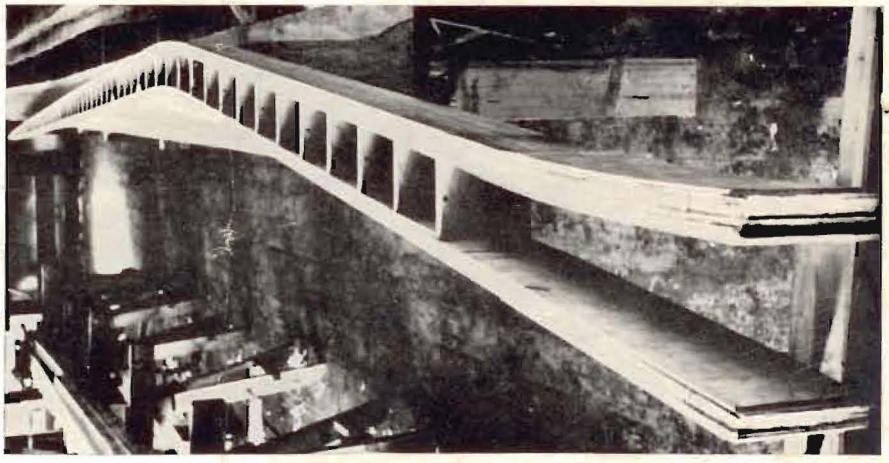


Fig. 10. The spar of the Reiher. (To those of us who have hopes of designing and building a "super-sailplane," this spar is somewhat discouraging. To build such a structure would require a fortune in clamps and tremendous man-power to glue it together. Reluctantly we must admit that sailplanes of the Reiher class are beyond the range of all but the most completely equipped shops. —Ed.)

TABLE II

	Spruce	Impregnated Beech	Ash	Steel	Dural
Tensile Strength lb./sq. in.	15650	17400	18500	85300	57000
Comp. Strength lb./sq. in.	7100	17100	7680	85300	57000
Modulus of Elasticity lb./sq. in.	2565000	2490000	1890000	29900000	9670000
Density	0.54	0.92	0.72	7.85	2.8

(Continued from Page 7)

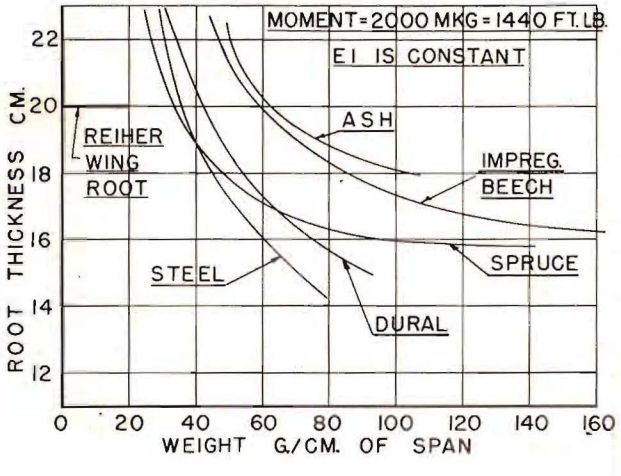
(a) Automatics weigh too much. Even now an airbrake system weighs about 33 lb. (15 kg.).

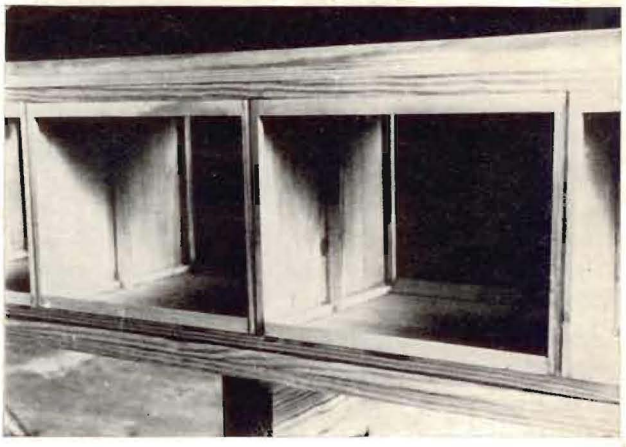
(b) Under normal operating conditions the maintenance is unlikely to be good enough to ensure that the necessary rather sensitive pressure operated mechanism would be kept in order.

(c) The use of automatic operation would mean that the whole brake system would have to be refined, with better quality bearings, finer fits, etc., thereby increasing the cost.

(d) Airbrakes are usually used in landing as well as at high speeds, and even sometimes at high speeds it might be desirable not to use them. If they were automatic their operation might be more of an embarrassment than a help.

Fig. 9. Spar Weight as Related to Depth and Material





In any case a manual over-ride for landing operation would be necessary.

2. TAIL

The tail arm was large, being a little over four mean chords, but such long tails are quite normal on the later sailplanes.

The only aerodynamic feature of the tail worth comment is that it was found necessary to increase the rudder area by 25% after flight tests on Reiher I. The enlarged rudder is shown on the general arrangement of Reiher II at Fig. 3.

The elevator was equipped with a trim tab on the starboard side only, operable from the cockpit.

3. FUSELAGE

Aerodynamically the fuselage was as simple as it could be. The basic section was of the usual egg shape, the maximum height and beam being approximately where the pilot was seated. Possibly the present tendency would be to place the maximum ordinates rather further aft. The nose of the fuselage was very slightly depressed and since the plexiglas cabin followed the aerodynamic line, the shape was pure but the pilot's view rather imperfect due to the flat angle of the windshield. However the sideways views were good and they are perhaps more important in a sailplane than the forward view.

The fuselage wing junction was simple, but from available sketches there was apparently rather more filleting on the production models than on the prototype. No definite information on this is available.

IV. STRUCTURE

1. WING

The wing structure of the Reiher was possibly the most interesting thing about it because although qualitatively normal, it was refined to make the wing drag as low as practicable.