



THE FAMOUS FLYING Lockheed Brothers

The three inventive brothers got things rolling in the 1920s and 1930s. Then they checked out.

Charles A. Lindbergh's 1927 New York-to-Paris flight produced an explosion of aviation activity, as designers brought forth a multitude of new and sometimes very unusual aircraft. One of these was the Vega, which made its first flight within two months of the historic transatlantic flight.

There was a stark contrast between Lindbergh's airplane, *Spirit of St. Louis*, and the Vega. Lindbergh's airplane, a highly modified version of the Mahoney-Ryan M-2, was from a bygone era. It combined a conventional steel-tube-and-fabric fuselage with a wood-and-fabric wing, held together with drag-inducing struts. In contrast, the streamlined, all-wood Vega sported a cantilever wing and a molded, partially load-bearing fuselage.

The basic Vega design would be transmuted into a series of remarkable aircraft. Moreover, the Vega introduced a new aviation company with an odd slogan: "It takes a Lockheed to beat a Lockheed."

The leader of this new firm was Allan H. Lockheed, one of three brothers who would become major American industrialists. These three—Allan and his brothers Victor and Malcolm—all began life with the surname "Loughead." Its origin was Scottish, but it was spelled in the Irish manner and was pronounced as "lock-heed." The pronunciation never changed, but the spelling changed twice. Victor was the first to adopt a new spelling; he went with "Lougheed." Only much later in life did Allan and Malcolm change the spelling to "Lockheed." (To

simplify matters, the name hereinafter is spelled Lockheed.)

Victor was an automotive engineer, but he made his aviation bones as a writer, creating a stir with his 1909 *Vehicles of the Air*. In 1912, he published a second book, *Aeroplane Designing for Amateurs*. Victor also designed the Taft-Pierce-Lockheed V-8 engine, in 1911. The engine is now on display at the National Air and Space Museum's Udvar-Hazy facility in Chantilly, Va., just outside Washington, D.C. Later in life, Victor was editor of *Motor* magazine and continued working in aviation.

Malcolm and Allan began their working lives in San Francisco. Both were fascinated by automobiles. Malcolm started out in 1904 working for the White Steam Car distributor, where he conceived and later patented the hydraulic four-wheel



By Walter J. Boyne

Malcolm Lockheed (l) and Allan Lockheed take the controls of an early Lockheed flying boat. Three Lockheed brothers—Allan, Malcolm, and Victor—began their careers in aviation in San Francisco just after the turn of the century.

brake. Allan in 1906 went to work in a San Francisco automobile repair shop. He was adept behind the wheel and was hired by the Corbin automobile firm to demonstrate their cars in hill-climbing exhibitions.

Enter the Airplane

Meanwhile, Victor had been commissioned by an investor, James E. Plew, to obtain the rights to a tandem-wing glider. Plew's goal was to install an engine and thus create a powered aircraft to sell. He also ordered Victor to buy a Curtiss biplane. Victor enlisted Allan to work on the two-aircraft fleet in Chicago. Victor later had a long falling out with the other brothers. They reconciled shortly before his death in 1943.

Allan Lockheed, however, soon discovered the infeasibility of installing an

engine in the glider, and he concentrated on making the Curtiss biplane airworthy. He also learned to fly in the same manner that he was to use designing airplanes—he just did it, without any formal training. Plew purchased a second Curtiss, and Allan, a natural pilot, soon became a featured performer at air shows.

Neither Allan nor Malcolm was an engineer, but both were craftsmen, and inevitably they began to build aircraft of their own. Their first, the Lockheed Model G, was the largest seaplane yet built in America. The Model G was fabricated in a garage near the San Francisco waterfront and made its first flight on June 15, 1913. That was the start of a long series of Lockheed successes.

Because it was the only aircraft flying in the Bay Area, the Model G created quite a sensation. The three-place biplane made lots of money for its owners. During the 1915 Panama-Pacific Exposition, the Lockheed brothers grossed \$6,000 carrying more than 600 passengers.

Soon, Allan and Malcolm formed the Lockheed Aircraft Manufacturing Co. in Santa Barbara, Calif., and used the Model G to generate income while they concentrated on their second design, the F-1. It was an even larger flying boat. With twin engines, it was able to carry a pilot and nine passengers.

For this venture, the Lockheeds enjoyed some good fortune: They acquired the talents of 20-year-old engineer-draftsman Jack K. Northrop. (See "The Low-Drag World of Jack Northrop," October 2005, p. 76.) Another good hire was Anthony Stadlman, who later would loom large in Lockheed Aircraft Corp.

The F-1 was promising, and America's April 1917 entry into World War II prompted the brothers to seek a Navy contract for mass production. Allan went to Washington where he succeeded in impressing Lt. Cmdr. Jerome Hunsaker, then running the Navy's aircraft engineering section. Hunsaker authorized a Navy test program for the F-1 and gave Allan a contract to build two Curtiss HS-2L flying boats under license.

The small Lockheed plant was humming within a few months. The F-1 made a nonstop flight to San Diego on April 12, 1918, and work on the Curtiss boats proceeded smoothly.

Armistice and Pain

The Nov. 11, 1918 Armistice dashed hopes for larger contracts. However, the F-1 was converted to a land airplane

for an unsuccessful attempt at a trans-continental flight. Rebuilt as a flying boat, it continued to make money for the Lockheeds, carrying sightseers and working with the movie industry.

Allan and Malcolm Lockheed, Northrop, and Stadlman joined forces to forge a new manufacturing method. The goal was to build a streamlined aircraft, eventually to be called the S-1, in large quantities and at low cost. Their concept featured use of a concrete mold in the shape of a fuselage half. Laminated, spiral strips of vertical grain spruce were placed in three layers into the mold. Each ply was coated with waterproof casein glue and bonded for hours under immense pressure. The two halves from the mold were connected to create a fuselage.

After designing and building their own engine, the brothers found that they had invested \$30,000 in the S-1. It flew well, but it was too expensive to compete with the hundreds of cheap, war-surplus Curtiss Jennys and Standard trainers flooding the postwar market.

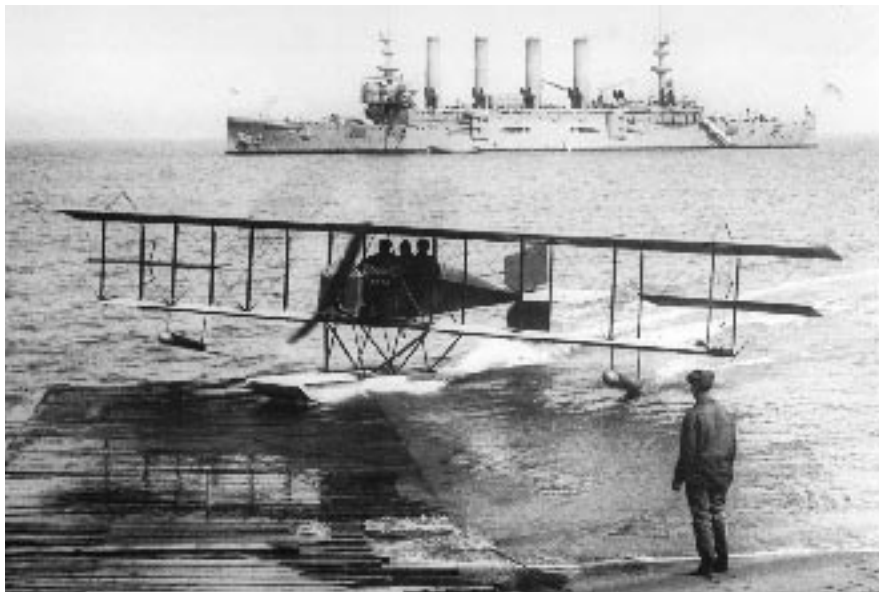
Thus ended the first Lockheed venture. Malcolm packed up and headed east to sell his patented hydraulic four-wheel brakes. He eventually sold the patent to Bendix Corp. Allan worked as the California distributor of his brother's brakes. He also dabbled in real estate.

In 1926, however, Allan returned to aviation. He organized a new firm, the Lockheed Aircraft Corp., and set about building what would become the Vega. Allan's timing for the Vega was as good as the timing for the S-1 had been bad.

He had several factors working for him. First was the arrival of the Wright Whirlwind air-cooled radial engine. Second was the boom in the stock market, which made it easy to acquire financing for his venture. Third, Jack Northrop, who had been working at Douglas and moonlighting at Ryan, once again became available and joined Lockheed.

Northrop and Lockheed believed that the manufacturing techniques they had patented for their S-1 could be revived for an entirely new airplane. The molds could turn out six shells, or three fuselages, per week.

Extremely light and strong, the fuselage could accommodate engines of as much as 715 horsepower. It was clean and adaptable; one could cut virtually anywhere to create access hatches, doors, and so forth. Although



The Lockheed Model G, shown here, was the largest seaplane built in America at the time. Allan and Malcolm gave rides to paying customers to raise money for their next project, the F-1.

the fuselage had a standard length and diameter—for Lockheed had only the one mold—it was adaptable to a wide variety of wing placements, cockpit positions, and undercarriage types.

The Price of Adulation

On May 25, 1927, pineapple tycoon James D. Dole announced a pair of prizes: \$25,000 for the first aircraft to fly from North America to Honolulu, and \$10,000 for the second to make the flight. Coming just after Lindbergh's triumph, the announcement threw a barrel of gasoline on the aviation bonfire. The prize money was attractive, but what the contestants thirsted for was a taste of the adulation heaped on Lindbergh.

In their zeal to compete, many "Dole Derby" entrants overlooked a basic fact: No matter what kind of navigator he was, Lindbergh could hardly have missed Europe altogether. That was not the case with the Dole Derby contestants. They were launching from the US West Coast toward a tiny volcanic speck in the Pacific Ocean 2,439 miles away. Even a minor navigational error would prove disastrous.

Allan Lockheed wasn't wild about such a hazardous flight, but he remembered how quickly the S-1 project had swallowed up his \$30,000. Thus he was quick to take advantage of an offer from George Hearst, son of the newspaper baron William Randolph Hearst, to buy the prototype Vega for \$12,500. The airplane had cost \$17,500 to build. However, the Vega's appear-

ance in the Dole Derby would bring publicity on a scale that only a Hearst could provide.

Everywhere, it seemed, the Vega was featured in newspaper articles, many with cutaway drawings showing all of the expensive navigation, communication, and safety equipment installed for the flight. Orders began pouring in.

Hearst hired two competent airmen, pilot John W. Frost and navigator Gordon Scott, to crew the airplane, which was dubbed *Golden Eagle*. Tragically, the brand-new Vega disappeared on the flight, and its fate has never been learned. The Dole race cost many other lives as well and became a symbol of America's aviation hubris.



The Lockheed Vega (above) was an instant success and eventually was flown by almost every famous American aviator of the day. The versatile airplane also was used as an airliner and an air ambulance.

Despite the loss of the prototype in the Derby, the Vega itself became an instant sales success. Moreover, bad publicity from the loss of *Golden Eagle* was quickly offset by a long series of other famous flights.

Capt. George H. Wilkins ordered a Vega after seeing test flights of the prototype and partnered with Alaskan airmail pilot Carl B. Eielson to make an epic, danger-filled trans-Arctic journey in April 1928. The two flew from Point Barrow in northern Alaska across the Arctic to Spitzbergen, north of Norway. Wilkins was knighted, and Eielson was awarded the Harmon Trophy and the Distinguished Flying Cross. They proclaimed the advantages of the Vega's speed, strength, and comfort, and Lockheed was established as a going concern.

Ultimately, 129 Vegas were built, and they were flown by almost every famous American aviator of the time. Amelia Earhart in 1932 crossed the Atlantic in her bright red Vega. Other women pilots, including Bobbi Trout and Ruth Nichols, used the Vega to set records.

Record Speeds

Wiley H. Post flew a Vega on two epic round-the-world flights, the first in 1931 with Harold Gatty as navigator and the second a solo endeavor in 1933. Both flights were in a Vega he named *Winnie Mae*. Post reached speeds of 340 mph—far more than Allan Lockheed or Northrop had ever envisaged for the Vega.

Besides setting records, Vegas were used as airliners, for corporate flying,

and as air ambulances. Both Earhart's and Post's Vegas can be seen in the National Air and Space Museum.

Several variations of the basic Vega construct followed. One, the XP-900, was purchased by the Air Corps as the YP-24. It combined a new metal fuselage, a Curtiss engine, and the standard Lockheed wing and provided a top speed of 214 mph in 1931.

Under Allan Lockheed's guidance, the firm had done so well that it attracted the attention of the Detroit Aircraft Corp. (DAC), which proclaimed its intention to become the "General Motors of the air."

The Lockheed company had been changing through its success. Northrop left in June 1928. Lockheed's major financial backer, Fred Keeler, sought to make a huge profit by selling the company to the DAC. Unwilling to see the firm sold, Allan Lockheed himself left in 1929.

As it turned out, Keeler's sell-now instinct was dead on. Within three months of the sale came the stock market crash of October 1929 and the onset of the Great Depression, which sent the ambitious DAC holding company spiraling downward. Even in the Depression, the Lockheed Division of DAC continued to make a profit, but it could not save the overextended parent firm. DAC went into receivership in 1931, and, despite continuing sales and profits, Lockheed closed its doors on June 16, 1932.

On June 21, 1932, a consortium headed up by Robert E. Gross purchased the assets and the company started a new life, which continues to this day under the name Lockheed Martin Corp.

Gross determined that, although the new firm would for a while continue to construct the wooden Lockheeds, it would in the future concentrate on all-metal aircraft. There would be no place for Allan Lockheed.

After the original firm had been acquired by Detroit Aircraft in 1929, Allan had set up a new firm, the Allan Lockheed Corp. Working with some of his former associates, Allan created a new aircraft, the Olympic Duo-4.

The Olympic Duo-4 was essentially a Vega with twin Menasco engines mounted in a novel fashion. The two 275 hp engines were installed on their side and spaced with only 12 inches of clearance between their propellers. Allan's goal was to provide twin-engine reliability.

The airplane flew quite well, but it



Photo courtesy of Walter Boyne

In 1937, Allan Lockheed formed the Alcor Aircraft Corp., in Oakland, Calif., to create a sleek new aircraft, the Alcor C.6.1 (shown here). This was the last airplane designed by a Lockheed brother. It was destroyed in a testing accident.

encountered considerable bad luck. It flew for the first time on March 18, 1931 and was lost when it collided with a photographic truck at the side of the runway. Allan gamely rebuilt it with bigger engines, but he sold none of this new type.

One More Try

In 1937, he formed the Alcor Aircraft Corp. in Oakland, Calif. Allan believed that there was a market for a twin-engine six-passenger feeder airliner. He brought Stadlman back into the company and hired Harold E. Webb as chief engineer.

They created a sleek, almost futuristic new aircraft, naming it the Alcor C.6.1. Despite its modern looks, the new airplane retained the conventional Lockheed wooden construction that had served so well for the Vega and its variants. This time, Allan designed a circular fuselage. The C.6.1 was tested extensively.

Allan Lockheed went to Washington to drum up some military sales, leaving behind strict orders that the airplane was not to be flown. Casserly and Webb nonetheless decided to make another test flight. The goal was to climb to 16,000 feet, then dive at a maximum speed of 300 mph before leveling out for the return flight home. During

the dive, the left aileron ripped off and the two men were forced to bail out. Allan Lockheed's last airplane spiraled down, making several full circles before striking the surface of San Francisco Bay in such a flat attitude that it skipped like a well-thrown stone, tearing itself further apart with each skip.

The impact was described by one observer as "like a salvo of 16-inch shells." Both men survived with minor injuries, but it was the end of the road for Alcor—and for Allan Lockheed's attempts at producing aircraft.

Neither Malcolm nor Allan Lockheed took much consolation in their past achievements. Both constantly sought the next great opportunity, hoping to relive some of the passion of their early days. It was not to be.

Malcolm had sold his interest in his hydraulic brake firm for a good sum, but he evidently made poor investments. He tried gold mining, but turned to public assistance before his death on Aug. 13, 1958. Allan resumed selling real estate and consulting in aviation and maintained informal ties with the ever-growing Lockheed aeronautics firm. He died on May 28, 1969.

By that time, the firm that bore the Lockheed name had become an American giant. ■

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