

News FROM Clubs AND Members

NEWS FROM "THE THERMAL"

MONTHLY PUBLICATION OF THE S.C.S.A.

OFFICIAL—REFEREN-
DUM ON MEMBERSHIP
DUES

At the last general meeting of the S. C. S. A. on December 8, 1939, a resolution was adopted proposing to increase the Association's revenue. For instance by an increase of membership dues above the present rate of \$1.00 per year, in order to meet part of the cost of anticipated expansion of the Association's activities. The Board of Directors, in a meeting held on December 28th, approved the proposal in principle, provided however, that it could be shown that such an increase in membership dues would not defeat its purpose by opposing members dropping out. In order to determine this it is proposed to take a vote at the forthcoming general meeting on January 12th on the following ballot:

I favor the following Amendment of ARTICLE VI, Section 1 (a) Page 9 of the BY-LAWS of the Southern California Soaring Association, Inc.: Insert on line 26 the following sentence:

"Annual dues for active membership commenced or renewed after January 12th, 1940, shall be

\$2.00

\$3.00

per year."

COMMITTEE CHAIR-
MEN FOR 1940

The following members have accepted appointment as Chairmen of The Standing Committee for 1940.

Public Relations: W. H. Stephens.

Flight Operations: R. A. Bailey.

Scientific: P. Sanderson.

Education: C. L. Bates.

Social Entertainment: W. G. Briegleb.

Membership: P. N. Hepburn.

The composition of the Committee and their Subcommittees will be announced as soon as their organization will have been completed.

A MIDWINTER GLIDER
PARTY?

The committee for preparation of a MID-WINTER GLIDER PARTY, headed by Hawley Bowlus, has been fortunate to secure the sympathetic cooperation of Mr. Clarence Brown, Director at MGM who has graciously offered the use of his private airport and adjacent grounds at his ranch in the Santa Monica Mountains for the occasion. The site is located in Stokes Canyon between Calabasas peak and Brent's Crag, about 5 miles south of Ventura Blvd. The surrounding scenery is exquisitely beautiful and eminently suitable for photography. It assures privacy. It is "off the airways." It offers interesting soaring possibilities.

THE DAVIS WING

by Victor Saudek

We have seen pictures of the new Consolidated Patrol Bomber and heard of its remarkable performance with its unusually small wings of high aspect ratio boosted in efficiency by means of the new Davis airfoil section. It was our idea to ask the inventor, Mr. Davis, what the possibilities were of our obtaining the ordinates and performance curves for use in our sailplane. We found him to be a very agreeable gentleman who wanted to help but who was unable to do so because of military restrictions. He did, however, give us a few general ideas of what could be expected in the way of performance with his wing. The results he obtained are as follows:

AERODYNAMIC
ADVANCES

A stable center of pressure, an extremely high and flat topped Cl/Cd curve, a steeper slope to the Cl curve, a gradual falling off of lift at the stall.

Let's break this down. First CP travel compares favorably with the NACA symmetrical airfoils and is located nearer the leading edge. Secondly, the L/D is about 12% better at low angles of attack and 20% better at higher angles of attack than the conventional airfoil. This means that a good glide can be had over a tremendous speed range. Thirdly, the steep Cl slope means increased maneuverability; for a slight change in angle of attack means a tremendous change in the lift of the wing with far less drag in proportion. Fourth, the gradual falling off of the Cl at the stall is conducive to good control and safety at low speeds with unintentional spins almost eliminated, and instant recovery ensured if a spin is made.

STRUCTURAL
ADVANTAGES

Perhaps the most interesting phase of this airfoil is the way it lends itself to cantilever construction. Mr. Davis stated that there is no increase in efficiency when a wing is less than 16% of the chord in thickness. So 16% is the least we would want to use. Consolidated is using 22% with an aspect ratio of 11:1 and is obtaining an L/D of about 20 at a Cl between .8 and .9. Boeing is designing a new craft with a 24% thickness and an aspect ratio of 12:1. These figures indicate a few of the better points of the Davis Airfoil.

Naturally, something had to be sacrificed, and in this case Mr. Davis sacrificed the Cl Max. On a sailplane, this means that the landing and sinking speeds will be increased by about 20%. Both can be spared in most ships. 30 MPH will go to 36 MPH on the takeoff and landing, and 2.7 ft./sec. will jump to 3.25 ft./sec. Spoilers will solve the approach as in the past. Flaps will still be as superfluous as in the past. Takeoffs should be easier because of the lower drag and the steep Cl curve.

REYNOLDS NUMBER

The question of Reynolds Number now comes up. These wings have yet to be tested at low speeds and small chords. It is the inventor's guess that the performance should not suffer appreciably. Dr. Davis said that small wind-tunnel models showed little increase in performance above the conventional sections, but plenty of increase in free air. The Göttingen 549 airfoil shows a Cl Max. of 2.2 on a sailplane of average design where the wind-tunnel gives it but 1.5. Anything can happen on the Davis sections, and the "proof of the pudding is in the eating."

ITS FUTURE?

When can we get this super section? Four or five months is the inventor's guess based upon government restrictions.

How will this airfoil affect soaring? At a guess, duration will suffer, distance will gain and altitudes should increase. An increased sinking speed will discourage ridge burnishing, but improved top speed and greater maneuverability should boost thermal work. Perhaps Rasper's Thermal Sniffer (See December SOARING) will come into its own on one of these new ships.

NEW N A C A SERIES?

Dr. Eastman N. Jacobs of the N A C A and great friend of soaring, will announce the debut of a new N A C A series which promises to knock the spots off the conventional sections. A great increase of every good feature and a tremendous decrease of the bad is being bruted about. At Elmira in 1939, Dr. Jacobs not only admitted these things, but said he'd do his best to get them to us glider men four months ahead of regular publication, if he could.