



# THERMAL SOARING

## A UTILITY

*by Avery Hall*

**A**LTHOUGH the following account was written over three years ago, it is still valuable as positive evidence that the lowly utility glider is capable of good performance under favorable conditions. The flight described is but one of several which were made in the author's AEOLUS—a standard Franklin utility minus wing skids and equipped with the usual instruments necessary for thermal soaring; i. e.—altimeter, airspeed, variometer and a small ball bank indicator. These flights were all made from auto tow starts to altitudes of 500 to 700 feet, and were entirely over the gently rolling country of Georgia's Piedmont region. All lift was purely thermal, with no effect of slope winds. In fact, most of the flights were made during periods of very little wind at all. Even more significant is the fact that several pilots were enabled to turn in good flights of from 15 minutes to one and one-half hours, despite the limited experience of two of them who had never flown any type of aircraft before.

It has long been the writer's opinion that a utility is easily capable of cross-country flights on a good day, provided that the pilot recognizes its limitations and makes the best use of its low cruising speed to remain in the areas of lift as long as possible without circling. As long as straight and level flight can be maintained, the sinking speed is only slightly greater than that of an intermediate sailplane. However, as soon as a turn is begun, the rate of sink greatly increases due to the large tip losses and relatively ineffective ailerons which are characteristic of nearly all straight wing gliders of low aspect ratio.

The most effective technique seems to be to cruise at the minimum airspeed possible without actually "mushing" (for the Franklin with a pilot weight of 165 pounds this is approximately 30 to 33 mph.) and to make all turns as wide and gently banked as the area of lift will permit. This is, of course, hard to do at low altitudes where the lift is usually of small diameter, but with increase in height it is often possible to fly for a considerable distance without turning. For this reason it is desirable to obtain a fairly high tow for soaring attempts.

All turns should be checked with a ball bank indicator to insure that they are correct, as even a small amount of skid will greatly affect the sinking speed of a utility.

Further, it should be remembered that, unlike a sailplane, the best angle of glide occurs at approximately the same airspeed as the best sinking speed. Therefore, during a cross-country attempt, there is no reason to increase the cruising speed between thermals. The only case in which an increase is justified, is in order to make headway against a wind as in the approach for a landing. Needless to say, it is advisable to make all cross-country attempts in a down-wind direction!

It is hoped that this article will serve to encourage the utility owner who still feels that a high-priced sailplane is his only hope of tasting the thrill of thermal soaring and cross-country flights. The chances are that he is not getting half the performance of which his ship is really capable!

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Sunday morning, May 11, 1941, dawned bright and clear, after an unusually cool night for this time of the year. A stiff breeze, which for the past three days had blown out of the West, seemed to have spent itself—if anything, there was a drift of air from the East; a quarter which generally means little or no thermal activity in the vicinity of Atlanta. Nevertheless, the weekly trek to the Griffin airport, some 40 miles south, got under way at about seven A. M., including several of the more credulous members of the Southern Soaring Association.

After an hour's rough ride in the Ford roadster used as a tow car, we rolled up alongside of the hangar and began operations. First, the usual array of Cubs and Taylorcrafts were rolled out, and then the veteran Franklin "AEOLUS" was lowered from its place among the roof beams, and made ready to fly. Fittings, release and instruments were checked, and eleven hundred feet of five-sixteenths rope was reeled off the drum.

After one or two flights, the wind picked up and blew a steady 5 to 10 mph from the northwest, and thermal activity began to be felt, though no clouds were to be