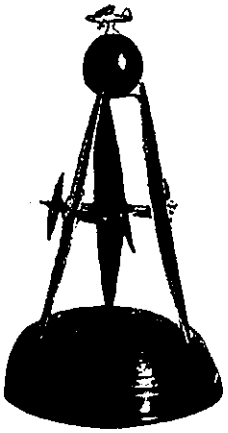


The duPont Trophy.

The DU PONT TROPHY WINNER

Plans for building a duplicate of the payload event winner at the Nationals—a scale model of the Corben Super Ace

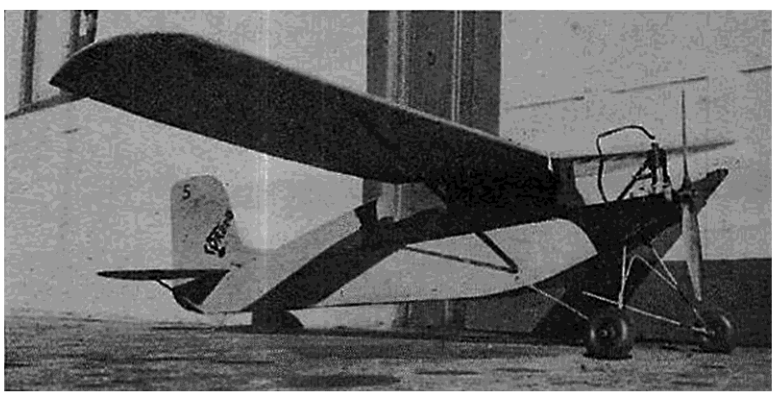
ABOUT ALBERT E. DILLON

Fifteen years ago Mrs. Dillon began missing her paring knives. But it wasn't difficult to track down the missing kitchenware. She merely looked for her son. She could be sure he had the knives, busy carving out a model of the Jenny—the favorite airplane of the day. From that time on Albert—"Pete," to practically every one—was a model "bug." He continued modeling through the painful spruce-and-silk era. In 1927 he turned to balsa and tissue, turning out ROG models that flew successfully. Unfortunately, his modeling took a slump when he graduated from high school in 1931.

Gas models brought him back into the model fraternity. They seemed to be just his line—a natural reaction since Pete operates a garage in Jackson, Michigan. With more optimism than wise judgment he entered the 1936 Nationals in Detroit. He left Wayne Airport after the contest with a 60-second flight to his credit and a serious resolve to get more experience.

He spent the next year flying his Corben in all kinds of weather and under every possible setting. And when the 1937 contest season began, Dillon was among the winners. At the 1937 Nationals he had the satisfaction of bringing his year of model work to a successful peak by winning the duPont Payload Contest. His Corben performed smoothly despite the burden of a 2¼-pound dry cell attached to the bottom of the fuselage.

Between his garage and his gas models, Pete keeps the activities of the Jackson Gas Model Club running smoothly. As president, he is doing good work in spreading the model doctrine throughout Michigan.



By

Albert E. Dillon

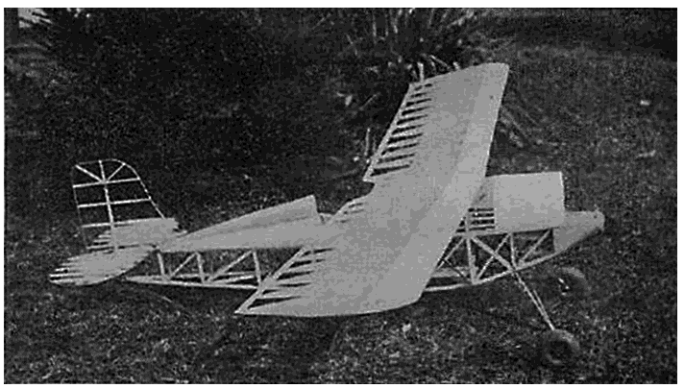
In collaboration with

Gordon S. Light

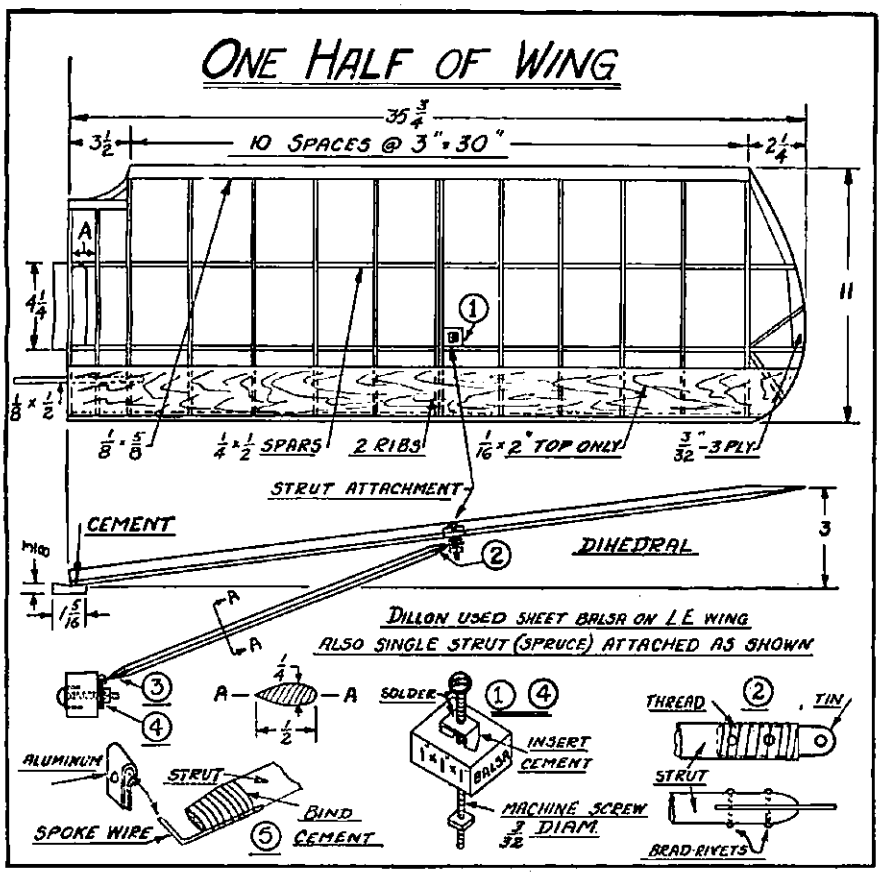
17th consecutive Air Trails trophy-winning model

A PAYLOAD event makes severe demands on a model. First is stability under a wide variety of weight loadings, motor settings, and flying conditions. Strength and ruggedness of construction is a second requirement. The entire structure must withstand considerable rough handling. The landing gear in particular must be "tough." It must absorb the shock of "hot" landings with the increased weight of the payload. An additional requirement is that the model be small enough to give the motor an ample reserve of power for carrying the payload. The wing should be of the high-lift variety with sufficient area for lifting the increased weight.

The Corben Super Ace isn't the ideal model for a payload event. But it came closer to filling the requirements than any other model entered in the payload event at the last National contest in Detroit. That is why Dillon took the duPont Trophy home with him. So until the gas modeling experts develop a special payload type of model, the Corben Super Ace is leading the field. It's an attractive model particularly easy to build and fly, since it has been on the market in kit form for the last 1½ years. Dillon built his model from a kit, making only minor changes that a year of steady flying proved necessary. Dillon describes the Corben as the most consistent flying model he's ever seen. Here's the Corben's record for the 1937 season: 2nd place, Battle Creek, Michigan, Gas Model Contest;



The presence of a scale model in the ranks of gas trophy winners is a *pleasant change.* Above, left—The model with cowl removed. Directly left—The framework.



terns have been crowded into one page because of space limitations. Only half of the fuselage formers have been shown. Draw up the complete pattern before cutting out the fuselage formers from $^3/_{32}$" sheet balsa. Balsa is used throughout the construction unless otherwise noted.

FUSELAGE

Dimensions in the drawing of the fuselage are given from the top of the center longeron to the outside edge of the bottom longeron. In the top view of the fuselage, the dimensions are the overall widths of the fuselage at the indicated stations. First build the bottom of the fuselage from ¼x¼" hard balsa. Later, add the formers (F1, F2, etc.) and complete the top fairing with $^3/_{32}$x$^3/_{32}$" balsa stringers. Twelve stringers are used—spaced uniformly on top of the fuselage formers.

MOTOR MOUNTS

The motor and gas tank are mounted to pieces of pine ⅜x1¼x10". These motor mounts are built into the fuselage as indicated in the cross sections A-A, B-B, and C-C. The mounts will have to be spaced to fit the particular type of motor you are using. Dillon used a Brown Junior which requires 1½" between motor mounts. At section B-B an oil wall is added to prevent motor dirt from entering the fuselage. Aluminum or tin-can metal will do nicely. Former F1 is also covered with an oil wall. A nosing is cut from ⅝" sheet balsa. It is cemented to the front ends of the motor mounts.

3rd place, Jackson Gas Model Club Contest; 1st place, Aviation Round-up, Marshall, Michigan; 1st place, duPont Payload Contest, National Contest, Detroit; 1st place, payload and 3rd place, duration, Southwestern Michigan Gas Contest, Kalamazoo, Michigan.

The Corben weighs 4¼ pounds. At the Nationals it carried 50 per cent payload in the duPont Contest. The payload consists of a large dry cell, weighing 2¼ pounds, taped to the bottom of the fuselage.

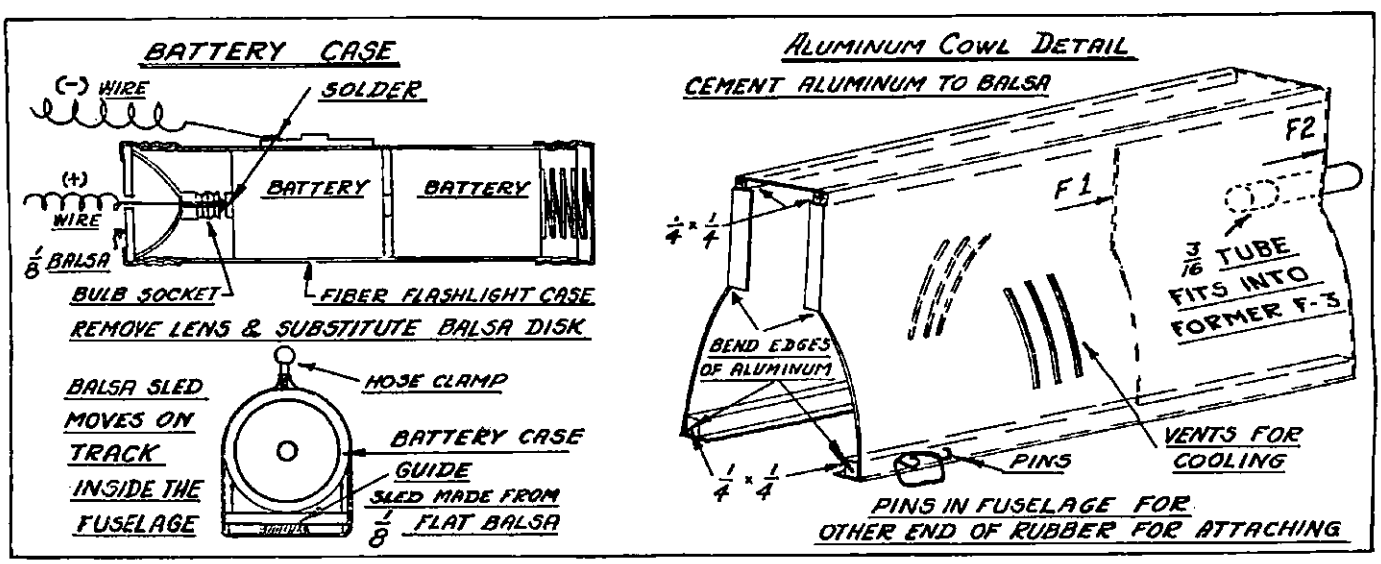
CONSTRUCTION

The drawings for this article were prepared from the kit drawings, except for the changes which Dillon made in the landing gear and the method of attaching the wing struts.

The one page of full-size patterns contains all the necessary rib, propeller, and fuselage former shapes. The pat-

COWLING

The cowl is removable for motor servicing. It is built up of sheet aluminum, cemented to a light structure of ¼x¼" balsa and $^3/_{32}$" formers. A $^3/_{16}$" diameter tube is cemented to former F2. This tube fits into F3, which is an integral part of the fuselage. Rubber bands and pin hooks hold the front of the cowl to the *(Turn to page 90)*



Du Pont Winner

(Continued from page 40)

center longerons. If you intend to do much flying with the cowl in position, it will be necessary to solder control extensions to the air, gas, and spark controls. These controls have been shown in the fuselage drawing. You can regulate the spark lever control by cementing a "saw-tooth" piece of aluminum to the top of the cowl to maintain any desired spark setting.

Flying can be done without the cowl. However, be sure the cowl is in position when you exhibit your model on the ground, as it improves the appearance of the model.

LANDING GEAR

1/8" diameter wire is used throughout. It is bent in two U-shaped pieces. The bottom of the U is cemented and bound to the bottom of the fuselage. The ends of the rear U-piece are looped to fit around the ends of the front U. All joints are soldered and wrapped with soft wire. A spreader bar is attached to the front U-piece to prevent the landing gear from spreading apart. The sides of the landing gear may be covered with silk for better appearance. However, the silk is likely to be split on a rough landing.

WING

The wing is made in two pieces. Construction and covering can be completed before cementing the two halves together. When joining, cement the two end ribs together and add a V-shaped piece of 1/8x1/2" balsa to reënforce the joint. 3/8" balsa is cemented to the bottom of the wing to fit into the top of the fuselage.

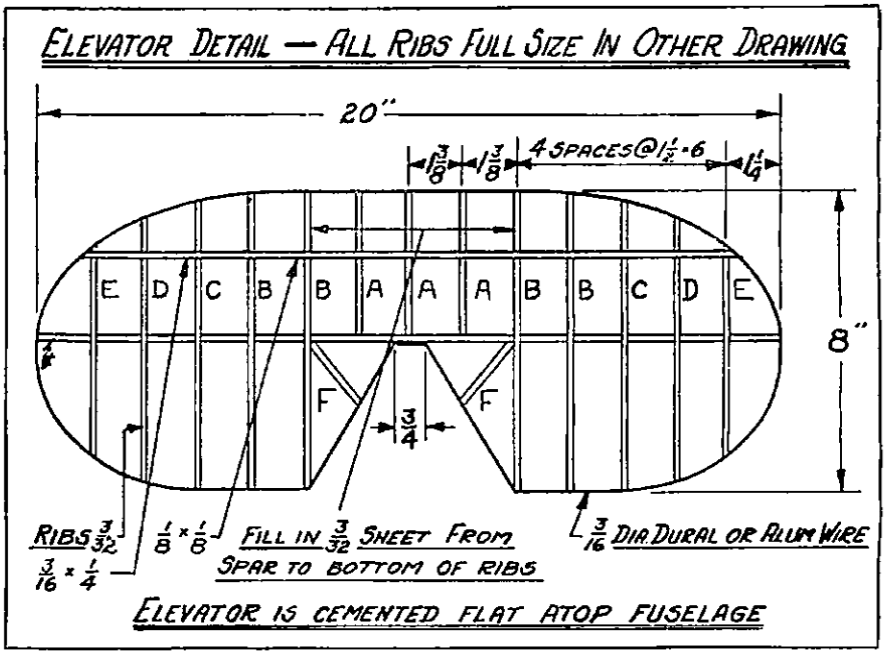
Wing struts are cut to a streamlined shape from spruce 1/4x1/2". The method of attaching the struts to the wing and to the fuselage has been clearly illustrated in the drawing.

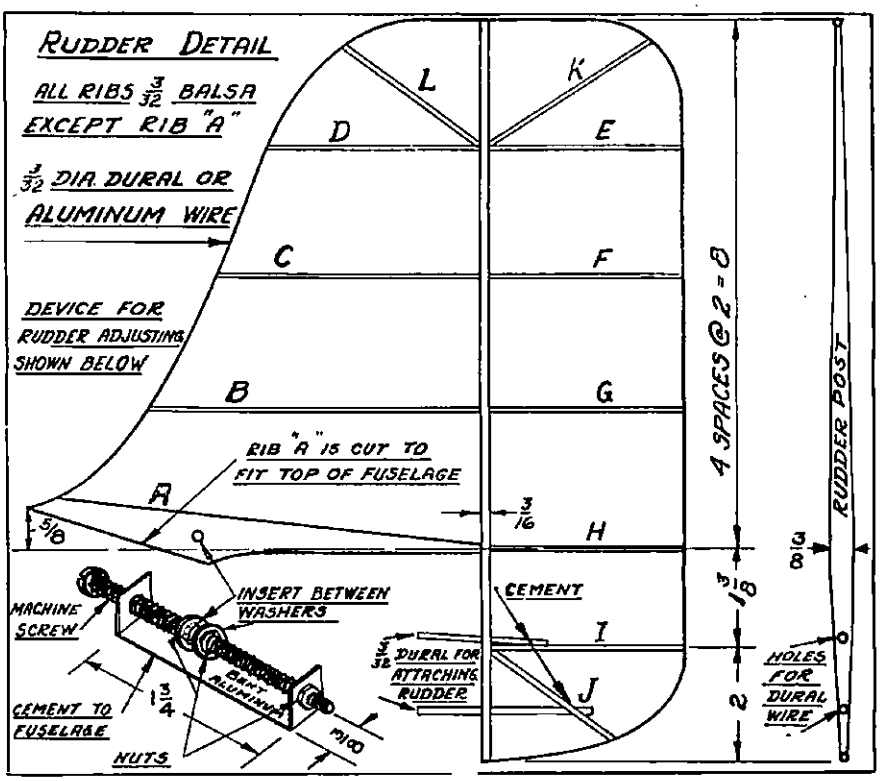
WING ATTACHMENT

The wing rests on top the fuselage on formers F4 and F5. Rubber bands are used to secure the wing. The rubber passes over top of the wing and around short lengths of 3/16" diameter tubing which have been cemented to the fuselage.

ELEVATOR AND RUDDER

Rib shapes for both these surfaces are included in the drawing. Their positions in the elevator and rudder can be identified from the detail drawings. In the drawing of the rudder, notice how rib "A" has been cut away to fit over the center rib of the elevator. The elevator itself is cemented firmly to the top of the center fuselage longerons. Set it at zero incidence. Directly forward of the elevator is located the rudder adjustment device. A machine screw fits through rudder rib "A." This screw is set in a piece of aluminum. You can adjust the rudder by merely turning the screw which moves the rudder in either direction. Rib "A" is not cemented to the elevator or fuselage; the adjustment device is the only attachment. However, the bottom of the rudder at ribs I and J is secured to the rear of the fuselage with pieces of 3/32" diameter dural tube. These tubes are cemented to the ribs I and J, pass through holes in the rudder post, and are inserted into the rear end of the fuselage and secured with cement. The rudder is braced to the elevator with fine wire. The elevator is, in turn, strengthened by two 3/16x3/8" spruce struts cut to a streamline shape.





COVERING

The model is covered with silk. Treat the silk with two coats of Berryloid dope. The color scheme of the model is yellow and black.

BATTERIES AND IGNITION SYSTEM

The two batteries are carried in a fiber flashlight case. Take out the lens of the flashlight and insert a 1/8" flat balsa disk of the same size. Punch a hole in the center for the positive wire. The positive battery terminal is made by removing the glass from an old flashlight bulb. Take care not to break the porcelain base. Drill a hole through the bulb and insert the wire, securing with solder. The negative wire is soldered to the switch, which is on the outside casing of the flashlight. The rear cap of the flashlight, with the spring for keeping the batteries in place, is left

intact.

The battery case is mounted on a balsa "sled." Cut from ⅛" flat. The sled rests atop two skids cemented to the floor of the fuselage. A balsa guide is cemented to the bottom of the sled to fit between the two guides. The sled is secured to the guides with a hose clamp.

FLYING

For ordinary flying, the Brown Junior should be set at about ⅓ full power. Full power or even half power will cause the model to stall, unless zero incidence is used in the wing. When carrying payload, increase the motor r.p.m. as the weight is added. Dillon has carried a maximum of 2¼ pounds payload. On this flight he used ¼" incidence block under the leading edge of the wing. With a 25 percent payload or about 1 pound, he recommends using ⅔ power and a ⅛" block under the leading edge of the wing.

Dillon has already developed a new type of model for the limited motor-run events. He calls the model Mr. "X." The flights which it has turned in during the past six months indicate that it is a promising design, fully capable of winning the payload contest this year. To stimulate competition along these lines, Dillon has generously offered to put the duPont Trophy back into competition. He won permanent possession of it last July. Nevertheless, if contest officials accept his offer, payload fliers will have another chance to win the attractive duPont award. It will be difficult to beat Dillon in a payload or any other type of model contest. His methodical flying—day in and day out—brings out a model's weak points. He corrects these shortcomings and the final version is a dependable, good-flying model that never fails to deliver.