

# Blind Flying in ICING CONDITIONS

by John Robinson

Saturday, August 31, was the only day during the 1940 American Open Soaring Contest at Lockport, Illinois, that presented any opportunity for soaring to high altitudes. An occluded cold front was mixed up in the neighborhood, and when my turn for plane-tow came around, I told the pilot of the tow plane to take me under some clouds to the west of the airport.

I was flying a new Schweizer all metal two-plane sailplane and I usually took a passenger along on contest flights. This time there was no one ready to go at the moment, and I couldn't hold up the tow plane or pass my turn, so I took off alone. I released the tow line at about 1500 feet under some scud clouds two miles west of the airport. Locating a weak lift, I spiralled up and into one of these little clouds, noticing a large cloud higher and farther west, just before I entered the cloud and started flying blind on instruments. At this time L. D. Montgomery, who had taken the previous tow, was struggling to locate a very weak lift with the Wolf sailplane about a mile to the south at a lower altitude.

Emerging nearly at the top of this small cloud, I headed west toward the large one and took a quick look around. Having been drifting with the gentle northwest wind while thus spiralling blind, I found myself looking down from 3500 feet at the Lewis School of Aeronautics Airport from which I had taken off. I flew straight in to the side of this large cloud, again reverting to my blind flying instruments in order to keep the ship in normal flying position.

Soon I was climbing 5 feet per second so I started circling to the left, and when it increased to 8 feet I spiralled in a tighter turn in order to stay within this better region of lift. Before I reached 7,000 feet altitude, my airspeed indicator ceased to function due to water in the venturi tube operating it. I disconnected the rubber hose so that the water wouldn't enter the instrument itself. Although this instrument is very helpful and necessary for very efficient soaring, one *can* get along without it, especially if he has to.

Losing this lift, I endeavored to coax the compass to indicate that I was heading in a direction somewhere between south and east. It finally did, and immediately the variometers became pessimistic. They indicated that I was sinking at over ten feet per second. This mustn't last long! Would I come out of the cloud, or find another region of lift? Fortunately it was the latter. I started spiralling again, this time to the right just for variety, in a fairly smooth climb of 5 to 7 feet per second.

After a while it began to rain quite hard. The rate of climb varied from 5 to 10 feet per second, and was usually the strongest where it was raining the hardest. Climbing past the 10,000 feet level, the temperature dropped below freezing, all the water clinging to the ship froze, and the ice started building rapidly on all the leading edges of the ship. Then came a series of ups and downs taking me up over 14,000 feet and keeping me always above 10,000 feet. The temperature dropped as low as 20 degrees F. and the rate of change of altitude varied from 15 feet per second up, to the same down.

Although it was no longer smooth, it wasn't too rough, and I was really enjoying this battle with the elements.

I was fascinated watching the ice grow thicker on the leading edges of the wings and struts. The rudder started to stick in neutral position, and I knew from previous experiences of icing up with my sailplane "Zanonia," that the ice was starting to build across the gap between the leading edge of the vertical fin and the counter balance on the rudder itself. If this continued, the rudder would freeze solid, and I would be deprived of the use of this very necessary control surface. Therefore, I began a continual "fanning," of the rudder keeping it moving all the time and thus preventing its freezing solid.

I flew through considerable hail off and on. It was always less than the size of a large pea, and therefore did no harm, although making a terrific noise. Again, as with the heavy rain earlier, the strongest lift was coincidental with the thickest hail.

In between spiralling climbs, I kept gliding down in a south or southeast direction, bearing in mind that Lake Michigan lay to the northeast and east of my starting point. I had no way of judging the wind drift or how much speed I was averaging across-country, for I was still flying blind in this fast spreading storm cloud. I caught a brief glimpse of the sun once, but that didn't give me any indication of where I was, geographically.

The ice kept growing thicker all the time I was above 10,000 feet altitude in this cloud, because supercooled moisture freezes upon contact with a solid object. It was about two inches thick, opaque and very lumpy; and that type is known as "rime" ice. Because I was flying the sailplane at cruising speed, the wing had a comparatively high angle of attack, and the ice was building thicker and much farther back under the leading edge, than over it. Under these turbulent conditions, I could not detect any detriment to the performance of the ship, although it was without a doubt less efficient. The ice was a nuisance because I was still moving the rudder continuously, so my legs were tired, and of course I was bitterly cold!

It was very fortunate that I had the ship equipped with an electric turn-indicator, for the usual venturi driven type would long before this have ceased to function due to the thick ice. Blind flight cannot be accomplished for any length of time without an operating turn-indicator!

Continuing on my somewhat erratic course of south-east, I sank between two and ten feet per second. The ice was slowly melting when I flew through a heavy rain squall at about 7,000 feet altitude. The rain melted under the ice and it started blowing off in very large pieces, one of which came off the wing and hit the stabilizer, striking more ice there and so doing no damage to the ship. I thought of the farmers in the fields below, but it was raining so hard that they should all have been in their houses.

It rained intermittently for most of the remainder of my smooth glide down. I broke out of the cloud at 2,000

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units, for boys 15 to 18 years of age. The scope of this training should be:

- a. Flight: Sufficient to qualify the student for a Private Glider Pilot Certificate.
- b. Ground: Similar to that given in the Primary CPTP, but of more elementary nature.

II. In order to accomplish this safely and efficiently, the following steps should be taken:

1. Set up, with the help of a committee of experienced glider instructors, a standard course to be followed in all training under the program.
2. Making use of the best available instructors, set up instructor refresher courses in a few leading glider centers. Graduates of these courses would receive special ratings qualifying them to take part in the program. As more qualified personnel becomes available, the number of such bases should be increased so as to serve all parts of the country. Such a course might include:
  - a. Single place glider flying.
  - b. Dual glider instruction.
  - c. Class 1 airplane work in spins and steep turns.
  - d. Thorough inculcations of safe and efficient operating methods.
3. Expedite the certification of suitable training glider designs.

III. Wherever possible, training should be contracted for with local operators or clubs so that trainees could live at home.



### The Annual Hudson Valley Gliding Club Banquet

This annual affair was held this year in New York on Washington's Birthday, at the Hotel Shelton. This function has become one of the important off-season affairs in eastern soaring circles, and over one hundred people attended, including many eastern soaring personalities.

Speakers at the dinner were Earl Southee, former president of the SSA; Arthur Vhay of Air Youth of America; Charles Malone of the American Glider Association; Floyd J. Sweet, Secretary of the SSA; Wally Setz, who spoke for Commander Barnaby, President of the SSA; and Lee Helm, genial owner of the Wurtsboro soaring site. The speakers were introduced by Ed Quarterman, Secretary of the club, who also gave a short (?) resume of the club's activities of the year.

The main event of the meeting was a presentation of the Sargent Memorial award, in memory of Herbert Sargent founder, instructor and mainstay of the Club. The award is in the form of a bronze plaque and it is to be given each year by Herb's friends, "In recognition of sincere effort devoted to the advancement of motorless flight." All who knew Herb feel that this brings out the sincere hard work he did for gliding and soaring.

It is planned to make this award a national affair but it was decided that for this year, it should be confined to the east as a fair estimate of the whole country was not possible in so short a time. Eight names will be chosen for honorable mention and one of these named the win-

ner. For 1940, the nominations were Wally Setz, Alexis Dawydoff, Donald Lawrence, Bob Stanley, Lewin Baringer, Jack Brookhart, Floyd Sweet, and Dave Stacey. Of this group, Floyd Sweet was chosen as being most deserving, for his work as Secretary of the SSA and his general soaring activity.

The club is planning an active year at Wurtsboro, and has already started flying activity.



### Silver and Golden "C" Pilots

Since many of our American pilots have met the Silver and Golden "C" requirements, the SSA has had its own Silver and Golden "C" pins made. These pins are not of the large European type but rather of the standard American "C" pin with silver or golden wreath.

Inasmuch as our records are somewhat confused, it is requested that all pilots who have qualified either wholly or in part for their Silver or Golden "C" licenses, send in to the SSA office a statement to that effect. Be sure to designate the time and place of qualification as well as the statistics, such as duration, distance of flight and altitude, which may be used in checking the official records in the office. Also, please state whether or not you have a Silver "C" pin.

As soon as an accurate list can be compiled, it will be published in SOARING showing the serial numbers in their order of issuance.

PLEASE COOPERATE WITH US BY SENDING IN THIS INFORMATION IMMEDIATELY.



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feet and saw a highway below me, but visibility was so poor that I couldn't see more than a mile ahead. At 1,000 feet I looked back at the storm and saw that it covered half the sky, that it was raining hard behind me, and that there was a high overcast blanketing the entire region. As there was no more lift, I landed in a pasture close to a convenient small town. It turned out to be Kingsbury, Indiana, 72 air miles from Lockport, Illinois, my starting point. I had been in the air 2½ hours, more than 2 of which I had spent flying blind on instruments.

At the nearest house I was met at the door by the pastor of the local church. He kindly helped me to thaw out with some hot tea, and furnished the necessary telephone with which to call contest headquarters to report and have my ground crew sent after me.

This flight won the trophy and prize money donated by the Zenith Radio Co., for the greatest altitude attained over flat country in this contest.