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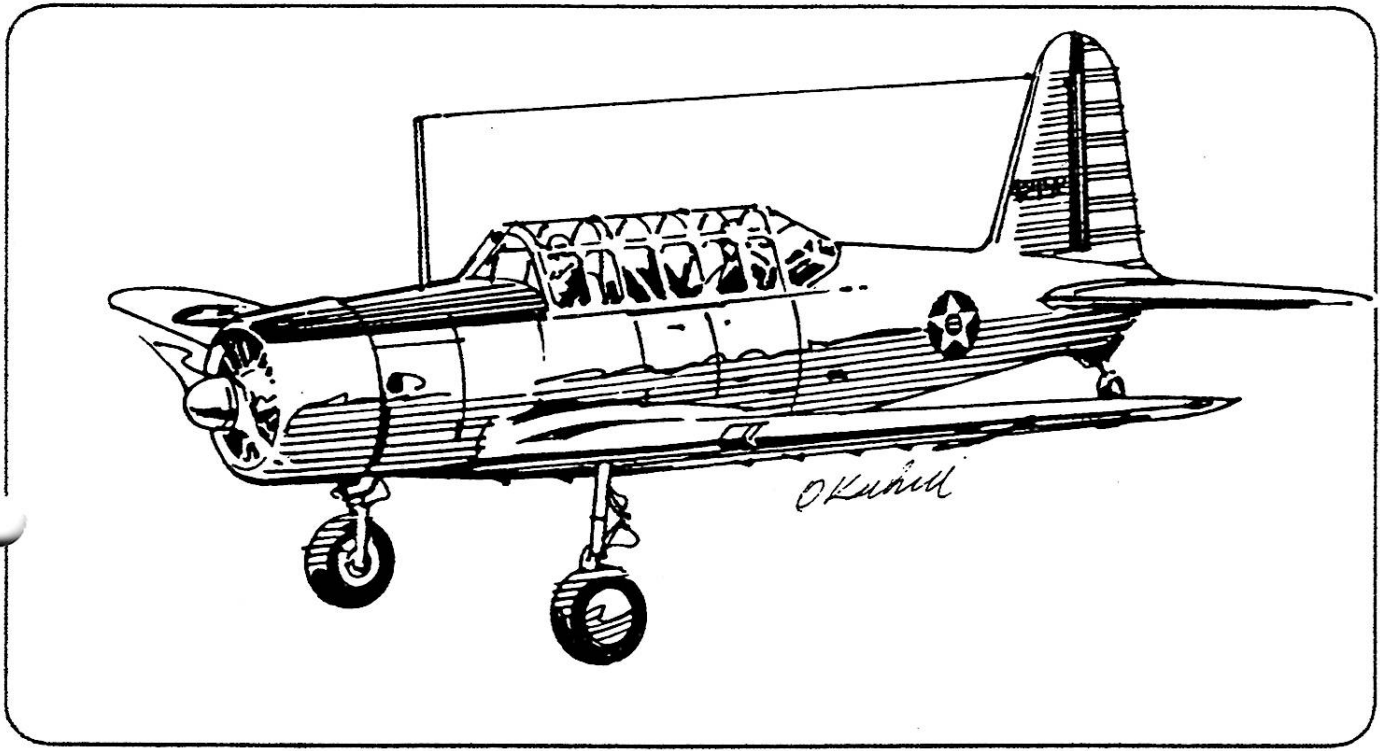


Journal of the D. C. Maxcutters

... home of the dreaded POTOMAC PURSUIT SQUADRON of the Flying Aces Club

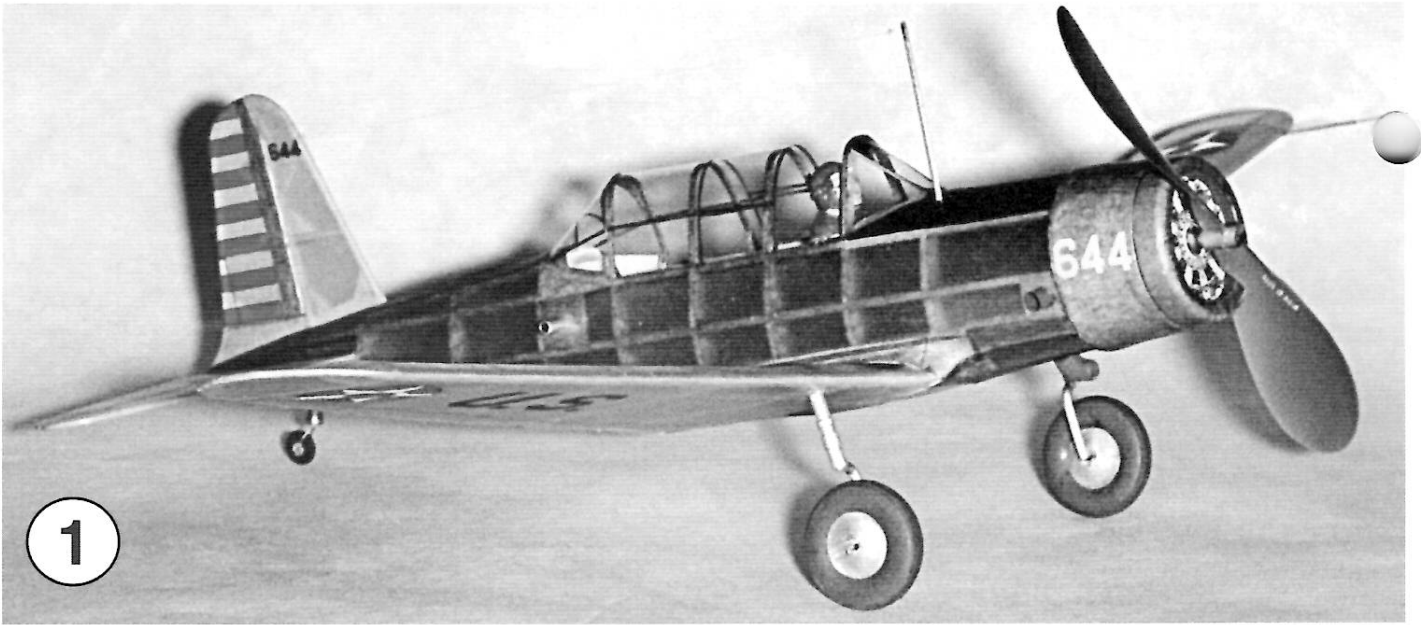
Editor: Allan Schanzle

September/October 2002



COMING ATTRACTIONS

- | | |
|--------------------|---|
| Sept. 7, 8, 2002 | Flying Aces Outdoor Championships at AMA field, Muncie IN. |
| Sept. 13, 14, 2002 | KUDZU contest at Goldsboro and Raeford NC. See rear cover of previous issue. |
| Sept. 21, 2002 | Brainbusters contest with FAC events. See rear cover of this issue. |
| Sept. 21, 22, 2002 | Fifth Annual Empire State Indoor Championships at the Ralph C. Wilson Jr. Fieldhouse, indoor practice facility of the Buffalo Bills football team, located near Orchard Park, NY. Contact Hugh Jones at (585) 663-1489, or e-mail at hughster@rochester.rr.com |
| Nov. 10, 2002 | Flying at the National Building Museum, 10:00 am to 4:30pm. |
| Jan. 19, 2003 | Flying at the National Building Museum, 10:00 am to 4:30pm. |
| March 23, 2003 | Flying at the National Building Museum, 10:00 am to 4:30pm. |



1



2

Photo by Norm Davison



Photo by Lindsey Smith

3



Photo by Mark Fineman

4



5

2



Photo by Don Sruhl

6

AN ISSUE FOR THE HISTORIAN

Allan Schanzle

Back in my school days (somewhere around the time Chaucer was writing his X-rated Canterbury tales) I hated the courses in history. But over the past decade or so, my mind has done a complete reversal. The subject has now become not only tolerable, but of significant interest, especially concerning aviation. I've often wondered how and when some of the old aircraft companies came into existence, and why their names vanished from the pages of aviation news.

About two years ago I purchased a book entitled *"WINGS OF YESTERYEAR, The Golden Age of Private Aircraft"*, by Geza Szurovy. It was advertised as having lots of color and black/white photos of aircraft from the golden age as well as a history of the evolution of American civil aviation. That's all it took for me to plunk down the thirty dollars.

After only a page or so, I was hooked. It became a nightly bedtime obsession to dig through a few more pages, even though my eyes were half closed. Somewhere around page 40, I thought I needed to document some of this information for future reference. Szurovy's book was written in chronological order, skipping from one company or individual, to the next. But I wanted a short summary of the various companies covered in his book. So I returned to page 1 and started to collect the information in his tome on a company-by-company basis. The results of this endeavor follows the general outline of the book and will appear as a three-part series beginning with this issue and continuing in the next two issues.

Part 1: 1909 Through the Early Stages of the Depression

Part 2: The Evolution of the Large Cabin Class Aircraft

Part 3: Sport Aircraft from 1930 to World War II

Let me make it clear that the information I present here is not original in any sense of the word. I've simply taken the book and rewritten sections into the format that I wanted. Let's call it a "long book review".

Szurovy's book is certainly not all-inclusive. Many companies we've heard about are mentioned only in passing, such as Great Lakes and Bellanca. Additional reading could have extended this series, but after several months of effort, it was time to get back to modeling. For those of you not interested in aviation history, I apologize, but quite a few peo-

ple I've talked to expressed an interest in seeing the complete story. Parts 2 and 3 are shorter, for what that's worth.

For those of you interested in this aspect of aviation, I hope you find it interesting and educational. Under any conditions, comments are always welcome:

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OTHER STUFF IN THIS ISSUE

The model for this month is a 16-inch span Vultee BT-13/15 Valiant. *IT'S NOT ANOTHER GUILLOW!! IT'S ORIGINAL!!* And to my surprise, it flies quite well, despite the relatively small wing area. The fuselage construction is based on a technique used back in the 1930's, and seems strange. But it works. Check the write-up and you'll find a detailed step-by-step procedure. It's an alternative to the half-shell concept.

Some of you may remember Rolf Gregory's series "CAVU". While helping Rolf's wife clean out the basement after his death, I found a page that shows just how knowledgeable Rolf was with matters involving aviation. Check page 21. There is also a summary of results of FAC events at a local CAAMA contest compliments of Walt Farrell

PHOTOS ON THE PRECEDING PAGE

Tom Schmitt

1. The featured plan of this issue is a BT-13/15 by Allan Schanzle. Too bad this is not a color photo. It is resplendent in its Army Air Corps blue and yellow.
2. We want to welcome back our friend David Franks, who is recovering after his recent coronary surgery.
3. Lindsey Smith sent this photo of his Cato Butterfly with CO₂ power.
4. An Extra 400 profile by Mark Fineman - great photo of it heading for the heavens.
5. Hurst Bowers seen here enjoying his "Waldo Pepper" Standard after a great flight over the wilds of Virginia.
6. Don worked his magic and put a youthful Bill Winter in the pilot's seat of a FLYLINE Aristocrat, one of Bill's favorite aircraft.

THE VULTEE BT-13/15 VALIANT

Allan Schanzle

Pilots called it many things, the most printable was probably the "Vibrator".

If you were a pilot in the second World War, you may have started your flying career in a primary trainer (PT) such as the Fairchild PT-19 or Stearman's PT-17. You then graduated to a basic trainer (BT) and most likely spent time tooling around in Vultee's BT-13, (the aircraft presented here) or the Navy equivalent, the SNV. The BT-15 was essentially the same aircraft but with a different engine. If you made it through basic training, you were promoted to flight school for an advanced trainer (AT) with retractable wheels, such as North American's AT-6 Texan or the Navy version, the SNJ.

The initial contract for the BT-13 was awarded in September 1939, and after a total of 11,537 aircraft, production was ceased in the summer of 1944. It was essentially an introduction to constant speed props, manifold pressure, lots of horsepower, and enough noise to rattle the gray matter. It was designed to take the kind of beating you might expect from a student pilot, but I have published material that says some were built with wood tail cones and empennages. Pilots of these latter planes were known to look into the rear-view mirror during a snap roll to see the entire tail section lagging behind the rest of the airplane by several degrees!! Another characteristic that discouraged snaps was that the wing tanks needed only the slightest excuse to start leaking.

To the best of my knowledge, this is only the second plan published for a rubber powered version of the BT-13, the first being by Sydney Struhl in the June 1943 issue of "**MODEL AIRPLANE NEWS**". This isn't the ideal rubber scale endurance model due to the limited wing area (resulting from the narrow chord) and somewhat narrow fuselage (which restricts the amount of rubber), but it does have a good nose moment and resembles Comet's old 20-inch span kit of the Vultee V-11

"Attack", which has been a great flyer for many of the local club members. My model has been giving flights of 35 to 40 seconds in calm air.

BACKGROUND AND GETTING STARTED

The outlines and fuselage contours of the model were taken from the very detailed 3-view by Ron Green in the February 1980 issue of "**MODEL BUILDER**" magazine. A few deviations were made to the outlines to simplify the construction and improve the flight characteristics. For example, the variations in the height of contiguous portions of the greenhouse cockpit (to accommodate the sliding glass sections) and some of the details of the landing gear were eliminated. Flight stability was enhanced by increasing the area of the stabilizer, changing the airfoil, and increasing the dihedral. The vast majority of the construction uses 1/16 balsa, and no doubt a lighter version could be made by substituting thinner wood and incorporating laminated outlines.

The fuselage was built using a method that is probably unknown to most current rubber scale builders, although it was used by some of the designers back in the 1930's. (Sometimes it's fun to step back in time and replicate what our founding fathers, or more precisely, the young men of that time, did in the way of creating construction techniques). Consequently, a step-by-step procedure will be given for this portion of the model. I was never aware of this method until several years ago when I built a model of the Northrop XBT-1 published by Herb Weiss in the October 1938 issue of "**FLYING ACES**" magazine. After reading the instructions given by Herb, I felt that if I tried his technique, I would produce a very complex looking propeller, rather than a fuselage. But I decided to give it a try, and to my amazement, it worked like a Rolex watch.

The secret is to be sure to get perfect alignment for the initial portion of the structure. After that, it pretty much falls into place. The only disadvantage to the technique is that the two wing panels must be glued on separately, but with the proper initial alignment, this should not be a problem. I suggest you read the whole section on building the fuselage before you start the construction. If you find the method too confusing or feel it is not to your liking, the traditional half-shell technique can be incorporated with relatively minor modifications for mounting the wing.

Begin by making three copies of the plan. Two of these will be used to make "print-wood" (two sets of fuselage formers and wing ribs), and the third can be used as a building plan. I make print-wood with the use of a standard clothes iron set on "wool" and allowed to fully warm up. Then turn the copy of a part upside down on a piece of balsa and "iron" for a few seconds to the backside of the copy. Let cool and peel off the paper.

FUSELAGE CONSTRUCTION

Begin the fuselage by cutting the following components: the three wing center section cross braces (W9, W10, and W11), two W1 wing ribs (use the outline from the side view, as this shows dashed lines for the proper location of W9 through W11), and the wing center section leading and trailing edge pieces. Note that there are two ribs on each side of the center section. The outer ribs will be used when building the wing outer panels. When cutting the W1 ribs, include the entire airfoil. That is, don't cut off the leading or trailing edge portions, as the two cross braces in these areas should be glued to the inside of the ribs. This will also offer a visual guide for proper future sanding of the leading edge. Place your copy of the plan to be used for construction on an absolutely flat building surface and construct the center section by first pinning W9 through W11 in place (the ends are angled to give the proper dihedral) and then place the two W1 ribs on the ends of these braces. Check that W9, 10 and 11 line up with the guide lines on the ribs before gluing, and be sure that both

wing ribs are perfectly flat on your building board. Glue these parts together, and then add the leading and trailing edge cross braces. While the wing center section is drying, cut two halves for each fuselage former F5 through F13 from 1/16 sheet balsa and glue corresponding halves together (yes, together. This is not a half-shell technique). F11 is intentionally a bit on the "beefy" side because this is the part of the fuselage where your fingers will be pressing during hand launches. Be sure to include the upper cross section (shown by dashed lines) for F7 through F10. Note the dashed line 1/32 inch inside of the edge for the 1/16 inch square stringer at the top of these formers. The dashed line will serve as a guide for cutting, at a later time, an additional notch to support the canopy framework. Be careful to make the stringer notches in the formers along the thrust line and at the base of the cockpit exactly as shown, as the alignment of these stringers will dictate the preciseness of the entire fuselage. Approximate locations for the remaining stringers are noted on each former by short lines perpendicular to the outside contour. Notches for these stringers can be cut at the time of inclusion of the stringers, or the outside contour of the formers can be made smaller by 1/16 inch and the stringers glued on top of the former.

When the wing center section is dry, remove it from the building board and get ready to produce the remainder of the fuselage "in the air". Start by gluing F7, F8, and F9 into the wing center section. Before the glue dries, lay the structure on the side view to check the former alignment. Also sight down from the front of the fuselage to make sure that the notches along the thrust line and those at the base of the cockpit for F7 and F8 are in alignment. The corresponding notches for F9 should be at the same height above the thrust line, but slightly inside those for F7 and F8. If you find parts don't line up, and you use Ambroid or a similar glue, brush on some acetone to dissolve the glue joint and relocate as necessary. If you use a white glue, try Elmers for this portion of the work because it can be dissolved with water even after it has dried. Once you've got these three fuselage formers in

proper alignment, you have the basis for the entire fuselage.

Begin the remaining fuselage structure by selecting two identical 1/16 square balsa strips about 11 inches long. Set the structure on the side view and glue one of the stringers into the thrust line notches of F7 and F8, (*not* F9) making sure the front of the stringer ends about 1/2 inch in front of the location of the F5 former shown on the plan. The rear of the stringer should also go about 1/2 inch beyond the rear of the fuselage. Now do the same for the thrust line stringer on the other side. When these are dry, simultaneously glue the two stringers into the notches of F9 by gently squeezing the two stringers together. Next place the structure on the side view, cut the two stringers to give them the proper length to reach the rear of the fuselage, and cut a taper on the inside surface of the two stringers so that they come to a point. Glue these stringers together at the rear, and view the structure from behind to ensure symmetry. Place the fuselage on the side view and use a pencil to lightly mark on the stringers the location of the formers F10 through F13 and glue these in place to the existing stringer. Check to make sure the notches at the top and bottom of the formers fall in line. Cut two stabilizer supports F14 and glue to the top of the thrust line stringer. Also *tack* glue two pieces of 1/16 square *across* the tops of the two F14s, one at the front and one at the rear. These serve as guides to locate the top stabilizer supports, F15, which can now be glued in place. The temporary cross braces can be removed when the fuselage structure is completed. Set the structure on the side view and mark the location of the F5 and F6 formers on the thrust line stringers and glue them in place, checking for alignment as the glue dries. Glue the stringers into the notches at the top and bottom of the formers, and then the stringer at the base of the cockpit. Add the remaining stringers.

Now make the front of the fuselage from formers F1 through F4. Begin by gluing F1 to F2. It's important to have a tight fitting nose plug to fit into F3, so first cut and sand the plug. Then place the four pieces of the F3 former tightly around the plug and glue to each

other, but *not* to the nose plug. Place a small amount of glue on the center of the nose plug while it is inserted in F3 and glue the F1/F2 unit to the plug (but *not* to F3). Allow to dry completely and then *push* the F1/F2/nose plug unit out of F3 from the rear and apply some instant glue to the edges of the plug on the rear of F2 to make it secure. Cut four stringers long enough to connect F3 to F4 and place them in the top, bottom, and side notches of these two formers. Check for alignment, and when dry, add the remaining four stringers. You might want to use a black felt-tip marker or paint to darken the rear surface of F4 near the outside edge, as this will help to produce the appearance of "emptiness" inside the cowl after the fuselage is covered. Glue the F1-F4 front unit to the F5 former and cover with the bond paper engine cowl (see plan) from F2 to F4, letting the rear portion of the bond paper extend about 1/32 inch beyond the back of F4. The pattern on the plan may not fit your model exactly due to the very slight non-circularity of F4, so you may require a slight modification. Add the bond paper coverings at the front and rear of the cockpit and you've got the basic fuselage structure completed.

I used Red Devil™ Onetime spackling to form the leading edge filets. There are many ways to apply this product. Try a very small screwdriver to apply to the desired location and press with your finger to the approximate shape. Let dry and then sand and apply another coat if necessary. I've found that diluting a small portion of the spackling with a drop of water allows the use of a small paint brush to apply and shape the spackling. Just be sure to allow the spackling to dry thoroughly (overnight) before sanding.

The construction of the inverted "U-shaped" supporting structure for the "greenhouse" cockpit is relatively simple. Go to your local model railroad hobby shop and purchase 1/16 inch wide strips of the thinnest (about 1/64 inch thick) strips of bass wood. Place the top cockpit former on a building board and push pins through the inside edge of the former or make a mold that you can laminate around. Cut two 3-inch long strips of the bass wood and soak in hot water. Then laminate

around the pins or mold using white glue. Let dry completely, cut off at the proper length, and add the two small pieces of 1/16x1/32 shown on the plan at the two ends. Make four of these cockpit frameworks around the same pins or mold to ensure uniformity. If you haven't already cut out the 1/32 notch in the portion of the F7 through F10 formers adjacent to the stringer, do so now and glue the canopy structure pieces in place.

WING CONSTRUCTION

It is readily apparent that there is a break in the trailing edge at rib W5, but the 3-view also indicates a very slight break at the leading edge at this rib. That is the reason a full rib is indicated at this point, which again helps with the ultimate shaping of the leading edge. The remainder of the wing is standard construction. The two 1/16x1/32 spars along the top of the wing leading edge can be omitted, but I usually include them to help maintain some semblance of the desired airfoil. The spar from the rear of W5 to the root rib near F8 helps to eliminate wrinkles in the covering that inevitably want to appear in that area. The landing gear wire is glued to the outside surface of W4, and a 1/64 inch plywood doubler is included on the opposite side of the rib. Simulated variations in the thickness of the gear structure were obtained by first sliding the insulation from telephone wire over the music wire and then adding additional thickness by covering the telephone wire insulation with heat-shrink tubing or wrapping narrow strips of bond paper around the structure and holding with white glue.

STABILIZER AND RUDDER

These use traditional construction methods, but I prefer to have the rudder and elevators movable to make flight trimming easier. Although not shown on the plan, this can be accomplished by using thin copper wire (telephone wire is good for a model this size) to attach separate stabilizer and elevator structures as well as rudder and fin.

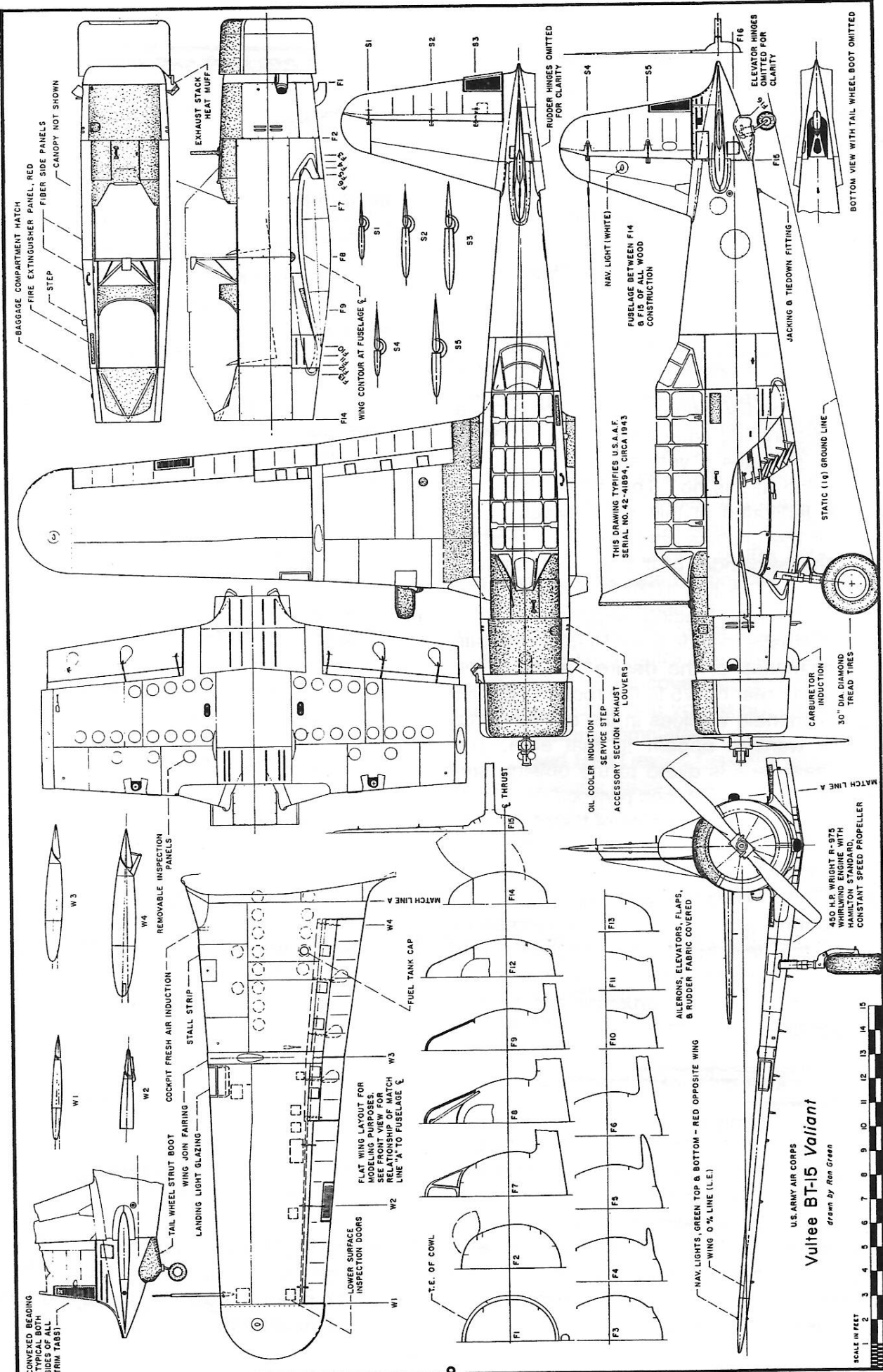
COLORS AND MARKINGS

I have photos of several different color and marking schemes for the BT-13/15. One is from a calendar that shows four BT-15s in flight, three of which incorporate the standard (see below) blue/yellow scheme with black non-glare in front of the cockpit out to the cowling and down to the bottom of the glass cockpit, while the fourth is all natural metal with the same non-glare black. The blue/yellow scheme consists of a blue fuselage (the calendar photo shows dark blue on one plane and medium blue on two) and chrome yellow wings, stabilizer, elevators, and fin. The rudder has a vertical stripe of insignia blue at the hinge line and 13 horizontal and equal width stripes of red and white, with red stripes on the top and bottom. These early versions of the BT-13 had the red/white/blue insignia on the top and bottom of both wings and located as shown on the plan. Another color photograph that appeared in "AIR PROGRESS" magazine (I failed to record the date) is all natural metal with olive drab non glare that extends forward over the cowling. All my photos indicate the natural metal color schemes used the later version of the insignia (a white star on a dark blue circle with white and blue bars extending out from the stars) on the sides of the fuselage and on the top of the left wing and bottom of the right wing.

The color scheme I've chosen is the blue/yellow combination that appeared on the cover of the "AIR POWER MUSEUM (APM) BULLETIN" for the first quarter of 1977. It includes "U. S. ARMY" on the bottom of the wing.

FLYING

I used a 6-inch diameter Peck prop and a braided single loop (total length of 26 inches) of 1/8 wide FAI Tan-2 rubber. Balance as shown on the plan. My model, without rubber, weighed 15 grams complete. A few degrees of down and right thrust in conjunction with a tweak of left rudder produced the typical left-left flight pattern.



THIS DRAWING TYPIFIES U.S.A.A.F.
SERIAL NO. 42-14894, CIRCA 1943

U.S. ARMY AIR CORPS
Vultee BT-15 Valiant
drawn by Ren Green



THE DEVELOPMENT OF AMERICAN PRIVATE AVIATION

Part 1: 1909 THROUGH THE EARLY STAGES OF THE DEPRESSION

Allan Schanzle

Have you ever wondered how WACO got its name, or who founded Travel Air? Who was behind the Spartan Aircraft Company? And why in the world did Wichita, Kansas, out in the middle of nowhere during the beginning of the last century, become the home for so many aircraft companies and acquire the name "Air Capital of the World"?

These and many other questions are answered in a wonderful book entitled *"WINGS OF YESTERYEAR, The Golden Age of Private Aircraft"*, by Geza Szurovy, MBI Publishing Company (1998). This tome is loaded with color photos of restored Golden Age aircraft as well as many black and whites from the olden days. I know there are many books out there that deal with the detailed history of any one of many well-known companies, but to get the overall picture of the evolution of American aviation would require a substantial financial investment, not to mention a large amount of book-shelf storage space and endless hours of reading. Szurovy's book is written, for the most part, in chronological order. I've reordered and abbreviated the contents to give a brief history of some of the corporations whose names we've all heard: Stinson, Laird, Cessna, Luscombe, and Swallow to name a few. It is wonderful reading, and I highly recommend it to anyone interested in American aviation history. Let me make it clear, however, that everything that follows in this article is simply a rewrite of the above mentioned book. I claim no originality for this presentation. Racing and military aircraft are, for the most part, excluded.

Before discussing the specific companies, it may be useful to review how some of the more prominent and/or important individuals got involved with aviation. I've listed them in alphabetical order, but there was considerable intermingling of individuals with various companies over the years, so you will have to flip back and forth to get the complete picture of "who-knew-who" and how these individuals played a role in the formation of the aviation industry.

Beech, Walter

1. Taught himself to fly in 1914 after restoring a crashed Curtiss Pusher.

2. Worked on Jenny's as a mechanic for the Army at Rich Field in Waco, Texas and learned to fly the Jenny.
3. Became a barnstormer.

Bruckner, Clayton

1. Friend of Buck Weaver (see below).
2. Went to work at the Curtiss Aeroplane Co. in Buffalo, New York around 1915.

Cessna, Clyde

1. Fifth grade education, but was forever tinkering with farm machinery.
2. Became a car salesman for the Overland car dealership.
3. Moved to Enid, OK in 1908 to become a partner and general manager of the Cessna Automobile Co., but was intrigued by the exploits of aviation daredevils, especially Bleriot's crossing of the English Channel in 1909.
4. Saw three Bleriot monoplanes fly over Oklahoma City in January 1911, and decided he had to fly his own Bleriot.
5. Purchased a Bleriot monoplane, called the "Silverwing", from the Queen Aeroplane Co. in New York for \$7,500 and had it shipped to Enid, OK.
6. By September 1911, he had taught himself to fly and make shallow turns.
7. On December 17, 1911, (exactly eight years after the Wright's first flight) he made his first completely successful flight of about seven minutes.
8. Started to make exhibition flights to earn money to redesign the Bleriot and replace the original Elbridge engine with an Anzani radial.
9. By the summer of 1914, his flights were routinely measured in terms of hours.

Curtiss, Glenn

1. Was first known for racing bicycles and motorcycles, which got him involved in making his own small air-cooled engines.
2. He worked for Alexander Graham Bell's Aerial Experiment Association where he was in charge of engine development. He left

this association in 1909, convinced that a water-cooled V-8 was the best option for aircraft.

3. Shortly thereafter, he formed the Curtiss Aeroplane Company

Laird, Emil Matthew (Matty)

1. An avid model airplane builder while growing up.
2. In 1913, he built an enlarged "model" he called the Baby Biplane that was big enough to sit in. It was equipped with a 15 horsepower engine, and he taught himself to fly.
3. He designed other aircraft, and by 1915 Laird was performing and earning enough money to support his design activities and build aircraft for use by others, including the "looper", flown by Katherine Stinson (see Edward Stinson below).
4. Realized that he could double his income from taking passengers up for rides if he could take two passengers at a time, so he redesigned the Jenny to be a 3-place aircraft. But capital to build the plane wasn't available, until he was introduced to Jake Moellendick (see below).

Luscombe, Don

1. Got his first flights in a Voisin during WW-I.
2. After the war he returned to become a successful advertising executive.
3. Learned to fly a Jenny and ultimately bought one, as well as a Laird Swallow.
4. Loved to fly, but was more of a weekend social flyer.
5. As such he believed a light-weight side-by-side high wing monoplane would be the best option.

Moellendick, Jake

1. An oil wildcatter based in Wichita, Kansas with considerable success in the oil drilling business.
2. Started the Wichita Airplane Co. in 1919 using two Jennies, which were good to teach someone to fly, but not good enough to support flying in and out of rough territory required by his oil business.
3. Introduced to Matty Laird, who had a design that Jake felt would meet his needs.

Stinson, Edward

1. Became involved with aviation as a result of the flying by his sisters, Katherine and Marjorie.
2. Katherine Stinson won a ride in a balloon and was determined to take flying instruction. Her mother, Emma, encouraged her and in 1912, at the age of 19, she began instruction at Cicero Field in Chicago.
3. Katherine soloed after four hours and 10 minutes of dual time, and three days later became the fourth woman to win the FAI pilots certificate.
4. The following spring, Katherine and her mother formed the Stinson Aviation Co.
5. Two years later, Marjorie also earned her FAI pilot's certificate.
6. Eddie worked as his sister's personal mechanic, became interested in flying, and attended the Wright School of Flying in the fall of 1915. His limited resources prohibited him from completing his FAI certificate, but he became a competent pilot by the time he left to rejoin his sisters.
7. He went to Cicero Field where his roommate was another young aviation enthusiast, a lad named Matty Laird.
8. By 1915, Mrs. Stinson had decided to form the Stinson Flying School in San Antonio, Texas. This was run primarily by her daughter Marjorie, while Katherine continued exhibition flying, including a tour in China and Japan, for which she borrowed a "looper" from Matty Laird. Brother Eddie got his certificate with the first graduating class, and became a Curtiss Jenny flight instructor at Kelly Field during WW-I.
9. In 1922, Eddie formed the Stinson Flying Services, and in 1926, the Stinson Aircraft Corp.

Weaver, George "Buck"

1. Friend of Laird and Stinson at Cicero Field.
2. A gifted pilot, he helped Laird's airplane design and building projects.
3. Became a Curtiss Jenny flight instructor during WW-I, flying out of Rich Field in Waco, Texas.

Yunkin, Sam

1. Friend of Buck Weaver.
2. Went to work with Bruckner at the Curtiss Aeroplane Co. in Buffalo, New York around 1915.

Some of the above names are probably not on the recognizable list, but as you will see below, they played a significant role in our early aviation history.

THE NEED FOR CHANGE

In the years immediately following World War-I, barnstorming was the rage. The Jenny and the Standard (manufactured by a New York Company) were the center of the flying circus that came to town. But these planes had limitations, and new designs were going to be required if aviation was to become a viable business. Although new designs were already in the fertile minds of many flyers, the actual building, testing, and inevitable modifications required substantial money, and the current designers/flyers just didn't have that kind of capital. But a small number of businessmen were beginning to see that the use of flying machines might be just what was needed to increase their profits. To invest in such an endeavor was risky, to say the least. Who were the most likely candidates? The booming business of the era was oil, and wildcatters were accustomed to taking as many risks as anyone. In addition, those that were successful had the necessary capital. The barnstormers placed their lives on the line; the oil wildcatters their financial fortunes. Their need to travel quickly to remote locations could be accomplished if new planes were made available, so it was these men that either offered capital to designers or actually got into the aviation business directly.

THE WICHITA AIRPLANE COMPANY

Jacob Melvin Moellendick was a very successful wildcatter based in Wichita, Kansas. In 1919 he started The Wichita Airplane Co. using two surplus Jennys. His intent was to use them as a taxi service as well as provide flight instruction and rides. But a Jenny was limited to one passenger, and this produced insufficient income to be financially beneficial.

This was also the view of Matty Laird, who was based in the Chicago area. As a barnstormer, he could double his income per flight if he could add another passenger, so Laird began to develop a design for this purpose. It was essentially a modified Jenny with room for two passengers, side-by-side, in front of the pilot. All he needed now was funding. Through a series of "I have a friend who has a friend who", Laird was put in touch with Jake Moellendick, who not only had the capital, but a need for just such a flying machine.

In 1920, Laird moved to the Wichita area and the two formed.....

THE E. M. LAIRD AIRPLANE COMPANY

When Laird test flew his new 3-place design for the first time, someone yelled out "There she goes, boys, just like a swallow." After that, the plane was called the Laird Swallow. Four orders followed for the Swallow, so Laird hired an assistant, an architect in Wichita named Lloyd Stearman.

In early 1921, Buck Weaver was working for WACO (see below) in Ohio, but he had concluded that there was little hope for WACO, and he needed to support his family. Weaver contacted his old friend Laird, whom he had met at Cicero Field in Chicago, and took a position with Laird as a demonstration pilot in April, 1921.

The relationship between Laird and Moellendick began to falter because Moellendick, who supplied the money, felt he could make some decisions without consulting Laird. One of these was the decision to hire another demonstration pilot named Walter Beech, who turned out to be a good race pilot and finished respectably at local meets. The clash between Moellendick and Laird got worse with the result that Weaver decided to head back to Ohio, where rumors had begun about a new WACO-4 aircraft. Later, Laird resigned. Moellendick promoted Beech to General Manager and Head of Sales in January 1924 and Stearman became Chief Engineer. Moellendick then changed the name of the company to The Swallow Airplane Manufacturing Co. and took control of the new organization.

But Laird continued to produce aircraft and went after the expensive, customized 3-place open cockpit biplane for well-to-do clientele. He produced the Laird "Commercial", which took first and second place in the 1927 Spokane-to-Washington Air Races. He sold several of these to be used for airmail service. His "Speedwings" were completely customized to the purchaser's specifications.

SWALLOW AIRPLANE MANUFACTURING COMPANY

After Moellendick took control of the new Swallow Airplane Manufacturing Co., sales of the Swallow were less than wonderful, and a decision was made to proceed with an upgraded version called the New Swallow. A chap named Clyde Cessna, of Rago, Kansas, purchased one of these new aircraft to support his agriculture business.

Stearman and Beech decided that the New Swallow needed additional updating, so on their own time, they incorporated the concept of a steel tube fuselage. When Moellendick found out about this new material, he was furious and told his two top executives to leave if they didn't like the tried-and-true way of wood and fabric. Beech and Stearman walked out the door.

CURTISS AEROPLANE COMPANY

As noted above, Curtiss was involved with engines. He created his own V-8 in 1912, and called it the model "O", which after some modifications became the OX. Continued improvements ultimately led to the designation OX-5 in 1917, just about the time the U.S. entered the war and the Army needed a trainer.

On an earlier trip to England, Curtiss met an English aeronautical engineer named B. Douglas Thompson, who was working with Sopwith and had earlier worked for Vickers. Curtiss talked Thompson into designing a new aircraft, which was originally called the model "J". The design was completed during the winter of 1913/14, but was far from perfect. Modifications were made over the next few years and the aircraft was given a new designation, the model "N", and the new plane was called the "JN", which quickly became "Jenny". When the U.S. got into the war in 1917, Curtiss got his big break and the Army ordered 600 JN-4A's for trainers. A total of about 8,000 Jennys were built here and in Canada, where they were called the Canuck. Two other workers for Curtiss who were to play a significant role in the evolution of American aviation were Clayton Bruckner and Sam Yunkin.

After the war ended in 1919, there was an abundance of excess Jennys, and these served as a basis for the barnstormers and anyone else who wanted a proven flying machine.

In the late 1920s, the small cabin class aircraft was becoming popular, and Curtiss' entry was the very successful "Robin".

WACO

(Weaver Aircraft Company)

Clayton Bruckner and Sam Yunkin were working at Curtiss and headed for Lorain, Ohio to celebrate a reunion with their friend Buck Weaver, who had formed the Ohio Aviation School. They decided to stay, and joined Weaver as mechanics and wing walkers (!!!) for Weaver's barnstorming activities. Their prime interest, however, was to get into the airplane designing business. They

created a small parasol-winged plane called "Cootie". Once the design was finalized, the three decided to incorporate as the Weaver Airplane Company, or WACO for short. Weaver was the pilot for the initial flight of the Cootie in 1920, and unfortunately, heavy fog developed and the plane was crashed on landing.

Cootie-2 was a biplane version of its predecessor, but Weaver was in a personal bind and had a family to support. He opted to accept a position with Matty Laird as a demonstration pilot in April 1921. Cootie-2 never flew, but Bruckner and Yunkin set about designing a 3-place aircraft to compete with the Laird Swallow. This ultimately became known as the WACO-4, and first flew in 1921. It incorporated the (then) new USA 27 airfoil, but a continued lack of financial backing hampered further development.

The WACO-5 was a Jenny with new wings. During its construction, the company moved to Medina, Ohio. Unfortunately, the "5" produced only modest income, and the Weaver Aircraft Co. was essentially bankrupted. In 1923, it was dissolved and all assets were transferred to the Advanced Aircraft Co., owned by Bruckner and Yunkin. Still short of funds, and with no new capital available, they were about to give up when into their life walked Alden Sampson, a wealthy individual with a love for fast cars and airplanes, not to mention a sizable trust fund. Sampson's family agreed to give financial support in exchange for teaching Alden the aircraft manufacturing business.

The Advanced Aircraft Co. moved to Troy, Ohio to be close to the activities at McCook Field near Dayton. They began their next design, which they continued to call WACO as a tribute to Weaver. This was the WACO-6, and was competitive with the Swallow. Four were sold by the end of 1923.

In 1924, the WACO-7 appeared. This was essentially a WACO-6 with an improved airfoil. Twelve WACO-7's were sold in 1924, but by this time, Lloyd Stearman had produced a superior New Swallow. Added to this undesirable competition, Buck Weaver died of blood poisoning. But Bruckner and Yunkin persevered, and in 1925 they brought out the WACO-9, which became their first real winner. It incorporated aerodynamically balanced "elephant ear" ailerons and rudder and a partially cowled OX-5.

By 1926, Bruckner and Yunkin were making about 15 WACO-9's a month and were thinking of a successor aircraft when Yunkin died from an illness. It had been only slightly more than a year since Weaver had died, and now Bruckner was left

alone to maintain leadership of WACO. But soon, Charlie Meyers, a barnstorming friend of Weaver, joined the company as test pilot and head of design and development.

The WACO-10 followed in 1927. This aircraft had a fully cowled OX-5 and most notably, elimination of the elephant ear ailerons. Demand for the new "10" increased substantially when it won 1st place in its class in the 1927 National Air Race from New York to Spokane Washington. By the end of 1927, 360 WACO-10's had been sold, making it the best selling airplane in America.

New models of the WACO-10 were made available with the introduction of the Wright Whirlwind engine. It was at this time that the company introduced its mysterious alphabet model designations, which is decoded in detail in the paperback book *"WACO Aircraft Production, 1923-1942"*, by Raymond Brandley (see page 10 of this issue).

The WACO Taperwing was a product of Charlie Meyers, and made its first appearance in 1928. Meyers realized WACO could use a sportier image, and convinced Bruckner to let him try a new model that used the taperwing planform and the new NACA M-6 airfoil, but it was interchangeable with the traditional straight wing design. With the J-5 Whirlwind, the Taperwing was fast enough to win the National Air Race from New York to Los Angeles. It beat Matty Laird's "Solution" piloted by Charles "Speed" Hollman. The Taperwing, with upper and lower ailerons, made it an amazingly aerobatic craft.

(Continued in Parts 2 and 3)

TRAVEL AIR INCORPORATED

When Beech and Stearman left Swallow Aircraft (previously the Laird Airplane Co.), they convinced a local businessman, Harold Innes, to put up the venture capital for a new company. They also persuaded Clyde Cessna to join them as a partner. Thus evolved Travel Air. Cessna became the president of the company as a result of contributing a substantial sum of money.

The first Travel Air, designed by Stearman in 1924-25, was called the Model "A" (later designated the "2000"), and was powered by the OX-5 engine. It used the same elephant ear ailerons incorporated by Anthony Fokker in his WW I D-VII.

The color "Travel Air Blue" evolved out of a somewhat strange set of circumstances. The fuselage of the prototype Model "A" was being painted on Sunday. Blue was the chosen color, but the painters discovered that while they had several cans of "blue", they didn't have enough in any one can for the whole job. The stores were

closed (it was Sunday) so they mixed all the cans of blue into one big container, and Travel Air Blue was born.

The first Travel Air flew in March, 1925 and it became relatively popular despite its \$3,500 price tag. By mid-1925, there were 15 firm orders. The popularity produced a need for an "Office Manager", and Clyde Cessna hired Olive Ann Mellor for the position. Five years later, they were married. In later years, Olive ran Beechcraft Corp. for over three decades.

A 150 hp Hisso-powered version of the 2000 became the 3000, while the 4000, which sold in 1926, used a Wright J-4. The use of other radials, such as the Wright J-5, were designated as Model 4000 variants.

Beech appreciated the value of racing victories for future sales, so Stearman designed and built the "Special" in three months and entered it in the Oklahoma Air Races. It used a 160 hp Curtiss inline C6A engine and had many innovative concepts, such as retractable cooling radiators to reduce drag. It was flashy with its gold wing and black fuselage. The "Special" was significantly faster than the Swallows and WACO-9's.

In 1926, Travel Air production approached the company's capacity, and Clyde Cessna's interest in monoplanes was revived. He used his own time to design a semi-cantilevered monoplane powered by a 10-cylinder 110 hp air cooled Anzani. Cessna's timing was perfect, as a company called National Air Transport (NAT) had obtained the mail route from Chicago to Dallas. NAT was looking for a new plane to replace its Curtiss Carrier Pigeon. The monoplane was Travel Air's entry, and was designated as the Model 5000. In 1927, Travel Air was awarded a contract for eight of these aircraft. During the development of the 5000, Stearman gave notice that he was leaving for Venice, California to establish his own company. Cessna completed development of the 5000 and then he also tendered his resignation. A model 5000 (called Woolaroc) took off on August 16, 1927 and won the Dole Pineapple Co.'s \$25,000 prize for being the first plane to fly from the U.S. mainland to Hawaii. Shortly after this, modifications to the 5000 produced the 6000.

The Mystery Ship (designated the R-100) was built in great secrecy (hence, its name) for the 1929 National Air Races. It was a low wing monoplane with wire braced wings. In its final form, it used a 420 hp Wright radial, streamlined with an NACA cowl, and achieved speeds up to 225 mph. It won the 1929 Thompson Trophy. Several Mystery Ships were built, and these won many events and set more than 200 records.

STINSON AIRCRAFT CORPORATION

In 1922, Eddie Stinson formed the Stinson Flying Service with a Junkers low wing aircraft. The organization was based in Detroit to benefit from the rich automotive industry executives.

In 1925, the concept of the Ford Reliability Tour was promoted by the Detroit Board of Commerce. William Mara, a member of the board, was the chief promoter, and got Eddie Stinson involved in the aeronautical arrangements. Stinson had been formulating a four-seat enclosed cabin biplane, and he turned to Mara for capital to build his aircraft. This was the Stinson SB-1 (SB = Stinson Biplane) Detroit, which was powered by the Wright J-4 Whirlwind. The plane first flew on January 26, 1926. This prototype and one other were sold, and thus was formed the Stinson Aircraft Corp. in May, 1926. This was the beginning of the age of large cabin-class aircraft.

Ed Stinson had considerable success with his Detroit biplane, selling 10 of them within 6 months of forming the company and having a substantial backlog of orders.

But Stinson was a believer of the monoplane as a result of his experiences with the Junkers in 1922. In 1927, the first SM-1 (SM = Stinson Monoplane) took to the air and proved his belief that a well designed monoplane could provide superior performance to an equivalent biplane. The SM-1 was entered in the 1927 Ford Reliability Tour and won easily. Over 100 were sold in the first two years of production.

The success of the SM-1 convinced Stinson that there was a market for the smaller cabin class monoplane for use in business and pleasure. The SM-2 Junior was introduced in 1928.

(Continued in Part 2)

ALEXANDER AIRPLANE COMPANY

J. Don Alexander was president of the Alexander Film Co. in Englewood, Colorado. In 1924, he knew practically nothing about aircraft except that they were an efficient means of transportation. With the development of private aviation, it occurred to J. Don that an airborne sales force might help his business profits. But there was no manufacturer capable of delivering 50 aircraft to his studios, so he decided to go into the business for himself.

His designer's attempt was a failure, but in the process of development, the airplane was given the name "Eaglerock". The problem was

Colorado's altitude of 6,000 feet, where the plane barely got off the ground.

He next hired a high school graduate and avid model airplane builder named Al Mooney. His new Eaglerock looked like a Travel Air. It also flew like one, and the Alexander Airplane Co. was in business. Over 900 Eaglerocks were built during the next four years, but the sales force never learned to fly.

FAIRCHILD AIRCRAFT COMPANY

Sherman Fairchild was an inventor, manufacturer of aerial mapping cameras, and founder and operator of Fairchild Aerial Surveys based in Long Island, New York. The demands of high altitude photography required a high wing monoplane with a large heated and enclosed cabin. But no such aircraft was available, so he gave his engineering staff the job of designing one.

The FC-1 first flew in June 1926 with an OX-5. The design turned out to be a fine camera platform and reached an altitude of 9,800 feet. The second prototype used the 200 hp J-4 Whirlwind radial and met all his needs, and others as well. Demand for the plane rose, and thus was formed Fairchild Aircraft Co.

Fairchild joined in on the cabin craze by developing his FC series into the F-71.

(Continued in Part 3)

RYAN AERONAUTICAL COMPANY

T. Claude Ryan, like Sherman Fairchild, got into the building of airplanes because there was no aircraft available to meet his business needs. Until 1925, the U.S. Army carried the airmail as a result of some unfortunate experiences with early civilian experiments. Ryan Airlines was based in San Diego, California, and he wanted a plane that could haul more mail for less expense than anything else available. The design that evolved from the efforts of Ryan and his partners, Franklin Mahoney and Hawley Bowlus, was the M-1 monoplane. It flew well, but upon the recommendation of Ryan's friend, Donald Douglas, Ryan hired a young aeronautical engineer named John Northrop to redesign the wing. The new aircraft was called the M-2. It became popular, and 18 customers saw fit to purchase an M-2. It was a small step to enclose the M-2's cabin, fill a special order for a craft to ultimately be called the Spirit of St. Louis and develop the Brougham line, a 5-seat commercialized version of the Spirit of St. Louis.

(Continued in Part 3)

STEARMAN AIRCRAFT COMPANY

Lloyd Stearman left Travel Air around 1927 and founded his own company in Venice, California. His first design, the C-1, closely resembled the Travel Air "Special" he had built for the 1925 Tulsa meet. Some refinements and the use of an OX-5, followed by the Wright J-4, produced the C-2 model.

But Venice proved to be too far from Wichita, which was considered to be the air capital of the world. Walter Innes offered to invest in his business if he returned to Wichita, and Stearman moved back. The C-3 model followed, and was, essentially a C-2 with the engine changed to 220 hp Wright J-5. At this point, Stearman chose to concentrate on the expensive end of the market by offering lower powered versions of his airplanes with many customized items.

SPARTAN AIRCRAFT COMPANY

In Tulsa, Oklahoma, Willis Brown and Waldo Emory (ex-Army pilots) formed the Mid-Continent Aircraft Company and designed the C-3 Spartan, a fine 3-place open cockpit biplane. This is one of those companies that could have dropped out of sight had it not been for Bill Skelly, another oil man looking for a place to invest his profits. He bought the Mid-Continent company for a cool one million dollars, and soon C-3s were rolling out of the facilities of the newly formed Spartan Aircraft Company. These craft also served the students at the Spartan School of Aeronautics. Over 120 were made.

(Continued in Part 3)

AMERICAN EAGLE

Very little is mentioned in the book about this company except that it was founded by Ed Porterfield, who went on to produce a series of popular aircraft in later years. The company produced the Eagle, Eaglet, and Wallace tourplane.

COMMAND AIRE

Albert Voellmecke worked for Heinkel in Germany. He came to the U.S. and lived in Little Rock, Arkansas, where he developed the Command Air open cockpit biplane. This plane was so stable that its test pilot, Ike Vermilya, would demonstrate its stability by climbing out of the cockpit and steering by leaning left or right. Several hundred of these aircraft were sold.

CESSNA AIRCRAFT CORPORATION

When Clyde Cessna left Travel Air in 1926, he continued his endeavor to make a fully cantilevered cabin monoplane. The prototype was a sleek bullet-shaped aircraft called "Phantom", powered by a 10 cylinder 90 hp Anzani radial. On the first flight, the Phantom reached 100 mph, and that was with only 90 hp, quite a feat for the 1920s.

The success of the Phantom test program resulted in a scaled-up version with four seats called the Model "A". But the Anzani was difficult to service and it was hard to obtain product support, so Cessna chose the new 110 hp Warner Scarab. This version was called the "AW", and won its class in the 1928 New York to Los Angeles National Air Race. Over 300 AWs were produced, and a BW was introduced with the 220 hp Whirlwind. But the depression began to take its toll on Cessna, and they temporarily closed their doors until the economy improved.

(Continued in Part 3)

CENTRAL STATES AERO COMPANY

By mid-1926, Don Luscombe was at work building a mockup of his vision of what sport flying should be: side-by-side seating in a high wing monoplane. Following the automotive industry's trend of calling everything "coups", Luscombe named his aircraft the Monocoupe.

Being a successful salesman in the advertising industry, he had little trouble raising capital to hire someone qualified to do the engineering. Thus was born the Central States Aero Co.

Luscombe heard of a young farm boy named Clayton Folkerts, who had taught himself the basics of aircraft design and construction as well as the fundamentals of flying. Folkerts became the company's Chief Engineer.

The Monocoupe was test flown in April, 1927 using a 60 hp Detroit Air Cat engine. The plane obtained its ATC (Approved Type Certificate) in January 1928. At this time, only two problems appeared on the horizon. First, the lack of capital to initiate production, and second, the cantankerous Air Cat engine. Both problems were solved with Luscombe's association with Willard Velie Jr., the son of the founder of Velie Automotive. By the spring of 1928, Central States Aero had become the Moline, Illinois based Mono-Aircraft subsidiary of the Velie Motors Corporation.

MONO-AIRCRAFT CORPORATION

The Velie Motors Corp. set out to develop a new engine. The result was the five-cylinder 60 hp Velie M5. The Velie powered Monocoupe received minor modifications and was certified as the Model 70. This was the only light cabin class aircraft available at this time, and by the end of 1928, Mono-Aircraft had sold 278 of the Model 70s.

The association of Velie and Mono-Aircraft didn't last very long. Velie Sr. died of a heart attack, and Velie Jr. couldn't deal with the pressure of running such a large company. He decided to sell everything, and he also died shortly thereafter. Mono-Aircraft was bought by Allied Aviation, a St. Louis group that also owned Lambert Engines. Luscombe remained in charge of Mono-Aircraft, but the Velie engines were replaced by Lamberts.

Two other models were developed. One was the Wright J5 powered Monocoach, which lost out to the Stinson Detrouiter, and the other was the Monosport, a scaled up Monocoupe that had considerable success in racing.

In 1929, the Velie Monocoupe led the way in the light cabin monoplane market. But the beginning of the depression took its toll, and by the end of 1930, the company was in deep debt with about 25 unsold aircraft. On December 31, 1930, both Mono-Aircraft and Lambert Engines went into receivership. Due to the smooth talking Don Luscombe, the company was allowed to continue manufacturing, albeit with a greatly reduced staff. But a search was on for an investor with deep pockets, and into the picture walks Phil De Cameron Ball, owner of the St. Louis Browns, and a holder of substantial Mono-Aircraft stock.

Luscombe was asked to stay on as general manager and to move the company into the old Ryan facility in St. Louis. At this time, the company name was changed to Monocoupe.

(Continued in Part 3)

AERONCA AIRCRAFT CORPORATION

(Aeronautical Corporation of America)

By 1930, Aeronca was producing what is perhaps the best known entry into the light cabin monoplane class. This was the single seat Aeronca C-2 "Bathtub", powered by the company's own 40 hp engine. The C-3 was a twin seat version.

(Continued in Part 3)

TAYLOR AIRCRAFT COMPANY

Taylor was another company that was producing aircraft in 1930. C. Gilbert Taylor lived in Rochester, New York. In 1927/28, he and his brother, Gordon, designed the 2-seat side-by-side Chummy. The aircraft was flown with several engines, but it still turned out to be a failure. Gordon was killed while test flying the Chummy. After the start of the depression, Gilbert Taylor relocated to Bradford, Pennsylvania, in part because some financial incentives were offered by local businessmen. One of these was William Piper. Shortly after the move, Taylor went bankrupt, and Piper bought the company and asked Taylor to join in a partnership.

Their design was the E-2, but the 20 hp Tiger Kitten Engine was insufficient to produce anything but short hops off the ground. Someone remarked that if the engine was a Tiger Kitten, the plane was a "Cub", and a name was created.

The solution to the engine problem was the Continental 37 hp A-40. After some changes to the engine to improve reliability, it worked well, but still lacked the desired power, and sales suffered for the next few years. But in 1934, the economy began to improve. In late 1935, Taylor and Piper parted ways. Piper, in effect, forced out Taylor. But shortly thereafter, Taylor created the Taylorcraft Corp.

As Taylor was starting his new company, Piper introduced the J-2, which had an improved airframe and enclosed cabin. It was still called the Taylor J-2 so as to keep the same name for market recognition and continuity from the E-2 to the J-2.

As the economy improved, so did sales. In 1937, 658 J-2s were sold for \$1,270.00 each. More would have been sold were it not for a fire at the factory, which prompted a move to Lock Haven, Pennsylvania, and an official change in the company name to Piper Aircraft Corporation.

(Continued in Part 3)

1929 - THE STOCK MARKET BOOM, MERGERS, AND THE IMPACT OF THE START OF THE DE- PRESSION

As the year 1929 was ushered in, so was the Arrow Sport and the tandem Great Lakes biplane. It was also the year that the stock market soared, and personal business airplanes became big business. Some of the dominant light plane aircraft companies saw fit to make deals. Curtis and Wright agreed to merge, and they then made Walter Beech an offer for Travel Air that he could

not refuse. Stinson became part of the E. L. Cord empire, which included Lycoming motors in addition to the Cord, Dusenberg, and Auburn automobile companies. It would later own American Airlines. Stearman was bought by United Aircraft, owner of Boeing, Pratt and Whitney, Hamilton Standard, and United Airlines. Shortly thereafter, these relatively small companies were grateful for their fate, as the stock market crashed in October.

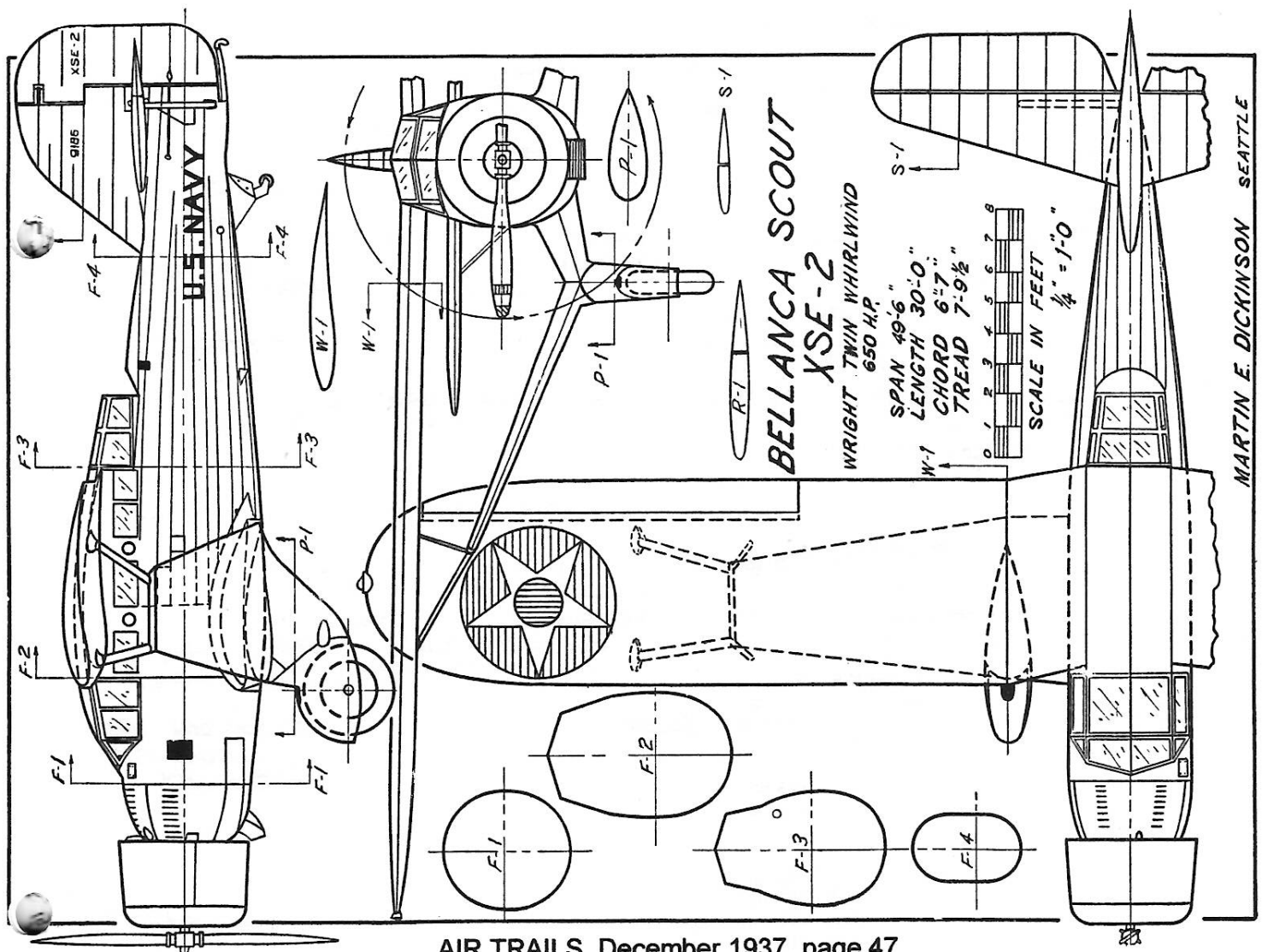
The immediate result of "Black Tuesday" was a reduction in back orders and new business. But the world of private aviation did not really hit bottom until 1932, when the economy dragged the country into the depths of the depression.

Many companies tried to survive by introducing light-weight, low cost, low powered aircraft. The American Eagle Aircraft Co. introduced the Eagle, Alexander produced the Flyabout, Cessna

built the EC-1 and -2, Heath designed the Parasol, and Buhl introduced the Bull Pup. All of these used 25 to 40 hp engines and cost no more than \$1,500.00. **POPULAR MECHANICS** magazine presented the Pietenpol Air Camper. Even Rae Rearwin, a wealthy individual, entered his "Junior" into the field of choice.

But many companies failed to survive. Alexander, American Eagle, and Command Air closed their doors for good. Cessna closed temporarily until the recovery from the depression was imminent. Others survived from the help of large companies. Spartan stayed alive thanks to Skelly Oil and the Spartan School of Aeronautics, and WACO continued thanks to the management skills of Clayton Bruckner.

(Part 2 to follow)



AIR TRAILS, December 1937, page 47

WACO PRODUCTION AND IDENTIFICATION

Waco production began in Troy, Ohio shortly after March 16th of 1923 in a building formerly used for the manufacture of horse-drawn carriages. Clayton J. Brukner and Elwood "Sam" Junkin named their company the Advance Aircraft Company. The following Wacos were manufactured under that name, which was later changed to Waco Aircraft Company.

1923	1924	1925	1926	1927	1928	1929
Waco 6 OX-5 90 hp	Waco 7 OX-5 90 hp Waco 8 Liberty 6 250 hp	Waco 9 OX-5 90 hp	Waco 9 OX-5 90 hp	Waco 10 GXE DSO ASO BSO Waco 125	Waco 10 GXE DSO ASO BSO CSO ATO CTO Waco 125	Waco 10 GXE DSO ASO BSO CSO ATO CTO JYM JWM
Engine designations 1927 thru 1929						
G	OX-5 90 hp, OXX-6 100 hp, Tank	115 hp				
D	Hispano-Suiza 150-	180 hp				
A	Wright J5	220 hp				
B	Wright J6-5	165 hp				
C	Wright J6-7	225 hp				
J	Wright R-975	330 hp				
125	Siemens-Halske 100-	122 hp				

While several 1929 models continued to be produced after 1930, a new identification system was used thereafter. See 1930 thru 1942 production and identification chart for revision of engine designation letters.

WACO PRODUCTION AND IDENTIFICATION (1930 thru 1942)

1930	1931	1932	1933	1934	1935	1936	1937	1938 - 39	1940 - 41	1942
RNF INF KNF MNF	RNF QCF-2 INF PCF-2 KNF MNF	UBF-2 PBF-2 KCA IBA RCA RBA PCA PBA UBA CSO CTO	UBF-2 PBF-2 PLA ULA CSO CTO JYO	UMF-3 YMF-3 WHDA S3HD	UMF-5 YMF-5 CPF S3HD-A	YPF-6 ZPF-6 CPF-6	YPF-7 ZPF-7 VPF-7	YPF-7 VPF-7 UPF-7 WHD JHD	UPF-7	UPF-7
BSO CSO CTO CRG PSO	BSO CSO CTO	UBA CSO CTO	PLA ULA CSO CTO JYO	WHDA S3HD	S3HD-A			WHD JHD		
CABIN MODELS	QDC	UEC OEC	UIC	UKC YKC CJC	UKC-S YKC-S CJC-S	YKS-6 ZKS-6 DKS-6	YKS-7 ZKS-7 UKS-7 VKS-7	YKS-7 ZKS-7 VKS-7	YKS-7 ZKS-7 VKS-7	VKS-7F
Letters used to designate engine installation 1930 thru 1942					UOC YOC CUC	YQC-6 ZQC-6 AQC-6 DQC-6 EQC-6	ZGC-7 AGC-7 DGC-7 EGC-7	ZGC-8 AGC-8 EGC-8 ZVN-8 AVN-8	ARE SRE HRE	SRE
A	Jacobs L-6MB	330 hp								
B	Wright R-540	175 hp								
C	Wright R-760	250 hp								
D	Wright R-760-E1	285 hp								
E	Wright R-760-E2	350 hp								
H	Lycoming R-680-E3	300 hp								
I	Kinner B-5	125 hp								
J	Wright R-975-E1	365 hp								
K	Kinner K-5	100 hp								
M	Menasco C-4	125 hp								
O	Kinner C-5	210 hp								
P	Jacobs LA-1	170 hp								
Q	Continental A-70	165 hp								
R	Warner "Scarab"	125 hp								
S	Pratt & Whitney 420-	450 hp								
U	Continental R-670	210 hp								
	W-670K 225 hp; W-670-6	220 hp								
V	Continental W-670M	240 hp								
W	Wright R-975E3	450 hp								
Y	Jacobs L-4MB	225 hp								
Z	Jacobs L-5MB	285 hp								

The Waco Aircraft Company did not use Lycoming engines until the model "E" was produced in 1940, and used the 210 hp Kinner on only two airplanes. The 160 hp Kinner R-5 was never used or approved for any Waco Airplane.

Sept. 29, 1966

Editor
Aviation Week
330 West 42nd Street
New York, New York 10036

Sir:

"WHO'S JIM COLLINS"

In your September 19 issue reader Harland C. Wood asked if anyone knew who Jim Collins is or was, and submitted a sketch he had made of someone by that name in the cockpit of a Lockheed Sirius,

There was a test pilot, rather famous at one time, named Jimmy Collins who was also quite good as a writer. This Jimmy Collins was born in 1904 in Warren, Ohio, and graduated in 1925 along with seventeen others out of a starting class of 104, from the Army Flying School at Kelly Field, Texas. Of the eighteen graduates, the best four were selected for advanced pursuit training. Two of these four were Collins and Chas. A. Lindbergh.

Collins, like others of the period trying to make a living in the cockpit, worked at many jobs including instructing, barnstorming, flying the mail, test flying, selling airplanes, and working as a flight inspector for the new aeronautics branch of the Department of Commerce, the forerunner of the C.A.A., now the F.A.A.. He rubbed shoulders with the great and the near-great of the day including moving stars, writers and other flyers who were making headlines. He wrote articles for the New York Daily News about his many flying experiences, and at least one of his stories appeared in the Saturday Evening Post.

Jimmy Collins also wrote a book called "Test Pilot" in which he described flight test procedures on military aircraft of his day, including nerve-wrecking terminal velocity test dives and power dives with 9 G pull-outs. His book also contained many little stories some amusing, some not so amusing, of happenings to other people he knew.

He had a crisp, interesting style of writing but it reflected an unusually morbid outlook. For example, six months before he went straight in from the ten thousand feet in a Grumman he was test diving, he wrote a "testament" describing his own death just as it happened, about 1935 I believe, and sent it to his sister.

Who was Jim Collins. Fame can certainly be a fleeting thing. One can't help wondering if thirty years from now an aviation or space magazine won't ask "Who's John Glenn".

S. Rolfe Gregory

11603 Milbern Drive
Potomac, Maryland 20854

PHOTOS ON THE FOLLOWING PAGE

Tom Schmitt

7. Great photo from Oscar Smith showing him launching his Mr. Mulligan, built from Dave Rees's plan.
8. Another terrific shot of Dan Kranis launching a jumbo Found – photo by Tom Hallman.
9. John Ernst continues to turn out some handsome WW-I models. His D-7 seen here is from a Peerless plan and is offered as a kit by Golden Age Reproductions.
10. Lou Buffardi sent this picture of his Focke-Wulf 190 profile built from Dan Driscoll's plan in the July/August 2001 issue of MAX-FAX.
11. Our good friend Bobby Haight, who lives in the shadows of the Yucca Mountains, sent this photo of his Ta-152. Too bad we don't have color, as the bottom squadron colors of this aircraft are really striking.
12. Stew Weckerly sent this photo of his Wiley Post biplane.
13. Another nifty scale aircraft by Bob Haight, a perky Polish fighter.
14. Another Guillow model of the D-7 by one of our local members, Arnie Deichelman, a former Marine pilot.
15. And for the 'piece de resistance', a hand crafted Tin Toy by our meticulous collector out west, Bill Warner. This is a reproduction of a French tin toy of the Latecoere 231.

FAC EVENT RESULTS AT THE CAAMA CONTEST

Walt Farrell

You can argue about what the ideal conditions are for an FAC contest, but July 13th was just about perfect. The sky was overcast, but the temperature was warm and there was very little wind. And there were plenty of thermals.

I arrived early and got my timed flights in before noon. My new Embryo didn't do as well as I would have liked, but I thought it might be competitive. I started to worry that no other FAC'ers were going to show when Bob Marchese, Bob McLellon, Stew Meyers, and Jack Felton appeared. Jim Coffin also signed up for a few events. Here are the highlights.

WW-I: Bob Marchese had the misfortune of dorking in the first heat. Meyers did the same in

the next round. McLellon and I slugged it out, and I managed to squeak out a 1st.

WW-II: My turn to dork, as the Defiant came down quickly. Bob Marchese took 1st with his Macchi, Bob McLellon 2nd with an F4F, and Stew was 3rd with a Wildcat.

Racer's: Stew took 1st with a Long and Bob McLellon was 2nd with his Seversky. I flew my Chambermaid, which looked great as it sailed into a tree 45 feet up... I dropped out of the event.

Modern Civilian: Unfortunately, it was my turn to dork again. The rest of the field flew well, with Marchese in 1st with a Turbo Porter, Stew 2nd with a Long, and McLellon 3rd with a Vagabond.

Timed Events: These were fun, with Bob Marchese taking 1st in Embryo, me 2nd, and Jim Coffin 3rd. Bob Marchese took 1st in Golden Age, Stew 2nd, and I was 3rd. Finally, in Dime Scale, I got lucky with the Cessna Airmaster and had a max to clinch 1st. Stew was 2nd with a Bellanca, and Bob Marchese was 3rd.

As you read the results, it is clear it was Bob Marchese's day, and he nearly jumped a full rank with all his wins.... A job well done! Many thanks go to Jack, who presided over most of the mass launch events. Although the numbers were few, there was some really good flying and friendly competition.

CONGRATULATIONS!!!

If my memory recalls correctly, there were three local Maxcutters with 1st place victories at the FAC NATS last month. The three **BIG** winners were (I think):

Frank Rowsome.....FAC Rubber Scale
Claude Powell.....WW-I Mass Launch
Terry Pittman.....Multi-Engine Power Scale

There were several local members who placed 2nd through 5th, but I only remember one or two of them, so rather than neglect someone, we'll give a full accounting in the next issue.

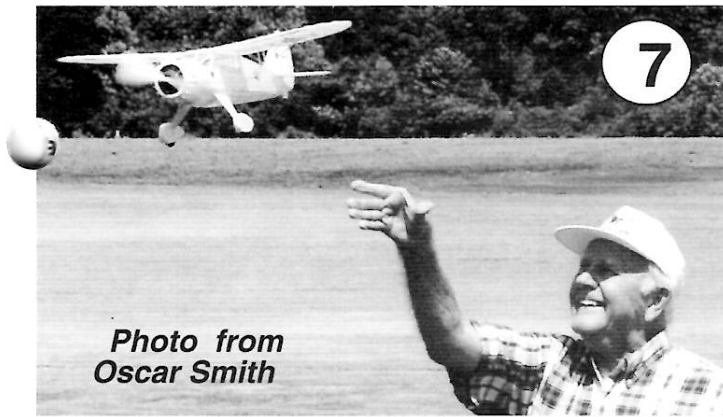


Photo from Oscar Smith



Photo from Dan Kranis

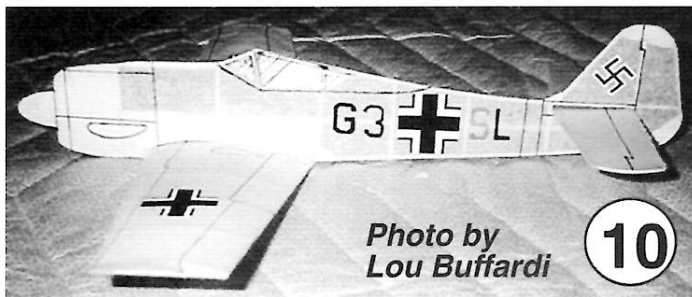


Photo by Lou Buffardi



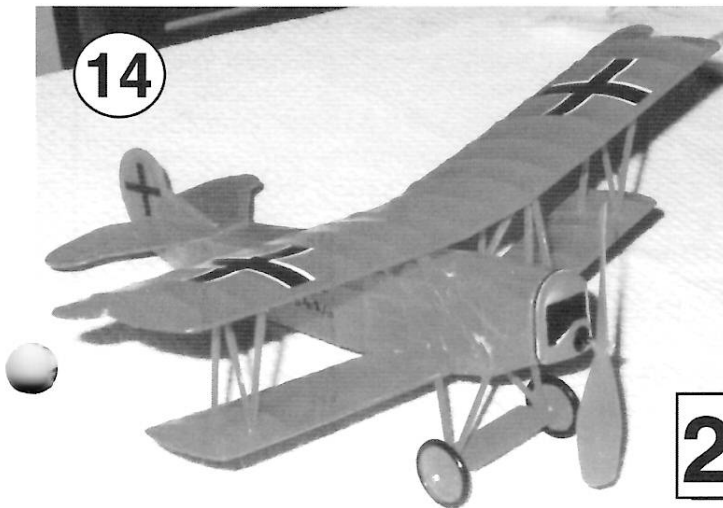
Photo by John Ernst



Photo by Bobby Haight



Photo by Stu Weckerly



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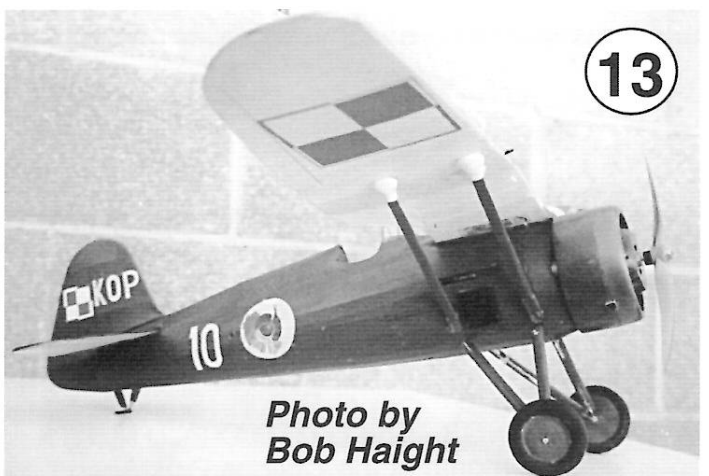


Photo by Bob Haight



Photo by Bill Warner

MAX-FAX, Sept./Oct. 2002



BRAINBUSTERS CONTEST
Saturday, September 21, 2002
Dinwiddie County Airport
Petersburg, VA

Entry Fee: \$1.00

Flight Leaders: Bob McLellon (757) 481-0480 bobmcl@exis.net
Jerry Paisley (757) 357-7642 jerpaisley@earthlink.net

Rules:

No semi-scale models allowed.
Flying ends at 4:00 PM
AMA license required
Schedule may be adjusted due to weather conditions.
Number of mass launch rounds at discretion of Flight Leader

Timed Events: Six attempts for three official flights.
1. GHQ Peanut Scale
2. Embryo

Mass Launch Events:
1. 11:00 AM – Guillow WW-I
2. 11:30 AM – Any Biplane
3. 1:00 PM – Golden Age
4. 2:00 PM – WW-II (no high wings)
5. 3:00 PM – Dime Scale



NOTE: Your Dues Are Due



CLUB OFFICERS - President: Hurst Bowers, 1649 Birch Rd., Mclean, VA 22101
Secretary: Bert Phillips, 1709 Crofton Pky, Crofton, MD 21114-2305
Treasurer: Norm Davison, 14008 Castaway Dr., Rockville, MD 20853
Editor: Stew Meyers, 8304 Whitman Dr., Bethesda, MD 20817

MEETINGS - The D.C. MAXECUTERS hold meetings at 8:00 pm on the first Tuesday of every month at the College Park Airport, the oldest continuously operating airport in the world. Daylight savings rule not in effect.

MEMBERSHIP - Dues for membership in the D.C. MAXECUTERS are \$15 per year for residents of the USA, Canada, and Mexico, and \$25 for all other countries.

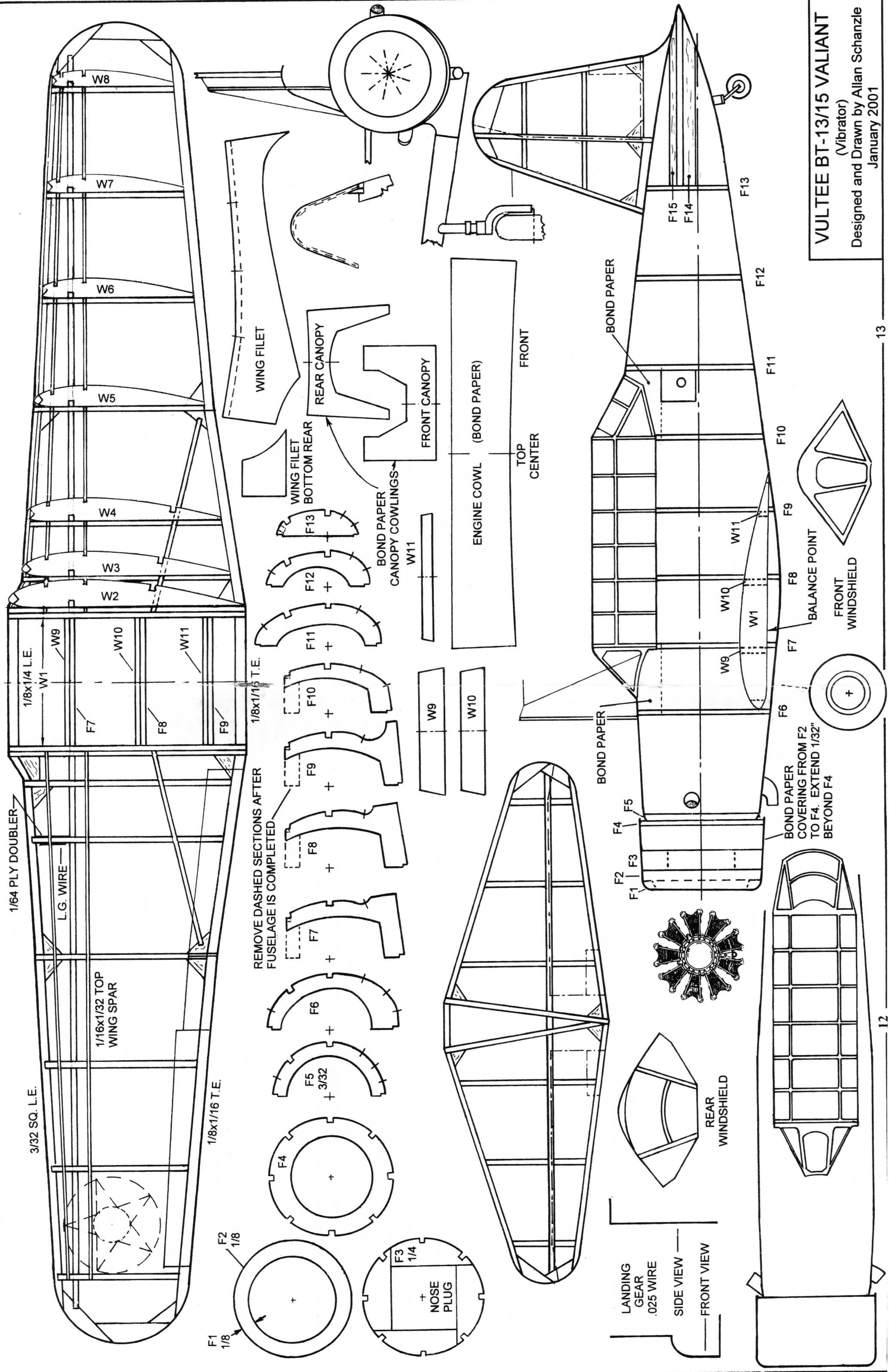
Your mailing label indicates the year and month of the last issue of your current membership. A red "X" in the box above is a reminder that your dues are due.

Send a check, payable to the "D.C. MAXECUTERS", to the treasurer, Norm Davison.

PUBLISHING DATES - Six issues of **MaxFax** are sent each year as close to the nominal dates as possible, but since this is a volunteer publication nothing is guaranteed except that six issues will be sent to all members.

CONTACTS - Material for the newsletter and membership questions should be addressed to Stew Meyers phone 301-365-1749. E:mail gets immediate attention. stew.meyers@erols.com

Maxecuter web site: www.maxecuter.com



VULTEE BT-13/15 VALIANT
 (Vibrator)
 Designed and Drawn by Allan Schanzle
 January 2001