



Runway 15



The Monthly Newsletter for EAA Chapter 1541, Lincoln, California

November 2016

Briefing Strip

- The November general chapter membership meeting will be on **Wednesday, November 16**, at the chapter hangar, Hangar S-12, at KLHM. The featured program will be presented by Christopher Brooks, Aviation Safety Officer with the Office of Airports, California Department of Transportation. Dinner at 18:00; meeting starts at 18:30. Guests are welcomed and encouraged.
- The Lincoln Airport Committee will hold its monthly meeting on **Wednesday, November 16**, at the Lincoln City Hall., Subjects of interest to airport users are on the agenda. Our EAA chapter has representatives that attend the meeting, but the public is welcome.
- EAA Chapter 1541 Christmas Party will be held at Cattleman's Restaurant in Roseville on **Wednesday, December 14**. Bill Wootton is spearheading the plans for the party. Tickets (\$45 per person) are available from Bruce Estes or check with any chapter officer.
- Chapter dues of \$20 (per calendar year) are coming due for 2017. Members can pay using PayPal, with check or with cash. Dues are tax deductible since we are a 501[c]3. See Jim Hughes to pay your dues, or go to the chapter website to pay via PayPal.

Calendar

- Wednesday, November 16:** Lincoln Airport Committee Meeting, 10:00 am in the First Floor Meeting Room at Lincoln City Hall, 600 6th Street, Lincoln.
- Wednesday, November 16:** Chapter 1541 Membership Meeting, Hangar S-12, at Lincoln Airport. Dinner at 18:00; meeting starts at 1830.
- Saturday, November 19:** Lincoln Airport Aircraft Display Day, 08:00-12:00.
- Sunday, November 27:** Rancho Murietta (KRIU) Historic Aircraft Display Day, 0900-1300.
- Wednesday, December 7:** Chapter 1541 Board of Directors meeting Pizza Roundup, 2270 Nicolaus Rd., Lincoln. Dinner at 18:00; meeting at 18:30.
- Saturday, December 3:** EAA Chapter 1541 Pancake Breakfast, 08:00-10:00.
- Saturday, December 3:** Sutter County Airport (O52) Open Hangar Day.
- Wednesday, December 14:** Lincoln Airport Committee Meeting, 10:00 am in the First Floor Meeting Room at Lincoln City Hall, 600 6th Street, Lincoln.
- Wednesday, December 14:** EAA Chapter 1541 Christmas Party, Cattleman's Restaurant,, 18:00.

*For the most up-to-date information, go to the website
<http://eaa1541.org/>*

Newsletter Contributions

Please help make this newsletter better by contributing stories and photos that might be of interest to other chapter members. Perhaps where you flew, what you are building, or what you know about something. A few short paragraphs and a photo or two of your project or travels would be a great contribution. I'll take care of the rest. Please email me (Scott Thompson) at sthompson@aerovintage.com or call me at 916-716-3442.

Tidbit from the AIM

Recommended Traffic Advisory Practices

1. Pilots of inbound traffic should monitor and communicate as appropriate on the designated CTAF from 10 miles to landing. Pilots of departing aircraft should monitor/communicate on the appropriate frequency from start-up, during taxi, and until 10 miles from the airport unless the CFRs or local procedures require otherwise.
2. Pilots of aircraft conducting other than arriving or departing operations at altitudes normally used by arriving and departing aircraft should monitor/communicate on the appropriate frequency while within 10 miles of the airport unless required to do otherwise by the CFRs or local procedures. Such operations include parachute jumping/dropping, en route, practicing maneuvers, etc.

Wants and Disposals

Wanted: Things to list here that members want to find or want to get rid of. Please advise of the item and contact information via email to sthompson@aerovintage.com. One email gets one entry for one month here.

Chapter Information

Meetings:

Usually the third Wednesday of each month held at KLHM Hangar S-12. Details available at the website.

E-mail:

lincolneaa@hotmail.com

Website:

<http://eaa1541.org/>

Mailing address:

EAA Chapter 1541, PO Box 1126, Lincoln, CA 95648

Chapter Hangar:

Hangar S-12, Lincoln Airport

Chapter Officers

President:

Ron Wright (ronpw@hotmail.com)

Vice President:

Tony Kasabasich (tonykasabasich@yahoo.com)

Secretary/Treasurer:

Jim Hughes (jim.hughes1@att.net)

Chapter Board of Directors:

Bruce Estes

Tom Lieb

Bob Miller

John Perry

Bruce Robinson

Dug Smith

Bill Wootton

Webmaster:

Dug Smith

Newsletter:

Scott Thompson (916-716-3442)
(sthompson@aerovintage.com)

Membership:

Open to all. Chapter dues: \$20 per year.

President's Corner

The waiting is nearly over. Next month we have been told to expect a final decision from the city of Lincoln regarding the ground lease expense of our hangar. This will finally allow us to close the purchase and look forward to a long term plan for the hangars use including further improvements and utilization.

Over the last year we have benefitted greatly as a club by having a home which has lead to a growing membership and an overall sense of belonging to something great. Our monthly membership meetings and pancake breakfasts & movie are much easier to organize and more fun than ever before. As we transition from renter to owner, the utilization of the hangar will grow as well. From what I have observed, EAA chapters that have large active memberships are most often clubs that have a regular meeting location

of their own. I am very proud to say that our membership is up to 105 PAID members. That is something for us to be proud of and the credit is to be shared among all of our members but particularly to our very special Gold Members and donors that made the club hangar a reality. Thank you, thank you!! It could not be done without you and I hope you will continue to go for gold in the new year. As we are about to start a new year I thank all 105 of our members for their help in making our chapter a great place to discover friendships, education, and community. It feels great to look back and see how we have grown however, our potential is just beginning to be discovered!

Ron Wright
President
EAA 1541



Five Lockheed L-749 Constellations were operated by the FAA primarily in support of navigation aid inspection and logistical support in the Pacific during the late 1950s and early 1960s. N119 is seen here at the FAA Aircraft Base at Oklahoma City in 1959. They were withdrawn from the inventory in 1966. (FAA photo)

Last Month's Meeting...

by Bruce Estes

In spite of baseball playoff games and presidential debates, EAA Chapter 1541 had a great turnout for its monthly membership meeting on October 19, 2016. Some of the activities were as follows:

Jim Hughes gave the Treasurer's report. We are solvent and our membership continues to grow. Currently, we have 102 paid members. Our hangar fund continues to grow also.

Bruce Estes and Richard Pearl reported on the most recent Airport Advisory Committee meeting, The City of Lincoln, guided by the Airport Advisory Committee, continues to make progress on plans to stop the financial loss of airport operations. The city is looking at ways to reduce expenses, expand fuel sales, attract a couple of large jets to be based at Lincoln. Also on the agenda: renew the soon-to-expire ground leases held by the Nunno Corporation or have the city take over the leases itself. Lots of ideas are on the table.

Bruce Estes reported on surplus items donated to the chapter, the sale of which raised \$750. Bruce requested that anyone who has anything that they wish to donate to the chapter to please contact him with information. The sale of such items can be a source of funds for the chapter. Clean out your hangar or your garage.

Brent Smith mentioned that he has plans and a partial kit for an Excelsior Ultralight airplane. He will give this away for FREE. Contact him at (916) 708-3372 for details.

Bill Wooten announced that the Christmas Party is scheduled for December 14 at Cattleman's Restaurant in Roseville. Mark your calendars and see other information in this newsletter. Menu looks great.

Lots of comments on the EXCELLENT newsletters being prepared by Scott Thompson. If anyone has any pictures or ideas for the newsletter, please contact Scott (sthompson@aerovintage.com).

And finally, Marty Maisel gave a presentation on Aviation in Hollywood. We all know that John Travolta and Harrison Ford are avid pilots. But, Marty took us back to the 1930s, 1940s, and 1950s to give lots of details on famous Hollywood actors that were also enthusiastic pilots. Marty summed up the presentation with this quote "The challenges, rewards, and excitement of aviation attract the men and women of Hollywood, just as they do for many of us." Well done Marty.



The Next Meeting...

The November General Membership meeting will be held at the EAA Chapter Hangar (KLHM Hangar S-12) on Wednesday, November 16. Dinner will be available for a nominal cost at 18:00 with the meeting set to begin at 18:30. The presenter of the program will Christopher Brooks, Aviation Safety Officer with the Office of Airports, California Department of Transportation. He will make a presentation on who state aviation safety officer are and what their role is in state aviation. The Office of Airports interfaces with state airports in completing facility inspections, updating airport master records, and provide input for airspace and airport issues, among other roles all important local airports and users. This presentation is also good for FAA Wings credit.

Christmas Party

The 2016 EAA Chapter 1541 Christmas Party will be held on Wednesday, December 14, at the Cattleman's Restaurant in Roseville. The evening begins at 18:00 and will include live entertainment by our chapter's own Danny Hull, a silent auction, and a raffle, plus some good food and holiday cheer. Tickets are \$45 per person and are available for purchase at the November membership meeting on November 16 from Bruce Estes, and will remain available until sold out. Purchase your tickets early and often...you don't want to miss the fun., See the flyer below for menu options.



2016 EAA 1541 Xmas Party



When: 6:00 PM. December 14th, 2016
Where: Cattleman's Restaurant, 2000 Taylor Rd
Roseville, CA 95678

Dinner: \$45 per person

Entrée choice: Prime rib, Rustler rib eye steak, Grilled Atlantic salmon, Lemon herb chicken, Porcini mushroom & truffle ravioli

Comes with: baked potato, Seasonal vegetables, Salad, Ranch style beans, Sourdough Bread

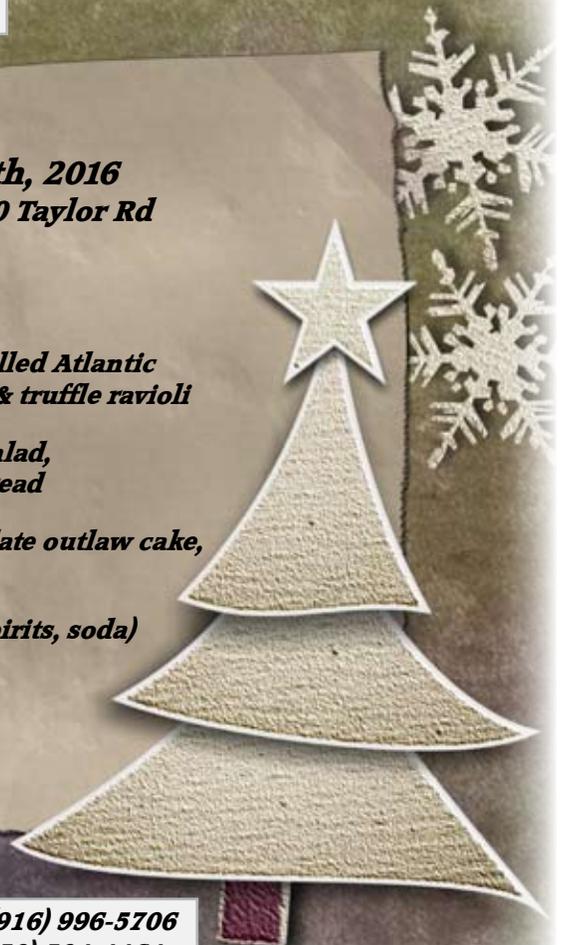
Dessert choice: Grand Canyon cheesecake, Chocolate outlaw cake, 3C ranch carrot cake

Includes coffee, tea, two beverages (wine, beer, spirits, soda)

Entertainment by our own Danny Hull
Silent auction and raffle



Seating is limited, so get your tickets: Bill Wootton (916) 996-5706
Bruce Estes (650) 504-4464



Member Spotlight

Text and Photo by Bruce Estes

This month's spotlight is on Christopher Braun, the owner of NorCal Flight Center. Christopher started flying in 1999. Like a lot of us, Christopher had always dreamed of flying since he was a child. Christopher got an early version of Microsoft Flight Sim when he was in third grade and this only fueled his desire to fly. Currently, Christopher holds a Commercial certificate with an Instrument rating, a



tailwheel endorsement, and has about 650 hours of flight time.

When Christopher opened NorCal Flight Center in June 2015, many people thought he was crazy. Another flight school at Lincoln Airport? It will never work. Little did these people know about Christopher's prior experience and education, fueled by a strong entrepreneurial desire.

After graduating from Vanderbilt University, Christopher owned a couple of small businesses that were successful. Christopher then went to law school and got his law degree. After working as a retail stock trader, and then on Wall Street as an institutional trader, Christopher went to work for an aviation law firm. During law school, Christopher also worked for the FAA. So, Christopher has a ton of experience and education. During Christopher's stint at the law firm, Christopher got to fly the right seat in a King Air C90B for a flight around southern California.

Christopher has three patents pending on his version of Cleco pliers. His

design was so successful that Christopher partnered up with Aircraft Spruce to sell his pliers. Christopher estimates that between 5,000 and 10,000 have been sold.

From the first day that NorCal Flight Center opened, it has been successful. When asked why he started a flight school, Christopher replied that this has always been a dream of his. He loves the flying environment and the warm fuzzy feeling that comes from being around the school. Christopher says "everyone is in a good mood when they're around the school." He now has four airplanes for rent or for use in instruction, and has expanded NorCal Flight Center into a thriving parts and maintenance business also. Starting as a dealer for Aircraft Spruce, Christopher now has wholesale relationships with 55 distributors. Christopher's desire is to compete effectively with the internet. From my personal experience, he does this very effectively. Christopher generally does not add any shipping charges to retail prices on items he can get. In addition to aircraft rental, parts and service sales, Christopher now has FAA testing capability at the facility.

Christopher is a busy guy as a husband and a parent to two young children. But, in his spare time, Christopher is also building a Panther. The Panther is a single seat aerobatic airplane similar to the RV3. Christopher has about 400 hours in the airplane and estimates that another 400 will complete it.

So, stop by NorCal Flight Center and say hello to Christopher. You can contribute to the warm, friendly environment.

Christopher Braun's Panther under construction. The kit is available from Sport Performance Aviation. More details on the airplane can be found at <https://flywithspa.com/panther-specs/>. Photo by Christopher Braun.



Bruce Goes Glider Flying

by Bruce Estes

One item on my bucket list was to fly a glider. Yesterday, I checked that item off of the list. Flying the glider was cool. It was way different than flying my RV6. And, it was fun.

It all started when I called Richard Pearl, the president of the Truckee Tahoe Soaring Association that owns the Schweizer SGS2-33 glider that is parked on the ramp at Lincoln Airport. Arrangements were made and I showed up Saturday at 9:30. Two additional students were also there. Three pilots/students are needed to help move the glider from the ramp and assist in getting the glider on and off the runway. In addition to the three of us, we had Richard (a CFI), another instructor, and the tow plane pilot. Richard showed me how to preflight the glider, how to enter and exit the glider without breaking anything, and the various items in the cockpit. There are only a couple of gauges in the panel—airspeed indicator, vertical speed indicator, altimeter, and a compass. The avionics panel consists of a com radio and transponder. There is a big knob in the center of the panel; that's the tow rope release. The most important instrument for the glider is not on the panel. It is the yaw string that is attached to the pitot tube in front of the windscreen. Gliders will definitely yaw a lot in the turn if you don't use the rudder properly.

When my turn came to fly, I climbed into the glider and waited while the tow rope was attached.

Soon we were being towed. The glider gets off the ground pretty quickly. It is REAL important when being towed to keep the glider behind the tow plane in the correct location. This was a little difficult at first. The glider takes a LOT of stick movement to get those long wings to respond. Richard assisted as necessary. Reaching 4,000', we released the tow rope and it suddenly got real quiet. Richard showed me turns, stalls, steep turns, and other maneuvers. We flew for about 20 minutes till it was time to land. Richard handled the landing. We immediately hooked up the rope for another flight. This time we released at 3,000'. By now, I was doing most of the flying, except when Richard was showing me something new. Richard handled the landing on this flight also. Because of the slow flight speed, approximately 50 mph, the glider will turn real tight. This was cool. There is not much to watch on the instrument panel, so you spend most of your time looking out the windscreen. The Lincoln countryside was beautiful when observed from the glider, slowing and quietly gliding through the air.

The Schweizer SGS2-33 glider has an empty weight of 600 lbs, wing span of 51', and glides at about 50 mph. Stall speed is 36 mph. No medical is necessary to fly a glider, and if you have an existing power pilot's license, an "add on" glider rating can be had pretty easily.

So, you just might see me out by the glider some more. It was definitely a great experience. Try it, you might like it.



A Brief History of the People who Created the Light Aircraft Industry in the U.S.

by Martin Maisel

(photos used with appropriate permission)

In the early years of the 20th century aviation was a novelty. Commercial uses were slow to develop and U.S. military leaders generally did not recognize the potential utility of air power and, therefore, devoted very meager resources to their aviation assets. After World War I, trained pilots, released from the military services due to budget cuts, took to “barnstorming” in surplus trainers to make a few bucks and to expose and thrill America with the new wonder of manned flight. The notion of flying began to take hold.

By the 1920s, in hopes of feeding the growing public interest in aviation, many companies were established to develop and build light aircraft for “general aviation” use. Most did not succeed and eventually faded into oblivion. A few individuals, however, planted the seeds that would grow into the light aircraft industry in America. Their story is told here.

Part I

Clyde Cessna

Clyde V. Cessna was born in 1879 in Iowa and his family moved to Rago, Kansas, when he was two years old. Clyde grew up on a farm and found that, with his self-taught mechanical skills, he could make



*Clyde V. Cessna
(Cessna Aircraft Company)*

significant improvements to farm machinery and food processing methods. His penchant for mechanical things led to his interest in the evolving automobile industry. After owning one of the first horseless carriages in the

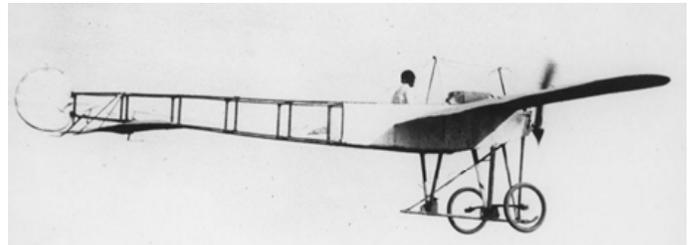
area, he became an automobile mechanic and salesman and, in time, operated the successful Overland Automobile Agency in Enid, Oklahoma.

In 1910 Cessna saw his first airplane when the Moisant International Aviators, a travelling flying circus, put on a flight demonstration in Oklahoma City. He was so inspired by aviation that he gave up his job and moved to New York to work for the Queen Aeroplane Company to learn about aircraft construction.



1911 Queen-Martin (aerofiles.com)

In 1911 Cessna purchased a fuselage from Queen and moved back to Oklahoma to build his own airplane, the “Silverwing”—a monoplane resembling the French Bleriot design. The powerplant for the Silverwing was a 40 HP Elbridge marine engine that Cessna converted for aircraft use



Cessna Silverwing (<http://rootsweb.ancestry.com/~okgarftp/people/cessna/cvcessna.htm> © 2016 by Garfield County Administrator)

Clyde Cessna’s flight training proved to demonstrate his determination to be an aviator. With no means of obtaining flight instruction, Cessna set out to learn to fly by himself in his own airplane. Predictably, this resulted in numerous crashes (13 or 14 according to various reports), and led to an “extended hospital stay” on at least one occasion. Undaunted, Cessna eventually succeeded in June 1911, but realized that his initial design did not fly well. In the next few years, during the cold Midwest winters, he built additional monoplanes with the continuing goal of improving the structure, performance, and flying qualities of his airplanes.

Cessna’s interest in aviation went beyond the aesthetics of flight. He recognized that flight

demonstrations could be a lucrative enterprise. In 1915, in Wichita, he conducted an aerial extravaganza that drew huge crowds. He moved his manufacturing operations to the Jones Motor Car plant in Wichita in 1916 and built four monoplanes that he intended to use for flight training and exhibitions. In gratitude for the use of the factory, Cessna painted “Jones Six” on the wings of his first plane—most likely the first aircraft to display an advertisement for an automobile. His next plane, called the Comet, had a partially enclosed cockpit and was used for over thirty exhibitions attended by thousands of thrill seekers at state fairs and other public events throughout the Midwest and southeastern states.



Clyde Cessna Stands By “The Comet” (Delta Mike Airfield, Inc. and SDAM)

The entry of the United States in World War I in April 1917 put an end to the successful Cessna Exhibition Company business, and he returned to his Rago, Kansas, farm to produce wheat for the war effort.

While no longer in the aircraft building and exhibition business, Cessna maintained an interest in flying and was reported to have purchased a Laird Swallow in 1924, the only biplane he ever owned.

E. M. “Matty” Laird had partnered with the founders of the Wichita Airplane Company in 1920 to build the Swallow biplane by the new company that bore his name. Due to difficulties with partner and financier J. M. “Jake” Mollendick, Laird left the company and sold all his rights to the company to Mollendick. Under Mollendick the company was renamed the Swallow Airplane Company and continued to produce the Swallow. It is interesting to note that another employee of the Swallow Company, George “Buck” Weaver, who is credited with the original design of the Swallow airplane, resigned soon after Laird departed because of his differences with Mollendick. Weaver then founded the Weaver Airplane Company, soon enough to be known as WACO.



New Swallow (Arthur Martin, aerofiles.com)



Jacob “Jake” Mollendick (1879-1940) (Kansas State Historical Society, <https://i1.wp.com/home.iwichita.com/rh1/hold/av/avhist/wichita/molndick.gif>)

Two young employees of the Swallow company, Walter Beech and Lloyd Stearman, proposed significant structural design changes to improve the aircraft but Mollendick, enraged by their proposal, invited them to take their proposal, and employment elsewhere. By the end of 1924 Beech and Stearman left cantankerous Mollendick and started a new aircraft company. Needing financing and an experienced business leader, they contacted Clyde Cessna. Cessna accepted the position of president of the newly founded Travel Air Manufacturing Company. Walter Beech served as vice president and Lloyd Stearman as chief engineer. In 1925, Travel Air set up shop in a factory in downtown Wichita. Cessna provided the woodworking tools, Stearman was the principal designer, and Beech managed the assembly line.

The first products of the new company were biplanes. The Model 2000 and its improved and higher-powered successors, the Travel Air 3000 and 4000 sold well and enabled the company to move to larger facilities.



Travel Air 1000, Travel Air's first aircraft (aerofiles.com)



Travel Air 2000, with "elephant ear" ailerons and a Curtiss OX-5 water cooled, 90 HP engine. (aerofiles.com)

However, Cessna was a strong advocate of the monoplane and, unable to convince his partners that there would be a large market for that type, he rented a shop in 1926 and built a monoplane himself. That aircraft not only convinced his associates of its appeal, but caught the attention of the National Air Transport company, one of the nations first airlines, which was seeking a plane to carry mail and passengers. A fleet of the high-wing, enclosed-cabin, strut-braced, four-place monoplanes, designated the Travel Air 5000, was ordered by the National Air Transport company, further establishing Travel Air as a major aircraft manufacturer. Orders from other airlines soon followed.



5 passenger Travel Air 5000, used by National Air Transport for passenger and mail service. (Image is in the Public Domain in accordance with https://commons.wikimedia.org/wiki/Category:Travel_Air_5000)

Travel Air monoplanes, providing significant speed and range advantages over many aircraft of the time, set several historic records and won the challenging California to Hawaii Dole Air Derby in August 1927.

Cessna believed that the performance of the monoplane could be further improved by eliminating the wing struts. To his dismay, his proposal was dismissed as folly by his Travel Air associates. Upset with their lack of foresight, Cessna sold his stock, resigned from Travel Air under amicable terms and formed the Cessna Aircraft Company in January 1927.

The product of Clyde's fully cantilevered monoplane was the Cessna Model A. To verify the wing's strength, he proof-loaded it to twice the aircraft's weight (i.e. 2g) and to impress safety-minded potential buyers, he photographed the aircraft with 17 men standing on the wing. The marketing plan worked and production started in 1928. Five different engines were available to the buyers. One variant soon earned nationwide publicity by winning the 1928 Transcontinental Air Derby and the 50-mile closed circuit event at the National Air Races. By the end of 1928 business was booming.



Cessna Model A wing strength demonstration (Cessna Aircraft Company)

During that time, Cessna, now joined by his engineer son Eldon, developed improved versions of his monoplane as well as other aircraft specifically designed for air racing, a popular spectator sport that offered significant prize money to the winners.

Then, on October 29, 1929, the stock market crashed. Aircraft sales plummeted and, facing bankruptcy, the board of directors of the Cessna Aircraft Company ceased operations in 1931. After failing to keep the company afloat building general aviation and transport aircraft, Cessna and his son formed another company to build specialty aircraft—primarily racers. The C.V. Cessna Aircraft Company's first production design, a mid-wing monoplane designated the CR-2, captured fourth place in the 1930 National Air Race

event. A second Cessna racer built for the Nationals took two second place and one third place in men's races and won a second place finish in the women's event.



Cessna CR-2 Racer (Dan Shumaker, aerofiles.com)

CR-2s continued to place first or second in the 1932 and 1933 air races but then tragedy struck. Cessna's close friend, Roy Ligget, was killed in the crash of a CR-2 built by Clyde and Eldon. While in a high speed flight the engine cowling failed and struck the wing hard enough to tear it off, flinging the plane to the ground in front of Clyde. Clyde Cessna, deeply affected by the loss of his friend, withdrew from aviation and returned to his farm.

The Cessna Airplane Company, shuttered in 1931, remained dormant until 1934 when two of Clyde Cessna's nephews garnered Cessna Aircraft's main stockholders support to regain control of the defunct organization. One of the nephews was Dwane Wallace, a young aeronautical engineer who was the first person to receive an aeronautical engineering degree from the Municipal University of Wichita. His brother, Dwight Wallace, was an attorney, who handled the business arrangements. Clyde was reinstated as president but it was Dwane who guided the company back to solvency.

Under Dwane Wallace's leadership and engineering expertise, the company developed the C-34 Airmaster. Regarded by some as a masterpiece of design, the C-34 sales were sufficient, in spite of the difficult economic times, to soon allow the company to be profitable again. The highly efficient C-34 and its successive variants became the economic backbone of the reconstituted company. Dwane Wallace's gamble had paid off.



Cessna C-34 (Ron Dupas)

With adequate resources to invest in new products, Wallace set his sights on a wood-and-metal twin-engine aircraft that was designated as the T-50 Bobcat. Not only did Wallace participate in the design, he served as its test pilot, thus becoming the Cessna company's first multi-engine pilot.



Cessna T-50 Bobcat (W.T. Larkins)

By the end of the 1930s the approaching war in Europe and Asia fed the American aircraft industry with orders for various types of airplanes. The Cessna T-50 would become a light transport or a multi-engine trainer for American, Canadian and British military services, in addition to other foreign users.

Clyde Cessna, however, did not play a significant role in the resurrection of the company that he founded. He had resigned from Cessna Aircraft in 1936 and returned to his farm. From that time on, his involvement was only "ceremonial."



Dwane Wallace and Clyde Cessna, circa 1950 (Cessna Aircraft Company)

Clyde Cessna died in November 1954-nearly two decades after he walked away from the aircraft industry.

With only a rudimentary formal education he made significant contributions to the developing American aviation industry in the early part of the twentieth century.

Cessna was inducted into the National Aviation Hall of Fame in 1978 and the International Aerospace Hall of Fame in 1983.

Clyde Cessna never bothered to obtain a pilot license.

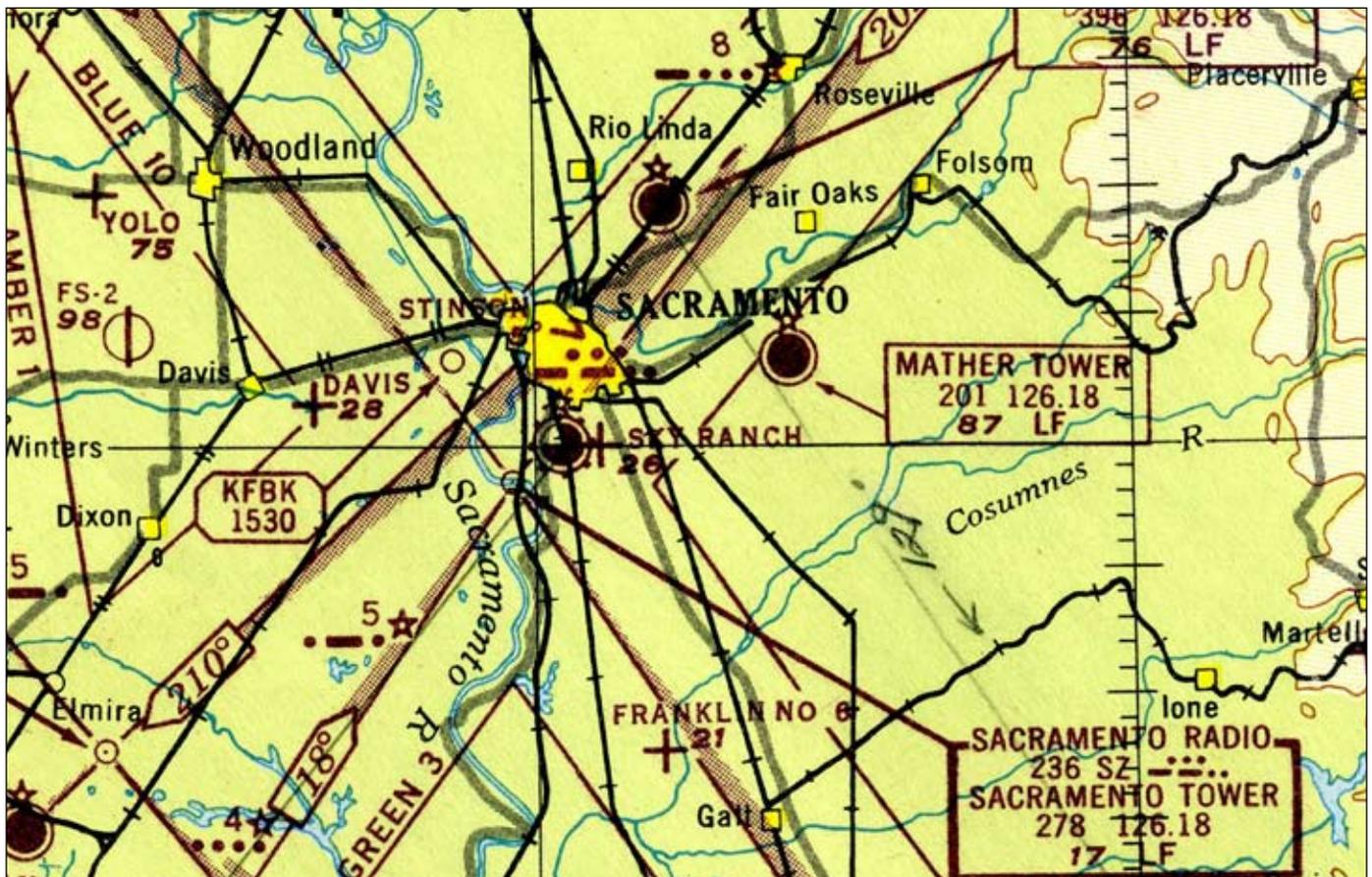
From Airway Beacons to Radio Navigation: 1920 and 1930s

by Scott Thompson

In the 1920s, the development of a transcontinental airway that used beacon lights provided the first means of dependable night time navigation and served to establish air mail routes. But the limitations of relying on lighted beacons was clearly evident: navigating during periods of low ceilings and visibility was not practical. Efforts to develop reliable navigation, approach, and landing aids was a top priority for the new airlines, the infant military air services, and the new Bureau of Air Commerce, which was established in 1926 to regulate and advocate for civil air transportation.

Efforts to allow low visibility approaches and landings paralleled the development of radio aids for en route flying; the technical challenges were similar but en route navigation proceeded at a faster pace. The standard for airway navigation became the four course range, whereby a radio range of specialized antennas created radiation patterns that provided for four courses. The radio range consisted of specialized loop antennas that created four quadrants where a Morse code "A" (dit-dash) or "N" (dash-dit) signal predominated. Where the signals merged and became equal, a steady tone would be heard for a pilot using earphones. This method was used to create the four courses, which were basically ninety degrees apart. However, by adjusting the power output of the transmitters, the orientation of the four courses could be somewhat adjusted to optimize the airways created. It was a complicated system to install, maintain, and to fly. Pilots 'flew the beam' by flying a course that maintained the steady tone in the earphones they listened too, but orientation from the station could be confusing and distance information was not available. The transmitters were tuned in the low/medium frequency range, so weather and atmospheric conditions caused interference. It was rudimentary and imprecise, but it was a big improvement on the airway beacons and soon four course ranges were being installed by the Bureau of Air Commerce and its successor, the Civil Aeronautics Authority. The ranges also transmitted weather information and provided radio links to new airway stations.

See the November 2016 EAA Sport Aviation magazine column "Contrails" by Jeff Skiles for more on four course ranges



This view is from a June 1945 Army chart and shows the Sacramento Radio four course range transmitting on a frequency of 236 kilocycles. It created four courses that defined navigable airways named with colors and numbers, (for example, 'Green 3' seen here). This radio range was installed in what is now the Pocket area. It appears the Sacramento airport tower used the same transmitting site. These four course ranges were enhanced with radio beacons and marker beacons to make them more useful, but it was not until the advent of the VHF Omni Range and DME before airway navigation became practical and predictable.