THERMAL SPACING

by C. A. MOELLER

We have all wondered as to the actual average spacing of thermals on a given day, especially during dry thermal conditions. It is obvious that the thermals are closer together than those we actually encounter and use. But just how much closer are they? And how many do we pass by? The thought occurred that some light might be thrown onto the subject by making a mathematical study of the pure chance of stumbling into thermals, and comparing this with known experiences.

To set this up we must assume an average diameter of usable thermal; and assume them to be arranged in a grid pattern having an assumed average spacing. Assuming 1/8 mile diameter thermals having an average spacing of two miles, or, one thermal per four square miles, (Texas on a fair day?), you will travel 32 miles between hits on the average if you make no attempt to read the terrain. If you are lucky you will hit one sooner; if unlucky, less soon. Personally, I abhor this less-soon part.

How do we get this 32 mile figure? For every two miles of flight our chances of intercepting any part of a thermal are 1/8 in two, or one in sixteen. Therefore, we must fly sixteen times as far, or 32 miles, in order to be "sure" of a hit. The formula becomes: Av. Miles Per Hit = Av. Spacing squared, divided by Av. Dia. of thermal.

Hence, three mile spacing gives 72 miles per hit; one mile spacing gives 8 miles per hit. There can be little doubt that pilots are quite successful in selecting likely areas, as the one mile spacing does not seem realistic. It is also obvious that since spacing is undoubtedly quite variable over long distances, we can reasonably expect some areas to be thermally "dense," and other areas to be sparcely thermalized. The "square" function in the formula explains our difficulties with "dud" areas, and is a good argument for high L/D. In fact, this whole mathematical mess is a good argument for the necessity of learning all one can about finding the green stuff. The fact that we so often pass very close to a thermal points up the desirability of learning how to interpret any clues which might be present in the air motion adjacent to the thermal, as has been discussed in most soaring books.

We could learn much concerning the spacing of thermals by having, say, ten lightplanes with barographs sweep a 100 mile distance while flying 500 feet apart laterally, with an observer recording vertical speed against time or map position. This would give us a fair idea of conditions for a given area on a typical soaring day. It would be helpful if several sailplanes flew that course at the same time, to see how well they fared for the measured existing conditions.

DEVINS TO STUDY C.A.P. SOARING ACTIVITY

Jack C. Devins, SSA State Governor for eastern Pennsylvania and chairman of SSA's membership subcommittee representing private power pilots, would like to compile all available information about existing glider operations by Civil Air Patrol people. In addition to a brief description of operations and scope of activity he would also like whatever suggestions for new groups getting started the contributor may have.

Jack has been recently appointed as Cadet Glider Project Officer, Pennsylvania Wing, Civil Air Patrol. He would like to prepare material that would aid other C.A.P. groups in getting a glider program under way.

Write directly to Jack at 1841 Watson Rd., Abington, Pa. He will acknowledge all submissions.