admit we do not know definitely. We can, however, advance the theory that the bird's porous surfaces composed of feathers must play a part in this boundary layer control. To prove this we must first be sure that the bird is not extracting energy from atmospheric turbulence. So our next step will be to determine the drag polar of a bird in the still air at dawn.

In the micrometeorological research on the structure of convection one sailplane is now completely instrumented and two others will be ready before spring. The photo-recording theodolite for recording the position of the sailplanes has been rebuilt to take one frame per second and to record directly the time for synchronization. This equipment has been tested on a preliminary run. The technique of using a marker sailplane was also tested on this run. Several innovations have been made in the instrumentation to make the data analysis easier and more precise. A direct reading true airspeed meter was developed and calibrated first in the wind tunnel and then in full flight. By means of this instrument and the theodolite the horizontal wind component will be directly obtainable. In addition a free air thermometer for adiabatic compression has been installed on the A-1 lead sailplane. The complete instrumentation including power supply, wiring, illumination for the photo-recording panel and camera installation has been ably executed by Mel Swartzberg whose experience in this field dates back to the Thunderstorm Project and the Aerophysics Institute Ridge Flow Project.

While developing the sailplanes meteorological probes for convection, it was continually kept in mind that this tool should be designed as a universal instrument for studying general atmospheric flows of micrometeorological dimensions. In other words this apparatus can be used to determine the structure of the sea breeze, upwind streets, flows over mountains, wind profiles to higher altitudes than towers or kites permit, cold front structure and other phenomenon connected with atmospheric flows such as moisture droplet distribution, turbulence, etc.

During this year the writer and Dick Johnson wrote a paper "The Aerodynamics of the Sailplane "Tiny Mite". The paper was presented at the joint meeting of the Soaring Society of America, Texas Soaring Association and the Southwestern Section of the Institute of the Aeronautical Sciences at Grand Prairie, Texas in August. In this paper the stepwise improvement in the performance of Tiny Mite was shown. In particular the detrimental effect of leading edge slots on the effective aspect ratio was clearly demonstrated. As a final result a maximum glide ratio of 26.7 was achieved. Since the original glide ratio before modification was 19.8, a net gain of 35% was made.

It can be seen from the foregoing description of our projects that each is contributing to the general field of knowledge and each project some time or other contributes to the gains on the other projects. No better example can be cited than the recent one on aileron response. Not only did the research involve several sailplanes and workers, but it also involved new ideas. As a result of the desire to learn the exact behavior of ailerons a new technique for flight evaluation has been evolved around the direct measurements of circulation about a wing. Next year we hope to report the progress on this and other researches.

THE SNOWBIRD 1950

By HOWARD E. BURR

This year's annual Snowbird Meet at Elmira, over Thanksgiving weekend, will long be remembered by those attending, not because of the hours flown or lack of them, but because of the hand mother nature dealt to us, and because of a fine account of the Swedish International Soaring meet by Dr. MacCready.

Friday, the first day of the meet, offered very little potential as a soaring day with its low overcast and south wind. The late morning and afternoon were spent in eager anticipation of a front that was scheduled to arrive. In between an occasional cup of coffee and a check on the weather, George Downsbrough explained the radio he developed and used very successfully at the Texas Nationals (Been trying to get this report for SOARING with no success—Ed.) Enthusiasm waned as darkness approached with no sign of the front which had reportedly reached Dansville some forty miles to the Northwest, several hours earlier.

In the evening Paul Schweizer headed a technical meeting with over fifty attending, half of whom were from such distant places as Philadelphia, Pennsylvania; Summerset, New Jersey; New York City; Hartford, Connecticut, and San Diego, California. An open forum on contest rules provoked many interesting ideas. A report from each of the cubs brought home to all of us that there is a lot of soaring going on in spite of the hardships that confront some of the groups. The Wurtsboro Group gave an account of "Soaring the Wurtsboro Wave." Paul Schweizer, Lockton Parks and Bud Seaman climaxed the evening with a showing of their slides of the '49 Nationals in Texas, soaring at Torrey Pines and Rochester, New York activities, respectively.

Saturday found a continued overcast with increasing south winds. The velocity increased to such an extent that by mid-afternoon fallen trees had deprived most of Elmira of its electricity. The Administration Building on Harris Hill was no exception, so plans were altered to shift the scene of Saturday night's dinner and program from Harris Hill to the Schweizer cafeteria, which so far had escaped the wrath of the south wind.

Emil Lahecka, By Baker, Don Lawrence and Ted Pfeiffer left early when they received word their Pratt-Read had been blown from its moorings and that their L-K and Stearman were in danger, at Wurtsboro. George and Margaret Downsbrough, George and Joyce Placek, and Steve and Ginny Bennis also felt that they should try to get home. With electrically operated gasoline pumps not working in many areas, plus the hazard of fallen wires and trees, the return trip for them was far from pleasant.

In spite of the hectic conditions over fifty persons were on hand for the dinner and to hear a very interesting account of the Swedish International Soaring Meet by Dr. MacCready who showed us some excellent movies and slides of the meet which included some perfect views of the outstanding Yugoslavian sailplane "Orao".

Sunday morning found a few remaining contestants getting their trailers ready for the trip home. In spite of ruffled shingles, broken trees and a bent wind sock staff as mute evidence to the "no flying" at the "Snowbird," an excellent time was had by all.