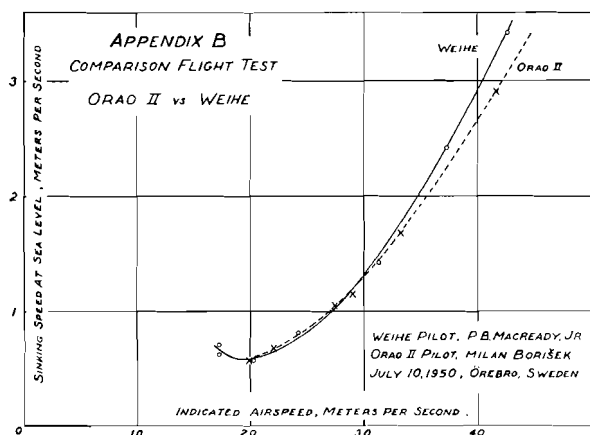


## ● Oraq and Weihe

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altitude by two towplanes of the Swedish Air Force. At this altitude the sailplane pilots released and joined flight so that they were side-by-side. MacCready then flew at constant airspeed while Borisek flew on MacCready. After two minutes the pilots noted the altitude of the two comparison sailplanes which resulted after two minutes of flight at the particular airspeed which was flown. From an average of the readings of altitude differences taken by the two pilots and the time one can compute the difference in sinking speeds of the two craft. A series of such runs starting at the stalling speed of one sailplane and extending up to 150 km/hr. made it possible to obtain the speed polar of the Oraq II from that of the Weihe. The comparison method has the advantage that slight vertical motions of the atmosphere do not influence the results. Unfortunately for reasons beyond the control of the OSTIV it became impossible to conduct the comparison tests on the other sailplanes listed in the program, (Appendix A). However it is felt that the results



which are shown in the curve (Appendix B) should warrant an effort by the individual nations possessing the particular sailplanes to complete the comparison tests. For example Switzerland could conduct the tests AIR-100 vs. Weihe, Moswey VI vs. Weihe and Moswey IV vs. Weihe; France could conduct Breuget vs. Weihe or AIR 100.

In the speed polar curve (Appendix B) the Weihe curve is the result of absolute sinking speed tests made by MacCready using an altimeter vs. time method. Unfortunately the airspeed was not calibrated although an attempt was made to do so. For this reason the glide ratio cannot be computed very accurately. The Oraq II curve was obtained by the comparison test which is the subject of this report.

It will be noted that the minimum sinking speeds of the Weihe and Oraq II are nearly identical, 58 cm. per second. At 42 meters per second the Oraq II has a sinking speed of 30 cm. per second less than the Weihe. However, since the wing loading of the Weihe was 19 kg/square meter and the Oraq II was 22.5 some of the high speed performance of Oraq II may be ascribed to its higher wing loading. On reducing the performance of both ships to a loading of 19 kg per sq. meter the Oraq still shows up better by 10 cm. per second at a forward speed of 42 meters per second.

When the revolutionary design such as the Oraq II of Boris Cijan and Stanko Obad appears in compe-

tion there also appear wild guesses and opinions as to its performance. Some designers are occasionally too proud to permit their craft to be evaluated. It is fortunate for the international soaring movement that Boris Cijan not only did not object to the foregoing comparison test but indeed cooperated in its execution. The contribution of Cijan and Obad to sailplane design thus becomes immediately available to other designers the world over. In turn, Cijan, as a result of these tests, appreciates the fact that Oraq II can be improved by the same techniques MacCready used on the Weihe.

In this program it is hoped the reader sees the function of OSTIV, the world discussion of information on soaring flight.

1. Chairman Scientific Committee OSTIV (U.S.A.)
2. Member Scientific Committee OSTIV (Yugoslavia)

## ● Dick Johnsons

(Continued from page 2)

Again, I found it necessary to detour 40 miles south to reach the good clouds but also the thermals could lift my sailplane at an average rate of about 500 feet per minute, as they had the previous day. This lift allowed me to cruise at somewhat over 100 mph, true airspeed, during the better part of the day, according to my calculations.

Again, I felt the same disappointment at having reached my goal too easily, and landed only after a serious conflict with myself as to the advisability of passing the goal and continuing the flight. My crew arrived, as usual, within only a matter of minutes, and we were able to rest well before the next day's flying.

August 12th still looked the same on the maps and I was determined not to continue to underestimate either the weather or my ship. This time an all out goal of Odessa, 317.408 miles WSW, was chosen. I figured that if the same weather continued, as on the previous days, it would be a flight that would need all the speed of my fine machine plus all the skill and planning that I could muster.

Takeoff was made at 11:18 a.m., and the 40 mile detour was made in less time than usual as I was now profiting from my past experience. Clouds and thermals were their same vigorous selves and soon the miles began to pass almost as fast as the minutes. I did not bother with weak thermals as there were plenty of good ones and of course it is very important to have the climb periods be as brief as possible, if a long flight is to be made. Cruising speed was held a bit below the calculated most efficient, because the gusts were strong and the ship not completed structurally. I felt that I should not impose such loads on the machine until more work was done on it. No instrument flying was done because the extra altitude was unnecessary.

At 2:30 p.m., I passed 30 miles south of Abilene and observed that there were no appreciable cumulus either over or to the north of the town; same as the days before. From here on there were fewer clouds but these were high and had good lift under them. Often the clouds would form only after I had climbed in its thermal for some time.

Near Sweetwater, the strongest thermal was en-

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