ment participation under this set-up is reserved for projects costing $10,000.00 or more.

We have already mentioned another of the services the DAE may offer you—free surplus equipment—but the biggest surplus deal of all, a complete airport, is also his to administer. At the close of WW II there were 550 of these fields scattered about the country. Many were given to the nearest towns or to the counties in which they were located under the terms of a conditional deed. Now most of these deeds require that all net income accruing to these airports be placed in an airport fund and spent *only* on airport development. Some towns have ignored this—or at least fudged a little—and have drained off this money, usually by way of the city general fund. The point is, if your municipal airport was originally acquired under the terms of such a deed, funds may have accumulated which await only an intelligent spending program. But if the money is not there, you can at least firmly suggest that all future income be lawfully handled and thus start building an airport fund. Certainly, the DAE will back you strongly in this stand. He has the power to reclaim a surplus airport, and dispose of it at public auction, if the deed conditions are violated. He seldom, if ever, does so, of course, because he is mindful of his greater obligation to general aviation and is not anxious to see a potentially good airport lost forever.

### *No Airport?*

Finally, if your town is now without an airport, there are, assuming that it is justified, at least two ways the DAE can help you get one. First, by aiding in site selection and obtaining matching funds for the purchase of this land. Second, he can help your town acquire a piece of nearby government-owned land. In this latter instance, provided for in the Federal Airport Act, Part 16, the airport site will cost the city nothing.

So, there are ways to get the job done. The government is ready to help with most of them. What the government can't do is pave the road to an airport: it can't furnish a man to champion the cause in your town.

And although championing causes usually adds little to one's social security, often alienates a few friends and even begets neglected wives, it does produce special rewards. But if you are a leader you already know these things. All we wanted to do was suggest your next project.



*Of which dreams are made.*

# *A Way of Flying*

*By*

ROBERT N. BUCK

IN GLIDING, or soaring, whichever you prefer to call it, there is a badge called the Silver C. This badge is an international award. To get a Silver C you must accomplish three different things in a glider: fly for five hours without landing, make a 3281 foot altitude gain above the lowest point of a flight, and go cross country 50 kilometers, which is about 31 miles. You can do two items on one flight. After the Silver C comes a tougher to get Gold C and finally a Gold C with diamond "legs" that include flights over 300 miles and an altitude gain of more than 16,000 feet. These badges are recognized all over the world and the holder of even a Silver C commands certain respect in Germany or Argentina, Italy or the USA.

A person starts by getting a very simple C badge which only requires a flight of 5 minutes above the release point. After that you go for the Silver C which is the first major step out of the duffer stage. I had my C and this was my attempt for the altitude gain and distance toward my Silver C. I was at Elmira, New York at the Schweizer Aircraft factory, waiting for thermals to build up so there would be lift.

The day had started clear and still. A blue, cloudless sky stretched overhead and the air wasn't stirring—there wasn't a bit of lift.

Bernie Carris, chief instructor at Schweizer's school and one of the best sailplane pilots in the world, took my 14 year old son up for a lesson. They were towed to 3000 feet behind the Piper Cub and then cut their training sailplane loose. It wasn't long before they were back on the ground.

"It's all down hill—not a puff," Bernie told me after he landed.

The puff he was speaking about would be a thermal or a vertical moving bubble of air, perhaps a shaft of up-moving air, caused by the sun heating the earth and a certain instability of the air that

makes it want to go up when the sun heats it.

You cannot really see a thermal, but you have to find them when you are soaring. A fluffy white cumulus cloud is a thermal signpost because a bubble of air breaking away from the earth and going up and up may finally turn into a cloud. So generally there's a thermal under a cloud and if you get in it with a sailplane you can go up. Once up high you glide off in the direction you want, loosing altitude, but gaining distance. As you get lower you hunt for a new thermal, find it and climb up again; then you glide again and repeat the process until you get where you are going.

This day there weren't any thermals and there weren't any cumulus clouds.

### *Lunch*

About 11:30 I went into the cafeteria at the factory for a bite of lunch with my son and my long time friend Bob Wittke. We talked flying and munched food. I glanced out the window at one point and a hope jabbed through my mind that pulled me from a semi-depressed, lazy feeling to a high key of excitement. I saw the first shreds of a cumulus cloud forming!

"Look! Look at the cu! Let's go!"

I gulped the remaining piece of pie and rushed out the door toward the flying line which is pleasantly snuggled by a pine grove 200 yards from the factory. Enroute I bumped into Bernie who had just landed and was headed for lunch.

"It looks like it's building up—how it is?"

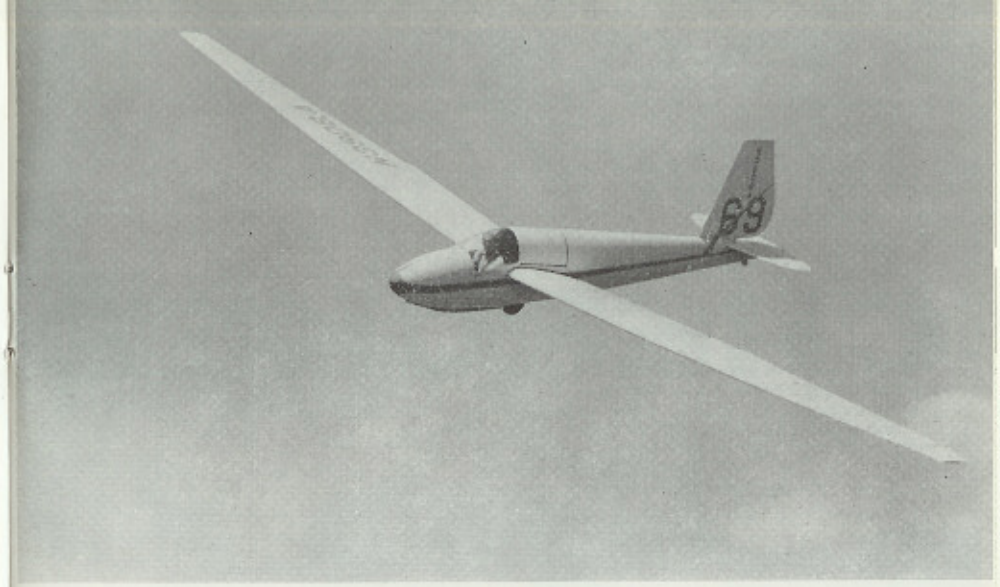
"You can hardly get down," he said, signifying there was lots of lift.

I asked for the 1-23 to be pushed out on the line *tout de suite* and then hurried about getting my map, Minox camera, three Howard Johnson brownies, sun glasses and straw hat.

By this time the 1-23 was out. It sat there, tilted over on one wing, a beautiful thing to see. It has a graceful, tapering wing 52 feet long. The single cockpit, covered with a bubble of plastic, is functional with an instrument panel containing a compass, an electric turn and bank indicator, an altimeter, air speed and three rates of climb—two the normal instrument type and the third a two-tube








*"SOARING puts the fun back in Flying," the Soaring Society posters say. Certainly this photograph of the Schweizer 1-23 sailplane as used by the author on his first cross-country suggests this is so.*

variometer. One tube has a red pellet and the other tube a green pellet; when the red pellet rises in its tube you are going down—we call it sink or bad air—but when the green pellet rises in its tube you have lift and that's what you want.

You don't sit in a chair type seat in this cockpit, but almost on the floor, or bottom of the fuselage, on a curved piece of metal padded with a couple of cushions. With the safety belt and shoulder harness fastened you feel snug and a part of the sailplane. The long wings go out from your shoulders. You have wonderful vision. You are not a man and a machine; you are one.

### *The Barograph*

Putting the barograph in took some time. This is an instrument that records the flight altitude on a smoked drum. It's there to prove you didn't cheat. My main concern was that it be turned on because I knew one chap who did his flight successfully but hadn't turned on the barograph, so the flight didn't count.

As all this fussing was going on I sat in the cockpit impatiently

waiting, glancing often up into the sky. Cumulus were now well formed and dotted the sky with fluffy puffballs. But in the western sky I could see a high deck of clouds and that was an unhappy sight. A high cloud deck can slide over like a blanket and shade the sun. This cuts down the sun's heating effect and the thermals stop quickly, almost like turning them off with a switch. The high clouds drifted closer and I fidgeted.

### *Ready*

Finally the canopy was closed and the tow plane hooked up. It sat there 100 feet ahead of me with its engine ticking over. The yellow tow line came back to the nose of my sailplane. The moment was set and someone lifted my wing tip up off the ground so the sailplane stood level. This is a signal to the pilot of the tow plane that the sailplane is ready. To me it's always the beginning of life to a flight. The sailplane no longer lies on its side, inanimate and lifeless—now it seems to have awakened.



A few moments after my wings were up level I saw the tow plane's rudder wiggle back and forth which is the pilot's signal to me that he's ready and we are starting. He opened the throttle and we moved forward.

This first movement is a sloppy thing for the sailplane. There isn't enough speed to give airflow over the controls and the stick and rudder pedals are lifeless. You push or pull and little happens. The wing wants to go back down and full control barely keeps it up. But quickly speed increases and then the controls respond and the sailplane is alive and sensitive to each motion. A few hundred yards and we were in the air and began our climb. Little bumps as we climbed helped allay my fears about lift because the bumps said there were thermals.

### *Release*

We swung west as we climbed toward 2000 feet where I would release, but at 1700 feet I saw the tow plane climb quickly in a surge that said it was flying through a pretty good thermal. In a second or two I was in it too and could feel the lift. I reached up quickly and pulled the release. A loud click and I could see the yellow plastic rope snap toward the tow plane. It





turned left and descended back for the airport. I turned right and held the turn, trying to stay in the thermal.

For a few moments the extra speed of the tow acts as false lift, and until you've slowed down to normal gliding speed it's difficult to tell if you are in lift or not. But in a moment our speed had settled at 42 miles an hour indicated and I circled. The lift was weak. I gained a hundred feet and then another hundred and finally reached 2000 feet. The thermal was soft and further grinding around didn't improve the altitude at all.

You are really conscious of the weather in soaring. Everything means something. The clouds above, the wind direction, the terrain below and the wind blowing across it. You rubber neck all the time, watching the sailplane's instruments so you can fly precisely and then looking up at the sky and then down at the ground to see where you are. It's a constant moving process.

### *In Search of Lift*

That high deck to the west was almost overhead and I had fears that it was cutting off lift. If I could get over toward the northeast I could get out from under this shade. So although I wasn't very high I put the nose down, picked up speed and headed for the northeast corner of the airport. Over a development of new houses I caught a little lift and the green pellet rose in its tube. I whipped into a turn and tried to get inside the thermal. It wasn't very good and while I'd gain a little altitude on one side I'd loose it on another. When this happens you are not centered in the thermal so you juggle the turn trying to get centered.

My action wasn't doing much and now my 2000 feet was down to 1500. There was a husky southwest wind at my level and it was blowing me away from the haven

of the airport. I wasn't gaining, and I thought of the disappointment and embarrassment if I landed 5 miles from the airport and they had to come get me with an auto trailer.

### *Defeated*

You make decisions suddenly once the facts have been mulled over. Sometimes one has the luxury of time for the mulling over, but in the air you often have to mull pretty fast. I did, and the answer was to go back and land. It was a crushing defeat. I wheeled around, headed back, and in a few moments was on the ground.

I was anxious to try again. I wanted to go a little northwest of the field where there were hills that might generate lift from the southwest wind. I looked up at the higher cloud deck and it had spread overhead, but breaks let some sun through and weakly promised that some thermals might still be around. To the northeast the sun shone and big cumulus hung about the sky. That was where I wanted to get and it was tantalizing.



### *Up Again*

A new hook-up to the tow plane, a quick look around, and we took off. This time I was not impatient to release and waited for 2000 feet. The tow plane got in position just a little northwest of the field and I cut loose.

The flat glide took me down slowly. There wasn't a smidgen of lift. Then I got a small nibble as the green pellet struggled up off the bottom. It was weak, but weak or not it stopped my descent. I circled and tried to find the center of the bubble. On one side there was lift in the order of 200 feet per minute, but on the other side of the circle it was down. I widened out the turn, briefly, to try and find the complete area of lift, but I just couldn't seem to get it. It was enough, however, to give me time, I was holding my own at about 1700 feet and wondering what to do.

Circling in this anemic lift I was constantly being reminded that good soaring depends on good flying. The turn must be made perfectly, no skidding or slipping, and the ball bank centered. Airspeed control must be exact and to allow the airspeed to fall off 3 miles an hour or increase that much makes the turn sloppy and the little lift

in the sky less effective. You don't scuff around the turn; you fly it with precision.

### *Alertness*

But while doing this flying you also need to look around; watch the terrain, look up for clouds and possible thermals, see where the airport is so you can get back if need be—always, watching that altimeter to see what your score is. There's never anything for nothing up here—you earn it all and the altimeter tells if you are gaining or losing the contest.

I milled around. I'd lost 300 feet from the release and I wasn't gaining. I couldn't keep this up forever. I studied the situation and in glances away from the instruments I saw a small ridge, just a lumpy hill a little further east. An eyeball judgment told me I could go over there and have enough altitude for a circle or two and still make it back to the airport if nothing developed. I leveled out of the turn and headed for that little hill. When I got there I had 1400 feet left. But there was a reward, a little puff of lift, and I went into a circle again trying to hold it. And that's all I did, hold 1400 feet.

The lift seemed a little more on one side again and I tried to get deeper in it, but in playing my blind man's buff I didn't do very well and lost ground; in two turns I was down to 1200 feet. The ground below didn't seem very far away. I looked over to the airport and wished it were closer, but how I hated to give up and start back. There was that little lift on one side of the turn and I wanted time enough that I could try again to work deeper into the lift. I looked at the airport again and I was certain I could make it comfortably from 1100 feet so I decided to work until I was down to 1100. It would be the red light, and I'd leave and go back to the field in defeat for the second time if I got that low.

One turn, with a tiny moment of unbanking to shift my circle over, and I still had 1200 feet. I circled again and gained a little. A few more and I was up to 1300. That 100 feet was a big number, but how tiny an amount it seemed when not many weeks before I'd flown a supersonic fighter and climbed 38,000 feet in two minutes and fifty five seconds! This little 100 feet, however, gained with so much toil was far more exciting to me.

### *In Business*

And then I crawled up another 100 feet and pretty soon 1700 went





by and then 2000 and the green pellet happily went up high in the tube and as happens in soaring I suddenly knew I was in business. Circle after circle and the green pellet was up; surely and solidly the altimeter gained and climbed and soon I passed 3000 feet and then 4000 and I was soaring in mind as well as body.

There's a point in soaring—and to me it's somewhere just above 3000 feet—where your attention, being and surrounding relationships change from earth to sky. I had been so conscious of the ground, where the airport was, where that little hill was that gave me the thermal, that I was earthbound, with my concentration closely related to the terrain. But suddenly it changed. When I was high enough that the urgency of a possible landing was gone, when height safely gave me time to decide, to mull over decisions slowly, then my environment became of the sky. The earth was still there and I referred to it for position and navigation, but it was detached. Now I looked up for clouds to fly by. The cumulus were no longer big fluffy masses in the distance. I was close under them and their bottoms were dark grey. The air became a little cold and it felt good.

### *First Goal*

My immediate thought was to make my altitude gain. It must be 3281 feet above the low point. Well, the low point had been 1200 feet so I had to have 4481 feet on the altimeter before I had made my altitude goal. The lift continued and I circled. An occasional glance back toward the airport showed it still within reach although farther away; the southwest wind was drifting me northeastward. I could easily get back from 4000 feet, but it didn't matter now. I was almost certain I'd leave and head northeast for Cortland, New York, my goal, and I almost looked back at the airport in disdain.

We passed 4481 feet in a breeze and I kept going until the altimeter

read 4700 feet. That gave me room to spare and the altitude part was sewed up.

### *Cross-Country*

Now for the distance. I took up a heading of 60 degrees and set up a flat glide.

The map now became important and I got it out and looked things over. Going to Cortland there's a good road that goes to Ithaca and then over to Cortland. It would be a good reference.

For the first time of the day I glided along with enough time to gather myself together and relax. It suddenly dawned on me that I'd been flying in a pretty tense state and as soon as I realized it I forced myself to relax.

There was a pretty good tail wind and it wasn't long before I had tucked away about 13 miles. I was drifting down and at 4000 feet I decided to take the next thermal and work back up. I sort of made 4000 the point to which I'd go down before getting a thermal and working back up.



Now I was out from under any of that high deck and numerous cumulus were ahead. I started off toward the nearest one and was quickly rewarded by lift which I circled in up to about 4800 feet. Then I headed out on course again.

### *En Route*

The visibility wasn't too good due to haze, but off to my left I could see the bottom end of Seneca Lake and Watkins Glen. Up ahead I could just make out the bottom tip of Cayuga Lake and a glop of smog which would be Ithaca. I glided along and drank in the wonder of being more than 4000 feet in a motorless aircraft. The only noise was the slight playing of the wind as it flowed over the sailplane's body and wings. Flight is smooth and vibrationless without an engine. I was completely alone and detached from the earth below. It is a pleasant aloneness that brings a tranquility and that will not allow any cares to trouble one's mind. It is peace, and how strange for a pilot to find peace when he has no engine—when he stays aloft only by using his wits, nature's phenomena, and a sailplane designed and built with great skill.

### *Huh?*

But a little disturbing thought





went through my mind. Did the altitude gain mean above the lowest point or the point of release? I was certain it was above the low point—after all, that was logical—but I'd never really seen it in writing. To get above my release point and have my goal altitude I'd need 5381 feet. If I could get up that high I would, just to be certain.

I wasn't back down to my 4000 foot point when I felt lift and saw it on the green pellet. I quickly circled and wound up in a delightful climbing spiral, delightful because it was strong, but also because I discovered that I was now flying relaxed and with the precision I wanted, simply and almost automatically.

The lift took me up to the required altitude easily and just to sort of "do an extra lap," I continued to 5700 feet. "There," I thought, "that does it for sure."

I left 5700 feet rich with altitude. I headed on course toward Ithaca. Life was wonderful and I ventured to say to myself, "It's in the bag." This, of course, is an expression I've learned never to use until back on the ground safely and for a moment I wondered if I'd been too quick with it here.

### *A Barrier*

Ahead, near Ithaca, the cumulus clouds stopped and there was a wide area where there weren't any clouds and, logically, no lift. Beyond this area, ahead in the distance, the clouds commenced again. I reasoned that Cayuga Lake to the north and the long valley stretching south from it, sort of a dry continuation of the lake, probably had an effect which created an area of sinking air. After all, if air goes up some also has to come down in order to keep the atmosphere in balance. With my 5700 feet as a healthy starter, but with some timidity, I headed across this blank area in the sky. I could always land on Ithaca's airport, but that would be short of my required goal.

Once in the big empty area of sky the lift not only disappeared, but it turned down into sink and my descent was faster than just a

normal glide. Now I had to go against the grain and push the nose down. This doesn't seem right because when you start to sink you have the natural feeling that you want to pull the nose up and prevent the descent. The truth is, however, that the slower you go the longer you are in the descending air and the further you'll descend, so the thing to do is fly through the bad air as quickly as possible. The way to do that in a sailplane is to push the nose down and get higher speed.

The speed picked up and the wind noise became loud and the rate of descent was 500 feet per minute. Now the race was on to get across the bad area before I ran out of altitude and for the first few moments, even though I was still high, the race looked like a bad bet.

### *A Bit of Lift*

I passed downtown Ithaca at 3200 feet, the clouds I wanted to be under still out of reach ahead. A little northeast of Ithaca is a large airport and the ground in the area seemed dry and bare. It was the logical place for the sun to cook up a thermal so I headed over and got near the airport with 3000 feet. There was still a way to go for Cortland and for more clouds, but I got some lift and started a very careful circle to get the most from the lift which wasn't very strong. Gradually I worked up to 3400 feet. The wind was drifting me toward Cortland so I reasoned that as long as I stayed in the lift and didn't loose I'd be getting toward my goal. So I just circled and drifted along like a big lazy cloud with few worries and no interruptions.



### *Cortland*

In the distance I could see the buildings of Cortland, but I couldn't quite see the airport, although from my map I knew about where it was. I felt I could make it from my present altitude and I started a straight glide for my goal. About half way there I still hadn't seen the airport. While I was searching for it I got near the cumulus clouds again and flew right into a big husky piece of lift. I thought that a bird in the hand was worth a little extra time so I





stopped my forward glide and made a few circles which put me at 3900 feet.

Quite abruptly it dawned on me that I was awfully close to Cortland and that I had a ridiculous amount of altitude and I was just wasting time. I turned on course and let her go. In a moment I saw the airport, which is a nice, grass, country kind you always like. When I crossed over I had 3500 feet. I pulled around in a circle and could see CORTLAND on the hangar roof. I made about five circles and took some pictures down along the wing at the hangar roof. When the circles were finished I still had over 3000 feet because there was some lift right over the field.

### *Back to Earth*

I tucked the map under my leg, between it and the cushion, took off my sun glasses and started the approach. I decided I'd approach over some wires and trees, across a corner of the field, and then roll up near the hangar. I pulled the spoilers, which are little boards that come out of the wing and destroy lift, and we sank quickly as I made a base leg. I shut the spoilers and the sailplane instantly flew smoothly and beautifully again as I made certain I was in good shape to go over the trees and wires. I pulled the spoilers when I knew I had it made and settled toward the ground. Just above the ground I closed the spoilers so I could float toward the hangar. We seemed to fly about a foot off the ground for a long way and then I heard the whisper of the grass as it caressed the fuselage and then the wheel touched on and I let her roll to a stop. The right wing settled gently to the ground and there we were.

There wasn't anyone around the field. I found a pay phone and called back to Elmira and said I'd made Cortland and to send the tow plane over to drag me home. I'd made 46 miles, which was more than I needed.

I found a Coke machine and luckily, having a dime, got a Coke. I went back to the sailplane and dug out one of the brownies and then sat on the grass with my back leaning against the sailplane, which by now was my sweetheart, and just thought about it all. I ate the brownie and drank the Coke and just sat there feeling contented and happy.

♦ ♦ ♦ ♦ ♦