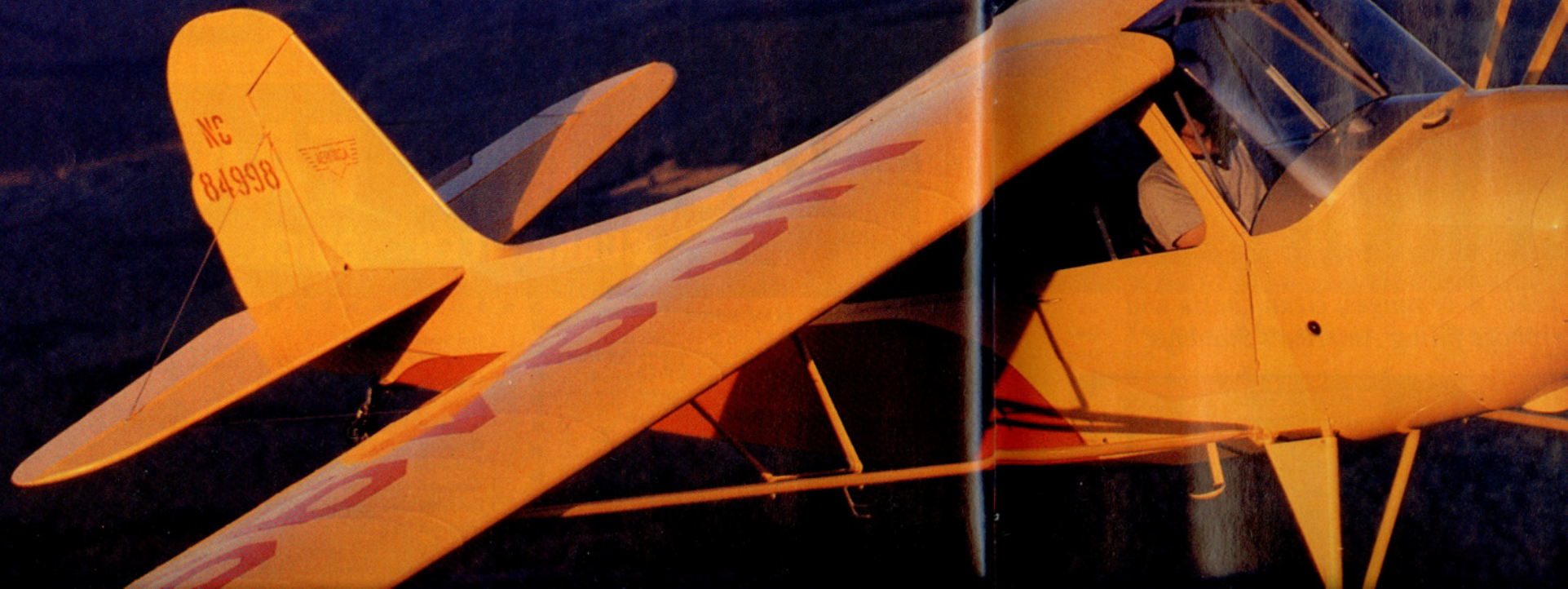


YESTERDAY'S WINGS TODAY

THE ONCE AND FUTURE
AERONCA

They called it the Champ. And they were right.

BY J. JEFFERSON MILLER



I never understood why so many people revere the Aeronca 7AC Champion. To me it was just another out-of-production, rag-wing airplane, something remote from my experience.

Then I had a chance to fly one, a 1946 Champ owned by Peter R. Smith of Brookeville, Maryland. And that flight changed my perspective on this simple, unassuming airplane.

Smith bought his Champ while he was working on his airframe and powerplant mechanic's license and rebuilt it for the practical experience, for fun and so he would have an inexpensive airplane to fly. When we met at the Frederick Airport, he graciously climbed in the back seat, folded his arms and let me take command of his ship, even though I told him I had very little time in tailwheel aircraft.

Cockpit familiarization did not take long. The Champ has no gyros, radios or lights. In fact, it has no electrical system, hence no starter, and its engine

AERONCA

must be hand propped. Smith has installed a turn and slip indicator, which was not standard equipment when the airplane was built.

Mounted on the dash is a fuel gauge that looks like, and in some Aeroncas actually is, a Model A Ford gas gauge. It is supplemented in many Aeroncas by a cork and wire float gauge that the pilot can consult through the windshield. The Champ's single, 13-gallon gas tank is located directly behind the engine compartment.

The Champ never came with a flight manual. Aeronca figured one placard was enough to keep pilots out of trouble. It reads: "Do not exceed 129 mph true airspeed at any time."

Magnetos and carburetor heat are located on the left sidewall between front and rear seats. Trim is located overhead between the seats. The front seat occupant must at first look back over his shoulder to find these controls, but after a time should be able to operate them without glancing back.

The front seat is really the place to be in a Champ. The view forward and all around is excellent. No zigzagging or neck craning is necessary for taxiing. The nose does not come so high on landing that everything ahead disap-



Middletown, 1946: A-N ranges, clean charts and visions of Aeroncas filling America's Sundays.





pears. And the pilot has plenty of elbow room.

The Champ helped to cure me of the habit of using toe-brakes while making taxi turns. Champs have heel brakes that are not attached to the rudder pedals and are set just inboard of them. Operating rudder pedals and brakes simultaneously is difficult, and using both together is really not necessary while taxiing.

Preflight check list is brief: mag check, carb heat, oil temperature and pressure, altimeter set, controls free and correct, door latched. All set.

"Sixty miles per hour is a good speed," Smith said before we took the active.

"For what?" I asked.

"Oh, just about everything. Climb, cruise, final. You can lift the tail at about 25," he added.

Acceleration is not brisk in the

Champ. But neither is the ground run very long, even with both seats occupied, and we were off the surface before I could weave off the runway. The temperature was about 80°F and the 65-hp Continental was working hard to achieve a 250-fpm rate of climb. After a leisurely ascent we leveled off at 2,500 feet to practice some steep turns.

The Champ's rudder is very sensitive to control inputs, but its ailerons are not, and harmonizing the two controls is something of a challenge. Initially, I slipped and skidded across the sky, watching the little ball in the inclinometer swing tauntingly from side to side. But coordination came with practice. When I finally got the hang of it, the feeling of making a well coordinated turn filled me with a sense of accomplishment.

Two thousand five hundred feet seems awfully high up in a Champ,

perhaps because of the time it takes to get there, and perhaps also because at a top speed of about 73 knots in level flight you do not seem to be going anywhere fast. I asked Smith if he minded if we went down for some low-level work. "Not at all," he replied. "I never fly this high myself."

Soon we were putt-putting along at 60 knots, 300 feet above the fields. We could make out the individual slats in the sides of barns and could practically count the cornstalks. We had a pleasant sense of sweeping over the earth, but no concern that we were going too fast to avoid obstacles. Eventually, we wove our way home to Frederick along the twisting Monocacy River. This seemed to be Champion flying at its best.

Landing was anticlimactic, even with my minimal tailwheel time. Because a slight crosswind was blowing, I held one wing low and kept the Champ tracking straight with a little opposite rudder. I came over the numbers at 60 mph indicated and eased back the stick until we settled gently on the runway. I tried several more landings and had only one touchy moment when on roll-out I turned around to push in the carb heat. The Champ started to veer off the runway and was saved from doing so only by some quick and aggressive pedal work.

It is easy to become nostalgic flying around in a Champ, even if you are 10 years younger than the airplane. It reminds you of the simple pleasures of flying: the fun of holding onto a stick rather than a wheel; the freedom to go slow, open the windows and take in the world beneath your wings. The Champ takes you back to less complicated times.

It is a myth-laden airplane. Maybe not as legendary as the DC-3 (although some would argue the point), but as significant in its own way because of the countless thousands of pilots who learned to fly in Champs.

Ironically, the Champ was both the most successful airplane Aeronca ever built and also the airplane that helped send the company to the verge of bankruptcy.

The history of that success and eventual failure began in the spring of 1929 with the formation of the Aeronautical Corporation of America, Aeronca for short. The name signified nothing more than the willingness of four Cincinnati investors (including Senator

Robert A. Taft, son of former President William Howard Taft) to put money behind an airplane design, for the corporation as yet had no airplane to sell.

Enter Jean Roche, a man with a simple dream and an airplane with which to pursue it. He had a vision of Americans by the thousands flying in a lightweight, low-powered, inexpensive, easy-to-fly airplane. A not too startling concept today, but in an era when flying was almost the exclusive preserve of the military, the air-mail pilots and the extremely well to do, it was revolutionary thinking.

Roche's airplane was a squat, little 398-pound machine called the C-2. It seated one and was powered by a 30-hp, two-cylinder, single-ignition Morehouse-designed engine that was produced by Aeronca. The C-2 design employed a Clark Y airfoil that had been developed the year before at the Massachusetts Institute of Technology. The wings were made of wooden ribs and spars covered in cotton fabric. The leading edge was formed by a thin sheet of shaped aluminum. Flying wires ran to the wing from a kingpost on top and the fuselage underneath.

To save weight Roche designed the C-2 with three longerons in the fuselage instead of four, giving the airplane its "razorback" appearance. Many subsequent Aeronca designs, including the Champ, retained the distinctive three-longeron aft construction, using wooden stringers to square up the fuselage.

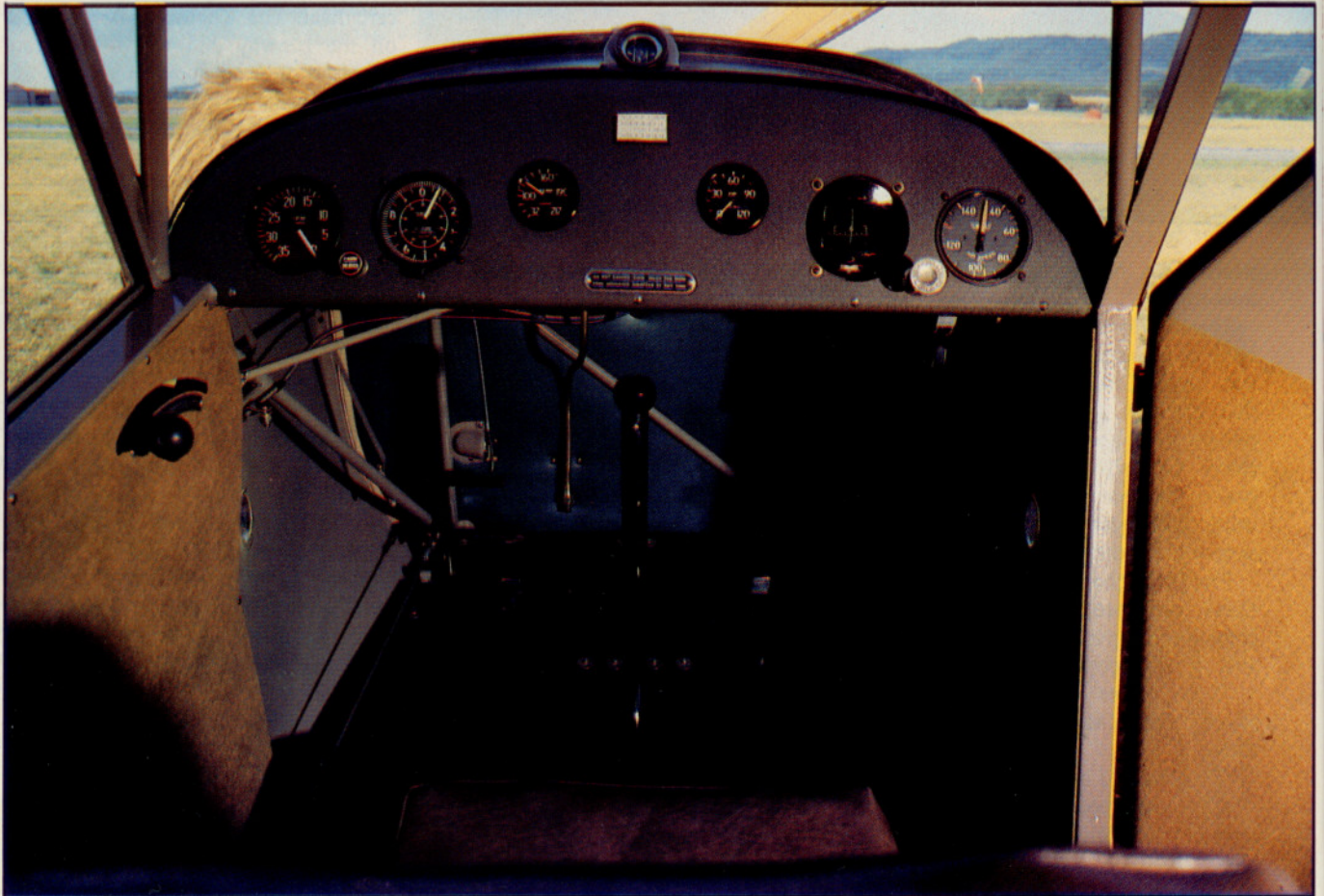
Roche sold the design to Aeronca for 220 shares of stock in the company. A total of 164 C-2s were produced. Then, in 1931, Aeronca introduced the C-3, a 40-hp version with side-by-side seating for two. (See: "Aeronca C-3: The Pursuit of Happiness" by Thomas A. Horne, March 1981 *Pilot*, p. 32.) The C-3 proved the concept of the light airplane and set Aeronca on firm financial footing. In all, 450 C-3s were sold. That success emboldened the company to pursue more complex, higher performance designs. This change displeased Roche, a purist where the concept of the light airplane was involved, and he left the company to work for the National Advisory Committee for Aeronautics (NACA) in Langley, Virginia.

In 1937 Aeronca came out with a racy-looking, two-seat, low-wing



AERONCA

*No radios, no complexity,
no gremlins; a flying
machine, pure and simple.*



monoplane powered by a 90-hp Warner radial. Sixty-six were built before Aeronca abandoned the design and rededicated itself to the task of producing simple, inexpensive airplanes exclusively, such as the Aeronca K, which it had introduced in 1936. Though in appearance it resembled the Champ more than the C-3, the K was in fact a refinement of the C-3 design, sharing the same wing and engine as The Flying Bathtub.

Preparation for war gave birth to the Champ's precursor—the L-3, tandem-seat, military liaison/observation airplane. A new airfoil, the NACA 4412, was selected for the wing, which was fabricated with stamped aluminum ribs. The airplane was certified for use with 65-hp, four-cylinder engines made by Lycoming, Continental and Franklin. The fuselage was formed with four longerons. Extra-large windows were standard.

After VJ day, planners at Aeronca got together to map out their postwar strategy. They anticipated tremendous demand for trainers and personal aircraft. And they were right, up to a point. The market surged upward for one boom year and then collapsed.

In early 1946 Aeronca went into a frenzy of production. At the center of all this activity was the Champ, which differed from the L-3 in a few respects. The Champ had less window area and its Continental A-65 engine was completely enclosed by cowling. Its fuselage construction reverted to the three-longeron aft design. The Champ had one major advantage over its principal competition of the period—the J-3 Cub. The Champ could be soloed from the front seat, while the J-3 could be soloed only from the rear.

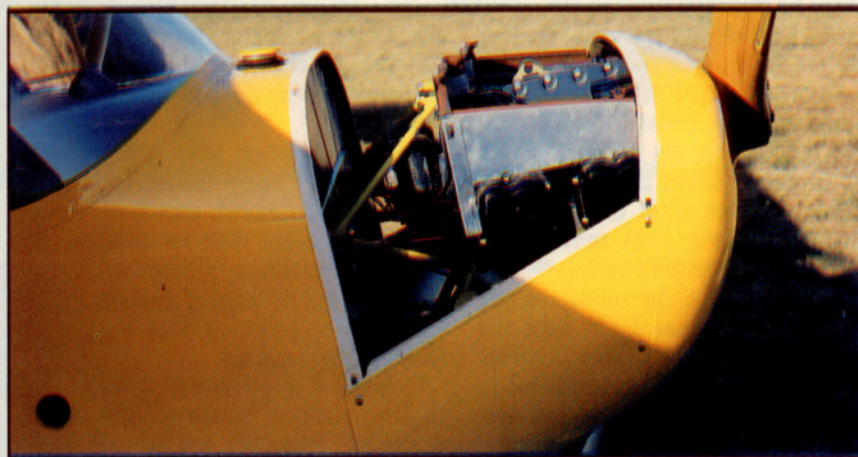
From February, when production of the Champ began, through May, a total of 1,100 Champs rolled off the assembly line. More than 6,000 were built by year's end. Peak production was 56 aircraft in one day; the average production rate was 40 a day. It took 291 hours to build a Champ. All were painted red and yellow. They came complete, without options, at a recommended retail price of \$2,999.

By the middle of 1947, due in large part to Aeronca's efforts, the lightplane market was glutted. The company struggled in vain to create some buyer enthusiasm by introducing, in succession, the 7DC Champ with an 85-hp Continental engine, the 7EC Champ

with a 90-hp Continental and a 12-volt electrical system and the four-place, 145-hp Sedan.

But rising debts and a dearth of customers finally forced Aeronca to bow out of the light-airplane business in 1950, after having produced more than 10,000 Champs (7,200 of them 7AC Champs), 1,962 11AC Chiefs (a close cousin of the Champ with side-by-side rather than tandem seating) and 561 15AC Sedans.

Events proved, however, that America considered the Champ to be too good a design for its blueprints to mold away in a forgotten file cabinet. In 1954, Flyers Service, Incorporated, of St. Paul, Minnesota, formed Champion Aircraft Company for the express purpose of resurrecting the Champ.



The new company bought the type certificates, manufacturing rights, tooling and engineering data for the Champ, and in 1955 it began producing the 7EC. It followed with a tricycle-gear version called the Tri-Champ and a 140-hp model called the Sky-Trac. Still drawing on the basic Champ design, Champion introduced in 1965 the aerobatic 150-hp 7KCA Citabria (air-batic spelled backward).

Champion merged with Bellanca Aircraft Corporation, which was seeking to expand its product line, in 1970. The next year Bellanca reintroduced the original Champ, with one major difference. The Continental A-65 was no longer in production, so a two-cylinder, 60-hp Franklin engine was substituted. To keep the price tag low, Bellanca cut its profit margin on the airplane by half and asked its dealers to do the same. The Champ was offered to the public for \$4,995.

The project, although well-inten-

tioned, was ill-fated from the beginning. A fire in March 1971 destroyed most of the plant where the Champs were being built after only 12 had been delivered. Production resumed later that year in another facility, but the price could not be held down. Franklin increased the cost of its engine by 50 percent, and Bellanca's insurers increased their product liability premiums by 500 percent. By the time Bellanca gave up producing a low-cost airplane in 1973, the cost of the Champ had risen to just over \$7,000. Bellanca fared better with the Citabria, Scout and Decathlon—until the company folded in 1980.

Thirty-four years is not a bad production run, however. Taking all variants of the Champ design into account,

7,042 of them still are registered with the FAA. Of these, 2,606 are Aeronca Champs, another 1,936 are Champs and Citabrias made by the Champion Aircraft Company and 1,505 are Champs, Citabrias, Scouts and Decathlons made by Bellanca.

Certainly there are some bargains out there, too. The *Aircraft Blue Book Price Digest* lists the average price of a 1946-1948 Champ as \$5,500. A survey of recent issues of *Trade-a-Plane* reveals asking prices ranging from about \$3,500 for an airplane requiring some work to \$11,000 for a fully rebuilt gem.

All manner of new Aeronca parts are available from Wag-Aero of Lyons, Wisconsin, and Univalr of Aurora, Colorado. Pre-sewn Ceconite and cotton envelopes for re-covering can be obtained from Airtex Products of Fallsington, Pennsylvania.

For anyone planning to rebuild an Aeronca, or simply maintain one, a good basic reference work is *Aeronca*

Champs and Chiefs by Charles W. Lasher, published by the Flambeau Litho Corporation of Tony, Wisconsin, (715/322-5268). It provides tips on how to conduct a pre-purchase inspection, discusses different types of propellers that can be used on the airplane, gives advice on re-covering Aeroncas, offers instruction on various reconstruction topics, such as making fuselage stringers and replacing spars, and lists airworthiness directives and service bulletins.

Only five ADs apply to the Champ airframe. Mostly, they require the replacement of simple pieces of hardware, such as turnbuckle forks and head bolts. One requires the replacement of the front spar to strut attach fitting. Another requires the addition of 14 PK screws to the leading edge to prevent rib buckling.

Further preserving the airplanes and their lore are four Aeronca associations: the Aeronca Club of Kenosha, Wisconsin, the Aeronca Sedan Club of Issaquah, Washington, the Aeronca Lovers Club of Clark, South Dakota, and the Aeronca Aviators Club of Columbus, Ohio. Each of the clubs sends out a newsletter and sponsors fly-ins.

Together, these clubs sponsored the first national Aeronca fly-in held the weekend of June 11 at the Aeronca plant on Hook Field in Middletown, Ohio, where all but the earliest Aeroncas were built.

Examples of all kinds of Aeroncas were on the field that weekend: Model Ks, L-3s, Sedans, Chiefs, even a couple of C-3s and a rare low-wing Aeronca,



AERONCA

*Homespun and homely,
to be sure, but at home
in the air, too.*

and, of course, many Champs. Most of the 120 Aeroncas in attendance had been restored to close to their original state.

For the oldtimers who remembered what a 1946 Champ looked like fresh off the line, NC84998, shown on these pages, was more than an airplane. It was a time machine taking them back to the brief glory days of postwar aviation, when Aeronca was supreme among light airplanes.

Colonel C.H. (Harold) Armstrong, USAF Retired, of Rawlings, Maryland, purchased NC84998 in 1974. It was flown by his son, Robert K. Armstrong, who now holds title to the airplane, for 700 hours before restoration work began in 1981. Bob Armstrong is

the eighteenth owner of the Champ.

The Armstrongs, father and son, fly air charters in a Cessna 310, but their specialty is nap-of-the-earth flying in a Super Cub and a Citabria for forest survey work (for which they have a low-level waiver from the FAA). And their passion is restoring aircraft. (Their project before the Champ was a 1927 OX-5-powered Waco 10.)

In restoring their Champ to original condition, the Armstrongs had a good friend in John Houser, an engineer with Aeronca, Incorporated. Houser provided the Armstrongs with paint specifications for the Champ so that they could use just the right shades of red and yellow. He also supplied information on the original method of covering a Champ.

All of the hardware in the Armstrongs' Champ is new and was obtained off the shelf, except for some long machine screws that hold the lower parts of the cowling together. These had to be manufactured in a machine shop. Finding a company that could reproduce an original Aeronca windshield took two years of searching, until finally the Armstrongs came across L.T. Arrow Plastics of Gennette, Pennsylvania, which still had an Aeronca windshield mold in storage. All formers, stringers and floorboards in the fuselage were replaced, and both rear spars were replaced with new pieces of spruce.

Harold Armstrong tracked down the owner of an FBO for whom he had worked in the 1940s and who had a propeller with an original Sensenich/



Aeronca decal. Armstrong had a copy of the decal made.

The result is a magical airplane. Bugs never seem to smash themselves against the Armstrongs' Plexiglas. Oil never dares to drip inside the cowling. One might think this airplane was always hangared and just rolled out occasionally for the photographers. But this Champ flies often—to Middletown last June where it was named Grand Champion Classic, to Oshkosh last August where it was also named Grand Champion Classic and on weekends up and down the valleys of West Virginia and western Maryland.

I first encountered the Armstrongs at the Aeronca fly-in in June, huddled under the wing of N84998 with Jay P. Spenser, assistant curator of aeronautics at the National Air and Space Museum, and Gene R. Chase, editor of EAA's *Vintage Airplane* magazine. They were flipping through a scrapbook depicting the reconstruction process as the Armstrongs narrated.

Every now and then an engine would sputter to life and an Aeronca would trundle between the rows of parked airplanes on its way to Hook Field's 6,000-foot runway, where it would use up a tenth of that distance becoming airborne. For a moment all heads would turn to see what kind of Aeronca it was. "KCA," some aficio-

AERONCA

Aeronca 7AC Champion

Base price \$2,999 in 1946

Current market value \$5,500 average

Specifications

Powerplant	Continental A-65-8, 65 hp
Propeller	Wooden, two-blade Sensenich
Length	21 ft 6 in
Height	8 ft 7 in
Wingspan	35 ft
Wing area	170 sq ft
Wing loading	7.2 lb/sq ft
Power loading	18.8 lb/hp
Seats	2
Empty weight, as tested	740 lb
Gross weight	1,220 lb
Useful load	480 lb
Fuel capacity, std	13 gal
Baggage capacity	40 lb

Performance

Takeoff distance over 50-ft obst	632 ft
Rate of climb, sea level	370 fpm
Max level speed, sea level	82 kt
Vs1 (Stall clean)	33 KIAS
Service ceiling	12,500 ft
Landing distance over 50-ft obst	885 ft

All specifications are based on manufacturer's calculations. All performance figures are based on standard day, standard atmosphere, at sea level and gross weight, unless otherwise noted.

nado would announce, and then conversations would resume.

In Middletown's Veterans of Foreign Wars hall that evening, a long-separated clan, 400 strong, gathered to pay tribute to the little airplanes of Aeronca.

Speeches were made sharing reminiscences of Aeronca's salad days, and of the hard times, too. But the shortest and most eloquent, in an understated way, was delivered by Jim Thompson, who never expected to speak.

For Thompson there is only one kind of airplane—an Aeronca. He owns the last Aeronca ever built, a beautifully restored Sedan, and one of the two airworthy low-wing Aeroncas. The idea of a national fly-in was his, and he spent a year organizing it. For him, the homecoming was an event of a very special kind, a reunion to knit the past to the present, and bring together a big, sprawling family.

But Thompson is a doer, not a talker. He was surprised and deeply moved by the standing ovation he received and hardly knew how to respond to the calls for a speech. He seemed to be searching for words to express his feelings. At last, he spoke, softly and hesitantly: "To look out on that field and see all those Aeroncas," he said and paused, "well, that's just it."

The next morning, the Aeronca aircraft began to depart, flying over the factory in loose formations of threes, fours and fives, then dispersing toward their separate homes. For a moment it seemed as if 1946 had returned, and the Aeroncas were flying off to conquer America. □

SAVED BY THE SUPER BAZOOKA

A walk through Aeronca's Middletown, Ohio, facility reveals little to indicate that small tube-and-fabric aircraft were once constructed there. Massive mills, presses, braziers and autoclaves dominate the factory floor. These machines are used to fabricate aircraft parts, not for little Aeroncas, but under contract for the giants of the industry—Boeing, McDonnell Douglas, Grumman, Rockwell.

Aeronca today has become a minor conglomerate, a collection of profit centers that are no longer exclusively aviation-related.

In 1982 the company established a subsidiary, Aeronca Electronics, Incorporated, to produce "laser-based inspection systems" that are used to detect imperfections in silicon wafers, materials used extensively in the semi-conductor industry.

Aeronca has also entered the highly competitive microcomputer software field, offering programs for IBM personal computers under the trade name,

Execuware "Software for Executives."

The mainstay of the company, however, remains its aerospace business, which is located primarily at its Middletown plant and another facility in Torrance, California. Aeronca's expertise lies in shaping composites and in working with exotic alloys. A partial list of Aeronca-made components include aluminum-brazed titanium engine inlets for the Grumman F-14, Nomex and Fiberglass flap track fairings for the Boeing 747, Kevlar and Nomex floor panels for the Boeing Commercial Chinook helicopter, engine fairings for the McDonnell Douglas F-15, engine shrouds for the Rockwell B-1B bomber and thrust reversers for a variety of business jets.

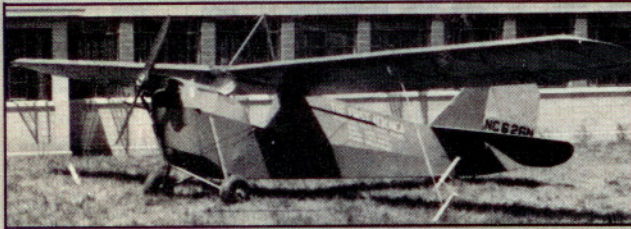
The transition from manufacturer of little airplanes to military contractor and aerospace corporation began as the little airplanes were phased out in 1950, when Aeronca received its first post-World War II military contract—for the Super Bazooka. In those first hard years

after the collapse of the lightplane market, Aeronca also built washtubs, refrigerator parts and chicken feeders. Some oldtime employees still recall those days with a certain amount of pain.

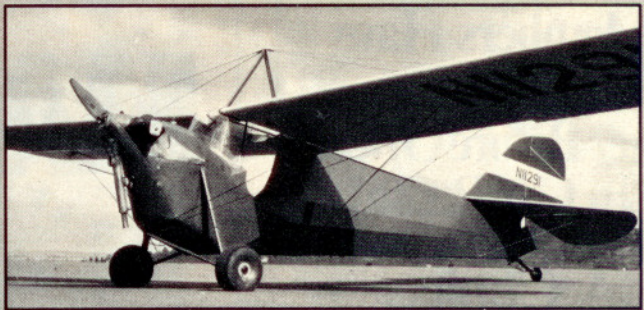
The company's big break came in the early 1950s with a contract from Boeing to build parts for the B-52; specifically, the ailerons, elevators, rudders, bomb and wheel well doors and spoilers. Since then, Aeronca has made parts for the Apollo program, America's aborted SST program and the space shuttle.

Now Aeronca is thinking about building an airplane again. It is negotiating with the Avtek Corporation to be the final assembler of the Avtek 400 twin turboprop, a canard-controlled aircraft made of Kevlar and Nomex. The Avtek Corporation expects to have a prototype flying this December and hopes to begin production of the airplane in 1985. Perhaps at some future fly-in, the Champs and Chiefs will have to make room for a plastic cousin. —J/M

SPOTTER'S GUIDE



Aeronca Model C-2
 Introduced in 1929
 Single-place
 High wing
 30-hp, two-cylinder Aeronca engine



Aeronca Model C-3
 Introduced in 1931
 Two place, side-by-side seating
 Wire braced high wing
 40-hp, two-cylinder Aeronca engine



Aeronca Model K
 Introduced in 1936
 Two-place, side-by-side seating
 Wing brace struts
 External front "Y" exhaust
 40-hp, 42-hp or 45-hp Aeronca engine



Aeronca Model LC
 Introduced in 1937
 Two-place, side-by-side seating
 Low wing
 Warner Scarab Jr. radial engine



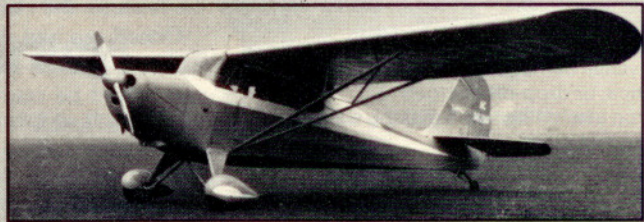
Aeronca Model 50L (Chief)
 Introduced in 1939
 Two-place, side-by-side seating
 High wing
 50-hp Lycoming engine
 Open cowling



Aeronca Model 65CA (Super Chief)
 Introduced in 1940
 Two-place, side-by-side seating
 High wing
 65-hp Continental engine



Aeronca Model 7AC (Champion)
 Introduced in 1945
 Two-place, tandem seating
 Metal rib, high wing
 65-hp Continental engine



Aeronca Model 11AC
 Introduced in 1945
 Two-place, side-by-side seating
 Metal rib, high wing
 65-hp Continental engine



Aeronca Model 15AC
 Introduced in 1948
 Four-place
 Metal, high wing
 145-hp Continental engine
 with electrical system