

INTERESTING GLIDERS

by PETER M. BOWERS



Photo: Peter M. Bowers

Third prototype Bowlus Baby Albatross, with plywood pod, still flying. Notice "Pendulum" elevators and the rudder marking, which was the prewar Bowlus trademark.

Another classic American sailplane still to be seen is the Bowlus Baby Albatross. Designed in 1938 by William Hawley Bowlus, the Baby deserves lasting recognition for being the first serious attempt to make a real sailplane available to American pilots at low cost. The name resulted from the combination of the wing design, which was adapted from the German Grunau "Baby," with some of the fuselage formers of the older Bowlus "Albatross" high-performance sailplane.

The new Bowlus was produced in kit form, with the major components all prefabricated. The wing D-spars were complete, the ribs were complete but unattached, the tail surface trailing edge bows were laminated and glued in a jig, and the laminated wood veneer fuselage pod was formed up over a mould at the factory. This was more than just a convenience for the builder. Bowlus simply didn't trust amateurs to make the critical glue joints. The kit price was \$400 in spite of all the factory prefabrication, and could be purchased on the installment plan one component at a time. Some cagey merchandising was involved here in that the parts came in an established sequence with the wings last. This prevented anyone from buying his wings first and then cancelling the rest of the order while fitting them to a home-brew fuselage.

While considered inadequate by today's standards of sailplane perform-

ance, the old-fashioned characteristics of the Baby sometimes enable it to stay aloft under marginal conditions that force the heavier modern designs to land. It was designed under the prevailing philosophy of the 1930's, which was to obtain minimum sinking speed by building them light. Structural weight on the prototypes was shaved to the bone, some weight even being taken out of the Grunau wing. More was saved by the use of the distinctive "Pod-and-Boom" fuselage construction, Hawley's father made the sand-cast aluminum fittings as thin as possible, and the plywood skin on the tail surfaces was only 1/32" thick. The type-certificated production models were beefed up all around, with larger castings, heavier formers and skins, and 1/8" instead of 3/32" control cables.

In spite of this weight increase, the production Baby was still a fine floater, but its penetration, thanks to lightness and the "Sky-Hook" Göttingen 535 airfoil, was practically nil. This was not much of a handicap in the prewar meets, which were mostly slope-soaring affairs with the few cross-countries all being downwind. The Babies were not fitted with spoilers and this, combined with the poor sideslipping characteristics of the pod design, made landing a tough job if the pilot was carrying a little too much speed. Floating the length of the field three feet up was practically a habit with pilots just checking out in the Baby after flying

heavier utilities. Spoilers were fitted to some Babies in postwar years to overcome this.

Another unique feature of the Baby by today's standards was the use of a "Pendulum" horizontal tail, the only one used on a production American sailplane. Elevators only were mounted on a torque tube and no horizontal stabilizer was used. The disadvantage of this system was complete lack of elevator "Feel," which made it possible for the pilot to over-control badly at high speed. The certificated models were required to use a bungee that gave artificial feel proportional to control column displacement. This same feature, now called a "Flying Tail," has reappeared on recent designs, with the whole horizontal surface moving and truly proportional aerodynamic feel provided by a reverse-action resistance tab.

Except for the aluminum tube boom and the castings, construction of the Baby was all wood. The prototypes differed from the production models in that mahogany plywood sections were used to cover the pod. Standard struts were wood streamlined with ribs and fabric so that they looked like narrow wings, but many were later replaced by streamlined steel tubing. Fabric covering in the prewar days was glider or balloon cloth, glued on and given only a couple of coats of clear dope. This translucent covering, combined with the varnished mahogany of the leading edges, made the Baby a beautiful sight in the air with the sun behind it. Latter-day regulations have ended this by requiring heavier grades of fabric and numerous coats of pigmented dope.

With a red-line speed of only 65 mph and fragile as eggshells compared to the husky all-metal modern designs, the Bowlus Baby is no longer a serious competitor nor is it suitable for pilots trained in and used to modern designs. In the hands of pilots who know and are willing to accept its limitations, however, it is still a little sweetheart. There are only 23 of them left now, but at least one owner intends to keep his going until the termites finally get it.

Specifications

Span: 44 feet
Length: 19 ft. 2 in.
Empty Weight: 250 lbs.
Gross Weight: 450 lbs.
Wing Loading: 3.5 lb./sq. ft.
L/D: 20:1
Sink: 2.25 ft./sec.