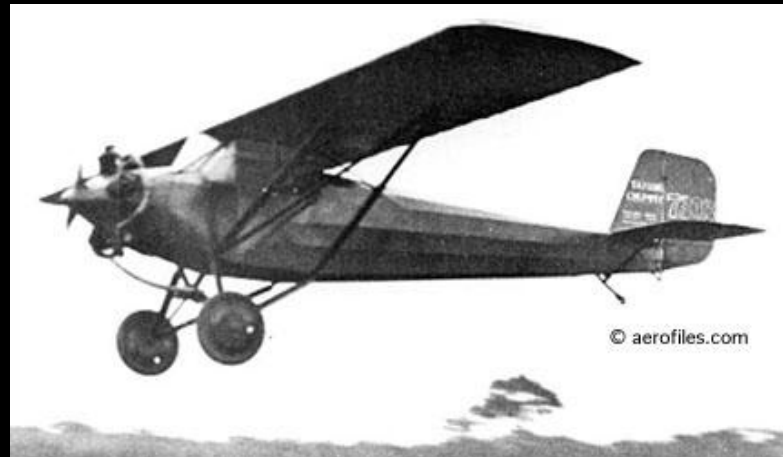
Stearman, Closed Loop

- Remarkably, Stearman returned to **Lockheed** in 1955 as a Senior Design Specialist - worked on:
 - solving Constellation problems,
 - swing-wing designs, and
 - VTOL projects.
- Retired from Lockheed in 1968 and promptly started a new company, **Stearman Aircraft**.
- Due to failing health, his last company never produced an airplane.
- Lloyd Stearman, an extraordinary captain of the American aviation industry, died in April 1975.
- Stearman was enshrined in the National Aviation Hall of Fame in 1989.

Clarence Gilbert Taylor

- **Clarence Gilbert (CG) Taylor** was born on September 25, 1898 in Nottingham, England but grew up in Rochester, NY.
- CG and brother **Gordon** were barnstormers in the early 1920s.
- In 1927 CG and Gordon formed the **Taylor Brothers Aircraft Manufacturing Corporation** to build small inexpensive airplanes.
- Initial designs were high wing, side-by-side seating, enclosed cabin, monoplanes.
Sales were low.

Taylor C-2
Chummy
1929



The Taylor Cub

- In 1928 Gordon Taylor was killed while demonstrating a Taylor A-2 Chummy.
- Taylor Bros. Aircraft Mfg. moved to Emory field, Bradford, PA, in 1929, enticed by the city looking to diversify industry if oil drilling activities declined, and the promise of investment capital and a large manufacturing facility by a local businessman .
- CG continued to manage the company and developed the E-2, one of a series of Taylor “Cubs”.

Taylor E-2 Cub

40 HP Continental engine.

First Flight- Sept. 10, 1930.

Initially considered using a 20hp Brownback Tiger Kitten that proved to be underpowered.

The name “Cub” is believed to be derived from the “Tiger Kitten” engine.



C.G. Taylor - Bad Times

- The economic depression of the early 1930s brought the company to bankruptcy in 1931.
- The local investor purchased the assets of the company for \$761 and it was reorganized as the **Taylor Aircraft Company**.

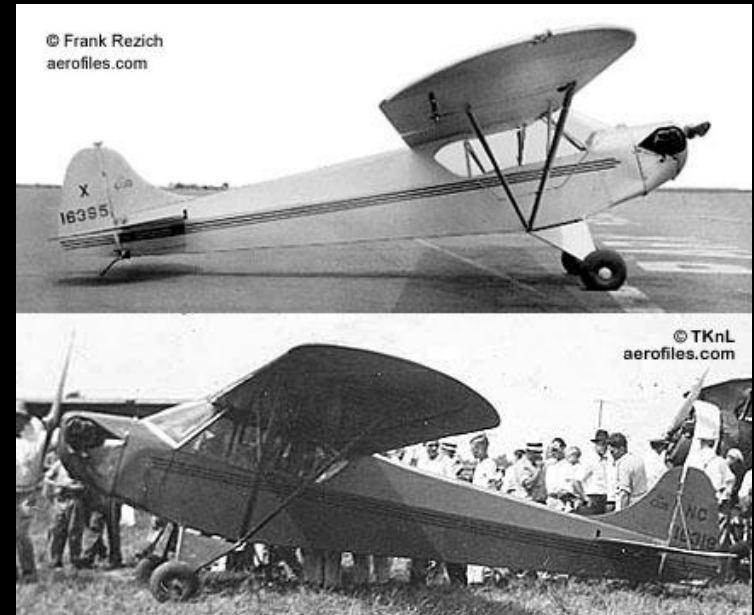


C. G. Taylor

William (Bill) T. Piper

- The investor, oilman **William T. Piper**, at age 51, took control of the firm as secretary-treasurer but retained C.G. Taylor as president to guide the development of new aircraft.
- In Taylor's absence due to illness, the Taylor E-2 was modified from by **Walter Jamouneau*** by direction from William Piper.
- Taylor was angered and fired Jamouneau, but Piper hired him back.
- In 1935 the modified E-2 was Introduced as the Taylor J-2 Cub.

*Hired initially at no salary, Jamouneau was a Rutgers U. Graduate, but did not have a degree in Aero. Engineering.



Taylor J-2 Cub

C.G.Taylor - Phasing Out

- By December 1935, after additional clashes, Piper bought out Taylor (according to one account, Piper paid Taylor \$250/month for three years plus life insurance costs).
- In 1937 a fire destroyed the Bradford factory. The company was moved to an empty silk mill at Lock Haven, PA . and was renamed the **Piper Aircraft Corporation**, removing all signs of a connection to C.G. Taylor.
- Taylor continued in the aircraft industry with **Taylorcraft Aviation**, Alliance Ohio, until 1942 when he sold his interests in the company.
- Clarence Gilbert Taylor died in 1988.



The Piper J-3

- Piper directed Walter Jamouneau to make further improvements, resulting in the Piper J-3.
- Accounts vary as to the rationale for the “J”. It was either the next letter in the series, or it reflected the “Jamouneau” heritage.



- Over 20000 J-3 variants were manufactured by Piper.

William Piper and Walter Jamouneau

- Piper, who initially was interested in aviation only as a business venture, acquired a pilot's certificate at age 60.
- Jamouneau became Piper Aircraft's Chief Engineer and developed many of Piper's successful aircraft.



William Piper and Walter Jamouneau

- William Piper died on January 15, 1970.
- He was inducted into the NAHF in 1980 and the IAHF in 1993.



William Thomas Piper Sr.
(1881-1970)

Clyde, Walter, Lloyd, Clarence, and William

The creators of Cessna, Beech, Stearman, Taylor, and Piper Aircraft had one thing in common -

- They were staunch believers in the future of the aviation industry.

- Except for Lloyd Stearman, they had no formal aeronautical engineering training.

What About Aeronca?

“Unlike other light plane makers, Aeronca was not so much the product of a single formative aviator or family, but the product of many....”

Aeronca/Champion History: [L] [SEP] Beyond the Bathtub -- Chiefs, Champs & Citabrias



- French-born **Jean Alfred Roché** (1894 - 1977) received a Masters Degree in Engineering From Columbia University and worked as an airplane designer throughout his career.
- Roché was employed by the U.S. Army Air Service at McCook Field, Ohio (later Wright-Patterson AFB). On his own time Roché designed a 1-place light plane incorporating his ideas on low initial and operating costs and inherent stability, to make flying practical and safe for the average person.
- Roché, with friend Quentin Dohse, founded the **Roché-Dohse Company** in 1925 to develop his “Flying Fliver”.

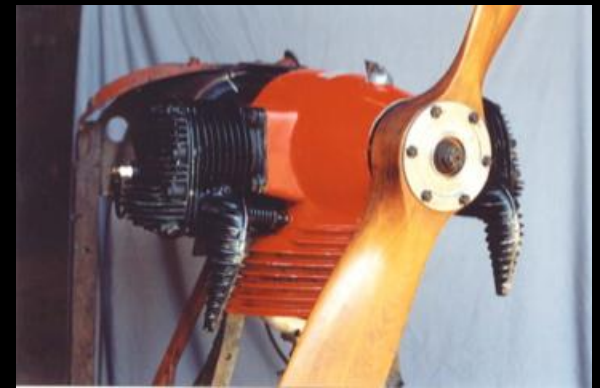


The Aeronautical Corporation of America

- On November 11, 1928 the **Lunken family**, owner/operator of Lunken Airport (Cincinnati, Ohio) incorporated the **Aeronautical Corporation of America** to build light aircraft. – **But they had no “Aeronautical” product at that time.**
- Financial and political support for this venture was provided by the prominent Taft family - including future Ohio Senator Robert A. Taft - who was one of the firm's directors.
- Roché, unsuccessful in finding a way to develop his aircraft for the market, was introduced to the Lunkens who were seeking an aircraft design to build.
- Based on the simplicity of his airplane and Roché's position as Sr. Eng'r. for the Army Air Service, the Aeronautical Corporation of America (later called **Aeronca**) purchased the design for their initial product from Roché in exchange for shares of company stock and a seat on the Board of Directors.

Aeronca

- Adequately financed, Aeronca hired Roger Schlemmer, a recent graduate of the University of Cincinnati's Aeronautical School to re-engineer the aircraft for production and took over the manufacturing facilities of the failing Metal Aircraft Company at Lunken Airport.
- One of the early problems was the unavailability of a suitable engine so Aeronca designed its own two-cylinder 26 HP E-107, which became the first widely used opposed aircraft engine.
- The Aeronca C-2 introduced in 1929, became the first commercially successful light aircraft. 164 C-2s were sold early in the Great Depression, helping to spark the growth of private aviation in the U.S.



The Bathtub - End of the Line

- The introduction of the more powerful (36-40 HP), two-place, Aeronca C-3, continued the success of the company. The C-3 became a popular trainer for the growing GA market - 439 were built.



- C-3 production ceased in 1937 when the aircraft could not meet new CAA standards.
- By the mid 1930s the aging Lunkens sold the company to an Ohio real estate tycoon, Walter Friedlander, for \$750,000.

Aeronca- A New Era

- Following a flood that submerged the Aeronca factory, Friedlander's son Carl, now managing Aeronca, moved the operation 30 miles north to Middletown Ohio.
- Roger Schlemmer, now Aeronca's Chief Engineer, had the task of developing a new design that would meet Government regulations
- In 1937 the Model K was introduced, initially using a dual-ignition version of the 2-cylinder Aeronca E-113 engine.



Aeronca- Changing Times

- The availability of more powerful engines made later versions of the Model K another successful Aeronca product.
- Aeronca continued to produce improved two-place trainers and observation aircraft during WWII.



Aeronca L-3 Grasshopper

- By 1951, with the market saturated (in part due to the sale of Gov't surplus Piper, Taylorcraft and Aeronca aircraft), Aeronca sold its light aircraft interests and became a major subcontractor to the Aerospace industry. By the time it ceased production, Aeronca had built over 17,400 airplanes.

Now, I suppose, someone will say:

“What about Luscome?”

....Waco?

....Monocoupe?

....Funk?

....Interstate?

....Bellanca?

.....Howard?

....Stinson?

.... Mooney?

.....Porterfield?

.....Rearwin?

14 Years of Aviation Progress

**Boeing
P-26A 1934**



**North American
F-86A
1948**

**North American
P-51D
1944**

**Seversky
P-35A
1937**

