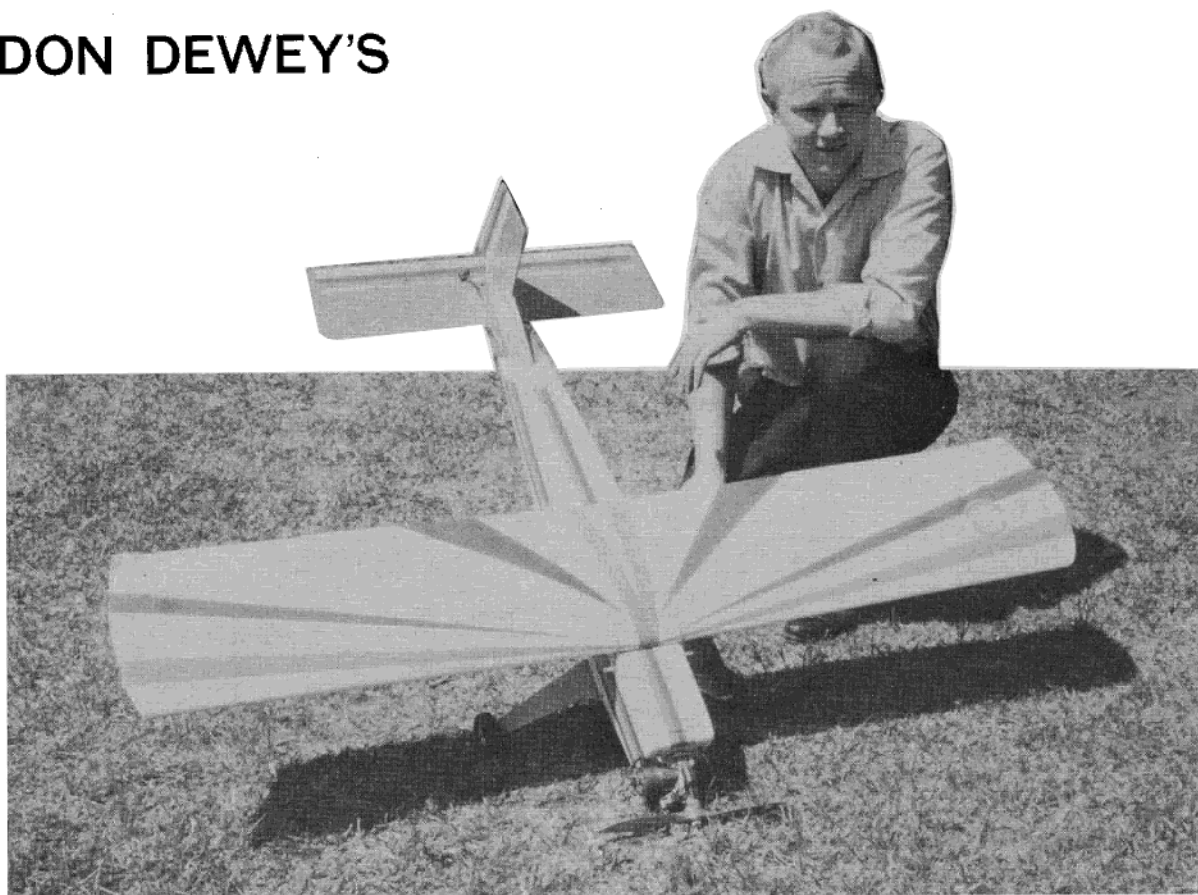


DON DEWEY'S



CIRCUS

... Or, how nearly everybody designed a quick, easy-building multi for propo rigs and .35 to .60 mills! A lot of flying for a minimum of effort!

CONSIDERING today's trend toward sleek, streamlined, jet-like designs, as well as the technically excellent series of articles on the aerodynamics of Class III aircraft currently appearing in RCM, the Circus seems strangely out of place.

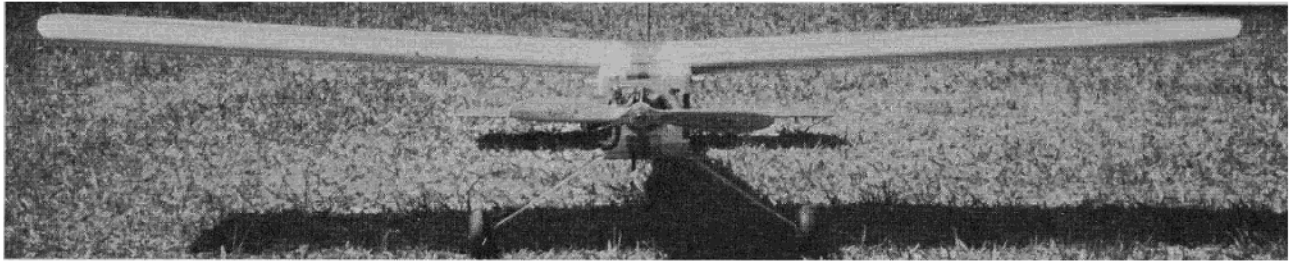
At this point in most construction articles, the author tells you the why's and wherefore's of his particular design. In a great majority of the twenty or thirty designs submitted to RCM each month, the individual writers have some sound reasoning behind their particular configuration. Being exposed to all of this engineering and aerodynamic data each month, you would naturally assume that the editor of this rag would be a veritable font of information. Just so you won't be disappointed, here is the scientific substantiation behind this radical new design.

A few months ago, Whitey Pritchard submitted a design called the Praying Mantis. As you may recall, this was an all sheet-canard, resembling the XB-70. After accepting the article and plans, I turned them over to Dick Kidd, our Technical Art Editor, then rushed out and bought all of the $\frac{3}{16}$ " sheet in town. When Dick finished the plans and brought over a blueline so that I could finally build Whitey's creation, I found the whole thing was built out of $\frac{1}{4}$ " sheet! At this memorable point in history, Chuck Cunningham called from Texas and remarked that he would give \$2 to anyone that could design an uglier airplane than my Royal Coachman. With such an incentive, and a rather larger pile of choice $\frac{3}{16}$ " sheet on hand, the Circus began to evolve.

The first step, of course, was to de-

sign the all-important wing. After all, airfoils have been the subject of a great deal of discussion, and it certainly wouldn't do to have anything less than the sum total of all that was known about airfoils. With this prerequisite in mind, I called Jack Doty at Foamcrafts and asked him what type of foam cores he had laying around in a shoulder wing configuration. After giving him the design criteria of a span between 50" and 72" with a-little-but-not-too-much dihedral, between 10-20% thick, and with either a symmetrical or semi-symmetrical section, Jack cried for a short while, then shipped down what looked suspiciously like a deBolt Jenny core with half the dihedral taken out. The shipping box, however, was marked Dewey Special, so my ego was satisfied.

The next step was to trace the airfoil



section on a piece of paper and design a fuselage around it. Since anything I try to draw freehand has lumps in it, and considering the known fact that the shortest distance between any two points is a straight line, the fuselage evolved as a box. And — you guessed it — the whole damn thing was built out of $\frac{3}{16}$ " sheet — fuselage, stab, elevator, fin, and rudder. Bulkheads, too, with the exception of the firewall which is $\frac{1}{4}$ " plywood. The fuel and battery compartment hatch is $\frac{3}{8}$ " sheet so that the wing would have something to rest against. Landing gear was conventional because everyone else uses trike gear.

Scientific, ain't it? After finishing the fuselage (about one evening's work), the Circus was painted white and trimmed with red, yellow, orange, and black dope. The painting scheme utilizes straight lines so as not to ruin the aesthetic qualities of the design. (?)

At this point, the fuselage was completed, including painting, and the wing cores were covered. And I was sick of the whole project. One day, Bill O'Brien, RCM's Special Projects Editor, came by and, spying the atrociously painted box, asked "What's that?"

"That," I replied modestly, "is the ultimate result of man's knowledge about flight."

After muttering something about "not speaking very highly for man's knowledge," O'Brien agreed to remove the

thing from my garage until I felt more kindly disposed toward it. A short while later, Howard Fesler, a member of the San Gabriel Valley Radio Control League, spotted the unfinished masterpiece in Bill's garage and persuaded O'Brien to part with it. A few days later, Howard had installed the ailerons, finished the wing in a matching paint scheme, installed his PCS proportional gear, and brought it by for our inspection. We took a few Polaroid shots and sent it back to Howard.

The next day, the Circus was flown. And fly it did! With the Veco .45 in the nose it performed perfectly from the first flight — fast and maneuverable at full power, and quite docile when throttled back. To date, it has several dozen flights to its credit, and it has turned out to be quite a remarkable airplane.

There was still the problem of the foam wing, however. That is, some of you would want to build your own. Dick Kidd then went to work and drew the built-up version shown on the plans. Thus, the Circus was scientifically designed as follows: Fuselage by Dewey; original wing by Jack Doty (and perhaps some help from Pappy deBolt); built-up wing by Dick Kidd; flight tests and minor changes by Howard Fesler; and name by Bill O'Brien.

I won't go into details of construction — if you can't build this one from the plans you don't belong in R/C — go

take part in a Love-In, or some other less stimulating hobby. A few general notes are in order, however. First, decide whether you're going to build the Circus for Class II or III. If you decide on Class II, omit the ailerons and use 4 degrees dihedral in each wing panel. If you want it as a sport trainer without ailerons, use 6 degrees dihedral in each panel. For Class III, build it as shown on the plans. Engine thrust is 0-0. Unless you like to ground loop all over the field to prove you can do it, use 2 degrees of toe-in on each wheel. If you don't like bending your own landing gear, the one used on the prototype is from Das Ugly Stik by Jensen Enterprises.

As for power, anything from a .35 to a .60 can be used. A .45 is more than adequate for anything but high altitude and/or power hounds. A .35 is fine if you're using the Circus for sport or training.

So there you have it. An airplane for Class II or III sport that doubles as a trainer — and one that can be ready to fly almost as fast as the plastic jobs. I really hated to do this to other great designers like Kraft, Spreng, deBolt, Kazmirski and the like, but the world needed the Circus.

And I needed the two bucks from Cunningham.

**FULL SIZE PLANS AVAILABLE
SEE PAGE 58**

The Circus, in all its glory . . . ? One thing, though — you can see it in the air!

Bill O'Brien about to lose a finger on the Veco .45. PCS proportional gear.

