

NCI5746



It's not the power or the looks.

ny" wing mounted on top of the fuselage; but Roche felt that, if only he could find a more efficient wing, a suitable powerplant and some wheels, he could turn the glider into a good private airplane. From the very beginning, the idea was to bring about an airplane without any pretense of high performance. The purpose of Roche's airplane-to-be was safe, economical fun-flying in fair weather.

The Massachusetts Institute of Technology had just completed wind-tunnel tests on a series of new wings, and one of them—the Clark Y—was chosen by Roche for his transformed glider. In the garage of Roche's home at 28 Watts Street in Dayton, he and a partner, John Dohse, worked nights and weekends on the airplane. The airframe was finished in the spring of 1924.

The fuselage and tail looked suspiciously like that of the GL-2, and the wheels—well, the wheels were borrowed from Roche's son's tricycle. The fuselage structure was formed of welded-steel tubing, and the structure's triangular cross-section gave the airplane its "razorback" look. This was not its most distinguishing feature, though. To make room for the pilot's feet and legs, the forward section

of the fuselage took on a bulbous, comical look. Since the airplane sat off the ground a mere six inches, this walrus appearance was carried even further. Large wheels with wire spokes and thin tires completed the whimsical image.

The only thing missing then was an engine. They tried an 18-hp Indian motorcycle engine, but it vibrated badly and did not have the oomph to get the ship off the ground. One day Roche was attending a blimp launch at McCook, when he spied a small engine pumping ballast air into the blimp. It was an opposed two-cylinder engine that developed 15 hp and weighed only 51 pounds. The engine's designer, Harold Morehouse, had been working in an office adjacent to Roche's the whole time. When Roche asked Morehouse to come up with a bigger version of his blimp-pump, Morehouse gladly complied.

By the summer of 1925, the enlarged Morehouse engine had been made to put out 29 horsepower. The completed airplane, including the engine, weighed in at 339 pounds. On September 1, 1925, it was time for taxi tests. The airplane had been moved to Dohse's farm for this purpose.

Now, none of the three knew how to fly, but Dohse had



It's the kicks that count.

once flown in an airplane, and he even had held the controls a few times. On the strength of this experience, he was elected the taxi-tester. All morning the tricycle wheels clattered up and down the fields. Sensing the power of the new engine, Dohse gave it full throttle. He was airborne.

Dohse flew for five miles, then decided to circle the field a few times. Everything performed flawlessly, and, according to the record, Dohse's first landing was a perfect three-pointer. In the next few months more than 200 flights were made. They were not test flights as such, they were fun flights. The atmosphere surrounding this new creation was so casual that no records or logbooks were kept of these first adventures, although rumor has it that Dohse once took the airplane to 20,000 feet in order to test Roche's theories about its service ceiling.

Morehouse left the partnership in 1926 to join the Wright Aeronautical Corporation, and he took the plans for his engine with him. That left Roche and Dohse with only one complete engine and some parts. As luck would have it, a crash soon followed that destroyed the engine. Dohse had gotten into the habit of squeezing a passenger

into the cockpit behind the single pilot's seat. One day Dohse took his brother up for a flight, and he stalled out of a turn. His brother was unhurt but Dohse broke his legs. Two mechanical engineers, Poole and Galloway, helped salvage what was left of the Morehouse engine and redesigned a somewhat heavier substitute.

The Aeronautical Corporation of America, Aeronca for short, entered the picture in the spring of 1929. A group of Cincinnati investors had formed the corporation in November 1928. One of the investors was Senator Robert A. Taft, an influential Republican and son of former President William Howard Taft. Though Aeronca had solid financial backing, it was in the unusual position of not having an airplane to manufacture.

One Conrad Dietz, another local entrepreneur, had visions of marketing a three-place biplane he had designed. He was hoping to persuade Aeronca to put it into production, but its experimental certification expired at about the same time the Aeronca group began casting around in earnest. He had heard of Roche's lightplane, though, and did Aeronca want to look at a homebuilt in Dayton? *continued*

By this time Dohse's legs had healed, and he was eager to demonstrate the airplane to Taft and his cohorts. The only thing that had the pair slightly nervous was the engine. On several occasions in the past, the crankshaft had displayed a propensity to break off just behind the propeller hub, sending the prop sailing forward. But the airplane behaved for the presentation, Taft was impressed, and handshakes abounded. Aeronca had its first airplane.

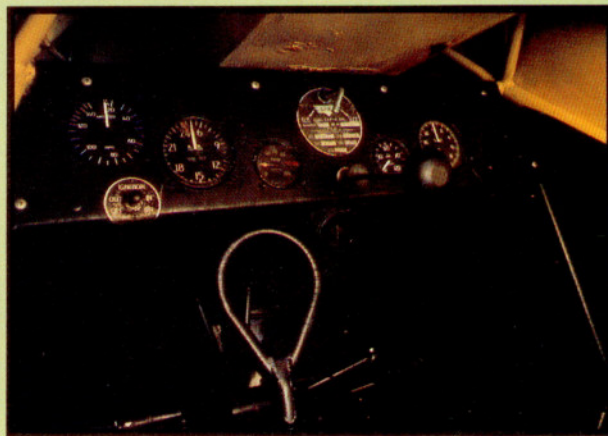
They called it the C-2. Test flights of the airplane, conducted in June 1929 by a Major Gerald Brower, confirmed what Dohse already knew: The airplane was easy to fly and it had a forgiving nature. Stalls were conventional; and, if made to spin, the C-2 would recover in one-and-a-half turns if the pilot just let go of the controls. Even though the engine only produced 30 horsepower, the home-built's light (398 pounds, empty) weight permitted a climb rate of 600 fpm. The only disparaging thing one could say about its handling was the need for a lot of rudder pressure to overcome the ailerons' adverse yaw effects while in a turn. The structure was very strong. Brower once dove the C-2 to a speed of 130 mph with no ill effects.

The first production C-2 was finished in August of 1929. Aeronca set up a modest shop at Cincinnati's Lunken Air-



This is a people airplane: Its funky looks draw a crowd and make you smile.

Aeronca
C-2
 THE PURSUIT OF HAPPINESS



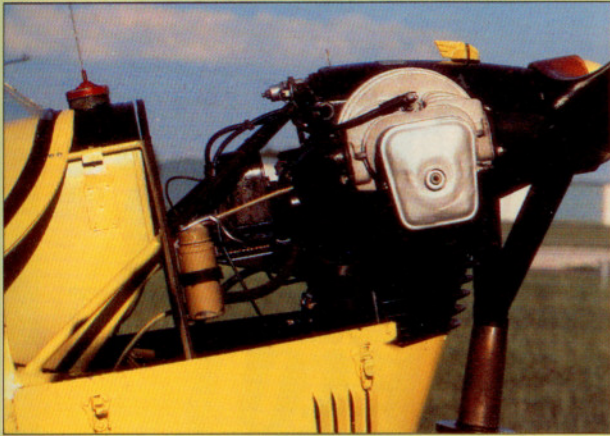
port; other tenants on the field were the Embry-Riddle Company and the Metal Aircraft Corporation, manufacturers of the "Flamingo," an eight-passenger monoplane.

The C-2 was the quintessential minimal airplane. One thinly padded seat was provided for the pilot—the only occupant of the airplane. The Civil Aeronautics Authority did not like the makeshift tandem seating arrangement, feeling it would be too easy for the passenger to interfere with the pilot as he operated the controls.

There was no heater, no brakes, no shock absorbers, no side windows and no electrical system. In the earliest C-2s, even an airspeed indicator was optional. For hedonists, Aeronca made wheel brakes, a battery, navigation lights, a cabin heater and even a set of Edo floats available as options. The standard C-2 cost \$1,495, fly-away-Lunken.

The Govro-Nelson Company of Detroit made the parts for the engine, and Aeronca did the assembly work. It was still the Poole-Galloway design, but Aeronca put its name on it and called it the E-107. There was no starter, of course, and there was a single magneto. Each cylinder had but one spark plug. Cruising at 2,100 rpm, the little engine





burned two gallons of fuel and a half-pint of oil per hour. A heat exchanger surrounded the exhaust pipe, giving full-time carburetor heat; float-equipped Aeroncas did not have this feature. On the firewall was a special fixture for holding an oil can, needed for lubricating the E-107's rocker arms. Move a tiny cover on the crankcase, and an oil sight gauge popped up; the eight-gallon fuel tank also had a floating sight gauge.

Aeronca knew it had a good thing, and after October 29, 1929, the company was even more certain. As the heavier, more expensive airplanes bit the dust during the early years of the Depression, the little Aeronca's sales picked up. Other "ultralight" (the CAA defined this as under 600 pounds empty) designs were to follow in the wake of the C-2, but none of them would enjoy the success that the Aeronca experienced. The American Eaglet was one contemporary of the Aeronca and so were the Buhl Pup and the Alexander Fly-about. By 1932 these airplanes were out of business. That same year Metal Aircraft went belly-up, and Aeronca took over its space.

Aeronca continued the production of the C-2 through 1931; a total of 164 were sold. The first C-3s were called "Collegians;" they had a 40-hp engine (the E-113) and side-by-side seating for two. Instead of the crude single-axle undercarriage that the C-2 used, the Collegian had rigid tripod struts and smaller, balloon-type tires. The funny tricycle-wheel look was gone, and a nonsteerable tail-wheel was even offered as an option, along with winter doors and side windows.

Up until 1935, when the C-3 "Master" was introduced, the Aeroncas commonly were called razorbacks. They also were called flying bathtubs, Airknockers and belly-whompuses, among other things. Anyway, the Master was the "roundback" Aeronca. Plywood formers gave the Master its rounded look, and the changed airflow patterns allowed a reduction in the rudder's surface area.

A door with windows on the Master's right side was standard. Another new addition was a single oleo undercarriage strut to help soften those sloppier arrivals. The shock absorber was located inside the Master's cabin, down near the pilot's feet. Another door on the left side would have run you an extra \$15; the optional brakes were \$100; and for winter comfort, \$9.50 got you the cabin heater. The Master was the deluxe Airknocker, so it weighed a little more (569 pounds empty, 1,006 pounds gross), and it



A Lot of Good Chemistry Between Them

Richard C. (Kip) duPont—yes, of the duPonts—can have any airplane he wants; and, in fact, he regularly flies a Cessna 310, a DC-3 and a de Havilland Beaver. But his most prized possession is his Aeronca C-3 Master. He found it in Utica, New York, back in 1959. Though his partner, Fred Shelcross, thought it was a ripoff, they paid \$1,500 for it.

The placard in the cockpit says that the airplane was built in April 1936, serial number A-641. Once the purchase had been made, the C-3 was to have been ferried to duPont's home field, Summit Airpark in Middletown, Delaware. Shelcross made it as far as Wings Field, west of Philadelphia, where the engine conked out and a forced landing was made.

"I don't know what happened. I think it's the cylinder," he telephoned duPont. It was the worst possible news that the owner of an Aeronca E-113 engine could hear. But guess what—it was only a fouled spark plug. When one of the plugs fouls, that's the ball game, because of the single-magneto ignition; there is only one spark plug for each cylinder.

The rest of the trip was made uneventfully. Since then the little Aeronca has spent a

pampered life at Summit, where it shares a hangar with a Model T Ford. It has been fully restored to original specifications.

Every once in a while duPont takes it up. "I don't like to do it a lot, though, because I'm afraid it'll get dinged," he said.

The day we were to photograph it, a small throng assembled as the airplane was trundled out of the shadows. A clutch of Cessna multi-engine sales representatives politely endured the proceedings. DuPont is a Cessna dealer.

As we scrambled around taking pictures, he recalled the time he flew it in formation with a radio-controlled model airplane.

Soon it was our turn to fly formation with the C-3. Our Skyhawk, with flaps extended and indicating somewhere around 55 knots, periodically blew its stall horn. DuPont's C-3 was probably in a 75-percent cruise.

Back on the ground we watched him land. The group that had gathered earlier awaited his arrival, too. He landed on the grass to spare the tail skid. Later, duPont mentioned that he just had paid his yearly federal use tax on the airplane. The bill was for \$6.75. □



AERONCA C-3 "MASTER"

Price new \$1,890
Current market value Priceless

Specifications

Engine Aeronca E-113 40 hp @ 2,500 rpm
Recommended TBO 400 hours
Propeller Sensenich,
66 in, wood with metal tips
Wingspan 36 ft
Length 20 ft 3/4 in
Height 7 ft 10 in
Wing area 142.2 sq ft
Wing loading 7.06 lb/sq ft
Power loading 25.1 lb/hp
Seats 2

Empty weight 569 lb
Useful load 437 lb
Payload w/full fuel 383 lb
Gross weight 1,006 lb
Fuel capacity 8 gal
Oil capacity 3 qt
Baggage capacity 43 lb

Performance

Top speed 93 mph
Cruising speed 85 mph
Landing speed 35 mph
Rate of climb 450 fpm
Glide ratio 10:1
Service ceiling 12,000 ft
Cruising range 225 sm
Cruise endurance 2 1/2 hr

Aeronca
C-3
THE PURSUIT OF HAPPINESS

cost a little more (\$1,890). There were 250 C-3 Masters, and a total of 450 C-3s of all types.

Up to that time, private flying meant rich people flying around in heavy biplanes propelled by large radial engines that loved to consume gas and oil. The *Aviation Yearbook* of 1929 tells us that the Vicomte and Vicomtesse Jacques de Sibour flew in a de Havilland Moth from England to Indochina, where they did some big-game hunting. That same year the Long Island Aviation Country Club was founded. Members spent \$300,000 on the clubhouse, hangars and 60-acre flying field. Club members included the likes of Amelia Earhart, Harry Guggenheim and Chance Vought. That was private flying.

Along came Aeronca—and the Depression—and all of a sudden light airplanes gained a respectability and a level of acceptance that could not have happened had conditions been otherwise. The Roche-Dohse lightplane was selling cheap fun in hard times. It was right on. Dual instruction in a C-3 would have cost you \$5 an hour. In a competing trainer, such as a Fleet, the cost would have been more like \$30 an hour. Solo, the hourly cost went down to \$3.

Aeroncas even set records, despite their funny looks. In 1936, 12 of the 33 official world's records issued by the National Aeronautic Association were held by Aeronca C-3s. An Englishman even flew one from London to Cape-town, South Africa.

Whatever happened to Roche and Dohse, you say? Dohse left the scene in the spring of 1929 to join the Boeing Airplane Company. Roche was given 220 shares of Aeronca stock in exchange for his design. He stayed on with the outfit until 1935, when he joined the National Advisory Committee for Aeronautics (NACA) in Langley, Virginia. Roche was an engineer and business matters left him cold. He felt out of control when Aeronca gave his airplane national exposure. A big distribution network went against his grain. He wanted to keep the market small

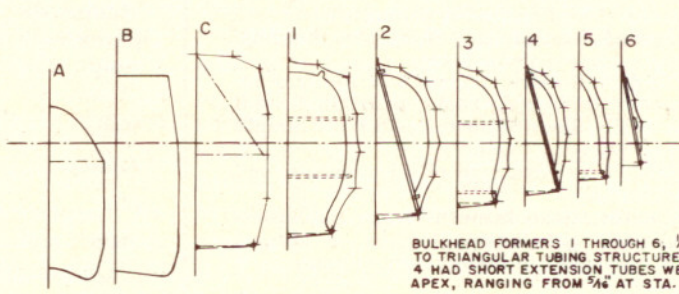
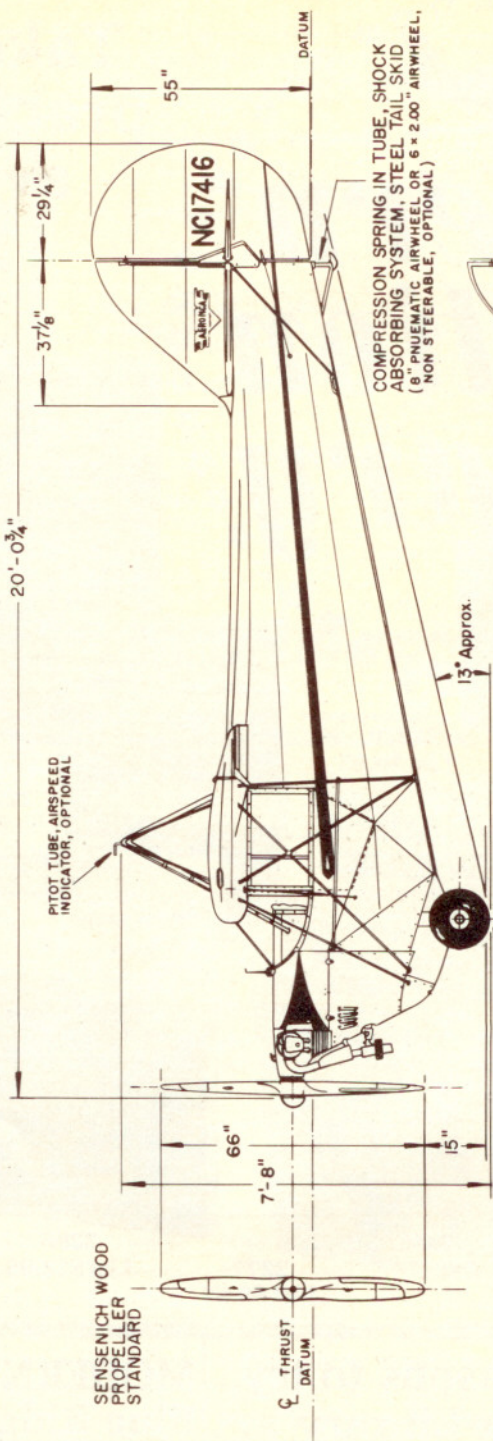
and local so that any problems could be ironed out before going into full-scale production.

And then there was the C-1 experience. Against Roche's warnings about tampering with the airplane's basic design, Conrad Dietz came up with a sportier, high-performance Aeronca, the C-1. It had a metal propeller, a stronger structure to handle aerobatics and a shorter wingspan than the regular Aeronca. This was to have been the "Scout," but while Dietz was demonstrating the prototype to a lawn party in Sharonville, Ohio, he stalled out of a vertical bank and was killed. That was the end of the Scout.

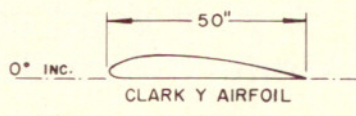
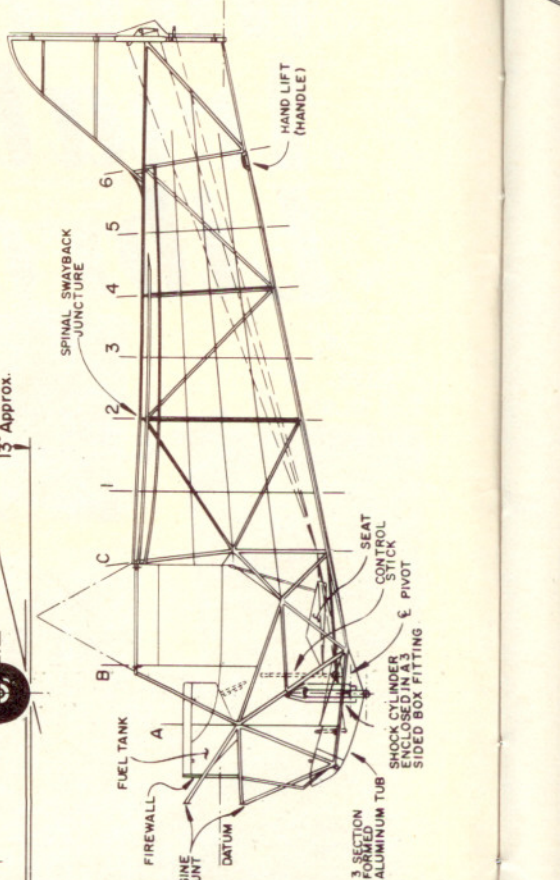
Roche even felt that the Collegian and the Master were getting away from his original idea about what a recreational airplane should be. No matter; Roche had more than done his part to make the idea of airplane ownership a practical one. We owe him a lot, not just for the airplane, but for the idea behind it. It is a people airplane, one that puts a smile on your face and draws a crowd. If you are ever fortunate enough to see one in flight (there are only a half-dozen or so in flying condition), you will not soon forget it. The engine sounds like an old Toro lawn mower, and it will be flying slowly. Might even be backing up, if the wind is strong enough. The guy next to you will say, "What in the world. . .?" and start laughing.

It is hard to imagine what flying one of those must have been like back then. But there are ways. One day while flying a Skyhawk, I pulled on the carb heat, cut the power to 1,800 rpm, put down 20 degrees of flaps and opened the window. I don't know how high I was, but I could see people very clearly. To tell you the truth, I wasn't really looking at the instruments that much. I saw men chopping firewood, while in a neighboring yard teenagers played frisbee with a German shepherd. A mile later I came across two kids throwing sticks onto a frozen farm pond. One of them raised his hand, then the other. They were waving. I stuck my hand into the cold wind and waved back. □

AERONCA C-3 three-view illustrations on page 40.



BULKHEAD FORMERS 1 THROUGH 6, 1/4" PLYWOOD STRAP TO TRIANGULAR TUBING STRUCTURE, STATIONS 1 THROUGH 4 HAD SHORT EXTENSION TUBES WELDED ABOVE A-FRAME APEX, RANGING FROM 3/16" AT STA. 4 TO 2" AT STA. 1.



15.5" GOODYEAR BALLOON TIRES, AERONCA OLEO STRUTS, 16 x 7.00" GOODYEAR STREAMLINE AIRWHEELS AND BRAKES, OPTIONAL (SPECIAL 18 x 8.3" TIRES ALSO OPTIONAL)

