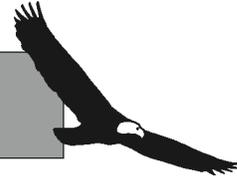


free flight • vol libre

1/06
Feb/Mar





Opportunities, Choices and Goals

“Our Student Dropout Rate”

The 2006 flying season is just ahead and the opportunity to consider operational changes is high. Resolving the student dropout problem appears to be the first step in achieving growth in our clubs. Nationally the statistics show that a new student has a low probability of returning a second year. Some of the issues to be considered are the time it takes to move through basic instruction to solo, the continuity and consistency of instruction, and the effectiveness of our instructor rostering and student lesson scheduling systems. When your club is debating what to do in 2006, please remember the Einstein truism that doing the same thing over and over again and expecting different results is the definition of insanity. It is apparent that change is needed.

“...Instead of Arguing Against...”

When I recently read the above words on a Roundtable discussion regarding winching, I realized they summarize the attitude Canadian soaring pilots need to adopt and encourage. Pick any subject, express an opinion on it and observe the response to your comments. We know intuitively that the further that opinion is removed from the experience of those that are listening, the more contrary and even disparaging the response will often be. As with all human interaction the reasons for such behaviour is complex. Change is threatening and so a defensive response is natural. Perhaps the holder of the opinion felt the need to overstate their position to make the point and that sets the stage for negative response. Whatever the basis of this tendency to argue rather than listen, I know we can do better! New ideas are opportunities for success in infant form and they need care and encouragement to reach maturity.

“A Goal for 2006”

The OLC has focused our attention on cross-country tasks and made it possible for all to electronically relive and enjoy our flights. Double your satisfaction in 2006 by planning, recording, and submitting your flights to Walter Weir, our FAI Awards Chairman. The challenge of meeting the FAI badge requirements is guaranteed to add a new dimension to your flying!

“Sport, Hobby or Passion?”

When I first saw the discussion raised on the Roundtable regarding how each of us views soaring, it struck me that we each hold a continually changing position. I have seen students that are nearly obsessed with the desire to learn. I’ve observed rather noncompetitive pilots challenged to be more competent by the example, abilities, and efforts of others. I’ve enjoyed talking with individuals that are no longer flying because of age but whose passion for soaring is undiminished. Whatever the outcome of the Roundtable poll is, it is clear to me that soaring is so multi-dimensional that there is room for all to exercise it in the way they desire.

“2006 – The Best Year of Soaring Ever”

As with many things in life, a season of soaring is what we make it. Take advantage of opportunities to learn and grow, make choices that will result in a safe flying season for all and set a goal of ensuring that 2006 is enjoyed by every club member.

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1/06 – Feb/Mar

The journal of the Soaring Association of Canada
Le journal de l'Association Canadienne de Vol à Voile

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Cover

An ASW-27B at the end of a long cross-country flight by Ric Willems over Papineau Lake north of the Montreal Soaring Council airfield. The photo was taken on the evening of 15 August 2004 from an L-19 towplane flown by Pierre-André Langlois.

Camera: Canon EOS-10D (6.3Mp DSLR)
Lens: Canon EF 70-200mm f/4L
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“The Major and the Minister 2”

– the rest of the story –

I found this tale of the Base Borden outlanding that Charles Petersen made in 2000 on a “memorable outlandings” thread that was posted on the rec.aviation soaring newsgroup and I reprinted it in the 6/2005 free flight. I have no doubt that Charles was emphasizing what he felt to be the comedic value of the experience – and it WAS a funny story. However, the leading actor of the tale has turned out to be an actual person. So, in fairness to the chief protagonist, whose reputation was somewhat maligned, here is his perspective on the events of the day in which he points out the hazards of landing unannounced at Borden. Tony

I'M MAJOR TED LEE (now retired), the story's main actor. I was the Base Flight Safety Officer at CFB Borden at the time, and a leader with the Central Ontario Gliding Centre and the Air Cadets who were flying on the airfield. I was surprised to see this article appear so many years after that day. I remember it well but would like to set the record straight, not only to polish up the tarnish on my character but also for the safety lessons that fell from the event. Let me tell you how I recall the whole episode ...

I went out to see the unexpected arrival because, as the only person on site who had a base function, I was the logical person to handle the situation. After introducing myself I did indeed ask for the pilot's name and aircraft registration, data that would be needed in the inevitable report that would be forwarded to the Base Operations Officer. The issue of the aerodrome being PPR (Prior Permission Required) did not figure in any way with my reaction to his landing at Borden (by definition a forced landing is completely defensible) but when he started to phone his home club to get a towplane to come and tow him out I did mention the fact that the aerodrome was PPR and permission would be required. There were two reasons for this:

1. the runways were in deteriorating condition and the Base Commander was unwilling to accept the potential liability of private aircraft using the runways, and
2. there is a huge restricted area up to 7000 feet asl immediately adjacent to the aerodrome, and the firing ranges underneath it were active. Pilots unfamiliar with the range boundaries could easily slip into the danger areas.

The conversation then followed that had the pilot calling to the Minister for permission to trailer the glider from the base. I went away for a bit to try to contact the Base Ops Officer who at that time was the only officer that could authorize the PPR — I had recently been specifically instructed that I could no longer give this permission. Unable to contact him, I was left with two options: insist that Mr. Petersen call for a trailer to take the glider away by road, or stick my neck out a bit and allow his towplane to come and pick him up. I chose the latter but, because of the active firing ranges, I wanted to talk to the towpilot to give him a basic idea of the restricted areas and ensure he would contact me on the radio so I could keep him out of trouble during his arrival. The towplane arrived sometime later and the pilot did indeed need help during the approach. Shortly thereafter, towplane and glider departed.

Several points about the whole episode require comment. One was that it didn't appear to me that the pilot knew where he was. I had seen him drifting around over the sand dunes on short final for runway 36, the runway in use that day, and that too concerned me because with COGC's two towplanes and four gliders operating, there was a landing about every two minutes. I also reasoned that if he didn't know where he was then he probably did not know there was a restricted area very close to where he was flying. Also, the runway was X'd, a clear sign that the preferred landing area was the grass strip where cadets were.

I will say that at all times I was concerned about the safety of getting a pilot who was unfamiliar with the Borden layout into the high activity glider arrival patterns while remaining clear of the ranges and nothing else. To go back to the lesson learned, I think it is important to reaffirm that thorough pre-flight planning is essential for any cross-country trip and for a glider in particular, a review of potential landing sites and frequencies is one of those things that must be done. ■



The SOARING ASSOCIATION of CANADA

is a non-profit organization of enthusiasts who seek to foster and promote all phases of gliding and soaring on a national and international basis. The association is a member of the Aero Club of Canada (ACC), the Canadian national aero club representing Canada in the Fédération Aéronautique Internationale (FAI), the world sport aviation governing body composed of national aero clubs. The ACC delegates to SAC the supervision of FAI related soaring activities such as competition sanctions, processing FAI badge and record claims, and the selection of Canadian team pilots for world soaring championships.

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Images may be sent as photo prints or as high-resolution greyscale/colour .jpg or .tif files. Prints returned on request.

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L'ASSOCIATION CANADIENNE DE VOL À VOILE

est une organisation à but non lucratif formée d'enthousiastes et vouée à l'essor de cette activité sous toutes ses formes, sur le plan national et international. L'association est membre de l'Aéro-Club du Canada (ACC), qui représente le Canada au sein de la Fédération Aéronautique Internationale (FAI), laquelle est responsable des sports aériens à l'échelle mondiale et formée des aéroclubs nationaux. L'ACC a confié à l'ACVV la supervision des activités véliplanes aux normes de la FAI, telles les tentatives de record, la sanction des compétitions, la délivrance des insignes, et la sélection des membres de l'équipe nationale aux compétitions mondiales.

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vol libre sert aussi de forum et on y publiera les lettres des lecteurs selon l'espace disponible. Leur contenu ne saurait engager la responsabilité du magazine, ni celle de l'association. Toute personne qui désire faire des représentations sur un sujet précis auprès de l'ACVV devra s'adresser au directeur régional.

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The little voice

Dave Fowlow, Cu Nim

SAC wants to tighten up training and currency standards for glider pilots thereby reducing the number of accidents. This sounds great but, are we evaluating the right skills?

The Canadian and US air forces, NASA, and indeed your own club illustrate an interesting statistic. Of the pilot population, about 5% can be considered gifted. About 65% of us need constant practice to remain competent and, lastly but most significantly, 30% of pilots should not be anywhere near an airplane (we can all relate to this in regards to driving). Yes, we all have the potential to have an accident but it is my contention that pilots in the last group account for 80% of the accidents. Many of these pilots have excellent mechanical flying skills and a firm grasp of aerodynamic theory which is precisely why they have been able to make it through the existing evaluation net unculled. The new SAC standards will do nothing to identify these pilots.

We all know that a variety of skills are required to fly. Traditionally, evaluation criteria has focused on tangible "hard" skills. These skills such as mechanical flying ability are easy to identify and measure. But this is only a *small* part of the equation. What about situational awareness, self-assessment, and "Intuitive Intelligence," also known as judgement or pilot decision-making. Every profession or vocation has its legends: Wayne Gretzky, for instance. He had the ability to see the whole ice, allowing him to anticipate and manipulate. Some called it a sixth sense. It is intuitive intelligence — the ability to evaluate a stream of events and recognize and react to the evolving scenario. It allows you to recognize a problem moments or minutes *before* it happens. It allows you time to start rummaging in your bag of tricks for a solution.

We can all juggle one ball, how about 2 ... 3? Where is your limit and what happens when you exceed it? Intuitive intelligence allows you to recognize and anticipate when the last ball will be thrown to you, before it is thrown, thus allowing time to react. This is a skill that is alluded to in Earnest Gann's *Fate is the Hunter*, it is the "little voice" that Magnum P.I. has, it is "spidey sense." It is a skill that is poorly understood, rarely encouraged, and rarely assessed pre-solo. Indeed, often the instructor does not possess this skill.

Certainly mechanical skills are important; we need to be able to maneuver the aircraft and position it precisely in space at the correct altitude, attitude and airspeed at the right point in time. But, we must also be able to anticipate and react to and sometimes prevent the next event. Unfortunately, you can't put in what nature left out. This adds to the mystery, intangibility, and frustration of the skill. If you do not possess intuitive intelligence, if you haven't experienced or witnessed this aptitude, you probably don't have a clue what I am talking about and there is very little written about the topic.

Intuition can be developed with experience but, because it is so poorly understood, we often mistake rote for experience. Pilot X must be ready for licence because he has had a hundred flights. In reality he's had one flight, repeated a hundred times. Pilot Y has experienced, learned and developed his intuition over one hundred flight experiences. Which pilot is truly ready to progress?

We in gliding have made a start at addressing intuitive intelligence. It is the "S" in S.O.A.R. — See the situation. Unfortunately, if you know that you have a problem, it's often already too late; knowing how to get out of a spin is irrelevant if you are at 200 feet.

Student pilots who lack intuitive intelligence should not be licensed and in some cases should not even be solo. Don't even get me started about the risk and trust violation associated with passenger-rated pilots and instructors who are deficient in this area.

There is no argument that SAC needs a more consistent, rigorous screening process with much higher standards but unless we include this area of competency and have the wisdom and resolve to change our filter, current accident rates will persist. ■

Into the heart of darkness

Kempton Izuno, from *WestWind*



sucked into a cu nim

WRITING ABOUT SOARING IS EASY with an achievement to share or a flight you are proud of — enthusiasm and pride are in great supply. But the flight(s) will come of which you are less than proud or downright embarrassed about. Or worse, a flight from which you don't return ...

Since you are reading this tale, you may presume I've not had one of the latter flights, but a few have been close. Coming to the edge of disaster and living to learn from it is an incredible gift. May you never have this experience.

Prelude The forecast looked good for the central Nevada Great Basin area, so I planned for several days based out of Tonopah, Nevada. Launching out of Hollister, California on 17 June 2003 in my ASH-26E, I slid across the Central Valley and Sierra Nevadas, arriving at Tonopah late afternoon.

Part of the normal summer soaring routine within the Great Basin is working cumulonimbus clouds (cbs). Now cbs in most parts of the world are BIG (50 miles or more across) and should be avoided. In Nevada, with the dry land, dry air, and high ground, there are often small cb cells (3–4 miles across) with strong lift that do not block your path. These "small" cells really speed up your flight and are the smallest cbs, but they still hold significant risk.

Warning Signs The forecast for 18 June showed scattered cb cells with bases around 17,000 feet, strong heating and a very light SW wind. The first leg along the Monitor Range is great, with strong lift and a light tailwind. Turning near Elko, I head northwest following a line between towering cu to my north and overdevelopment (OD) to the south. Rain shafts are becoming more widespread under the cu to the south, but this does not overly concern me. There is a ways

to go before turning south and I expect that by that time, I'll be west of the high ground and clear of the OD. At 16,000 feet or so, the path ahead looks good.

FLASH! Lightning appears around the rain shafts to the far north, along the Oregon border, it is dark with more overdevelopment. Confident I can make McDermitt, I press on. However, by 2 pm it's clear the bases are dropping on track so, twenty miles short of McDermitt, I turn south along the Santa Rosa Range. Lift continues to weaken producing a stair-step descent as I aim to get back to the strong lift on the edge of the OD area to the south.

By 3 pm I'm down to 9200 just north of Winnemucca having averaged only 50 mph for the last hour. Frustrated at the slow speed, I'm really hungry for the *big* lift to get going again. Now under the first of a number of dark based clouds, I make three more climbs, each better than the last, reinforcing my decision to move back to the OD area. The lift is good (15,000 foot cloud bases with 6 knot climbs) but I think, there *must* be better lift nearby. Cloud cover is now 70+% with rain shafts. Anxiously, I scan the sky for a "young" cloud to get my expected 12 plus knot climb. The stage is now set — I'm in high risk weather with a very impatient attitude.

Trouble ... BIG trouble Threading my way between rain shafts 25 miles ESE of Winnemucca, I spy "the" cloud. With a very dark and clearly much higher base than the neighbouring clouds, plus no rain shaft, I think, "YES!, this is the boomer I knew was around here! Now it's going to be easy!" As with investing, right before things go bad, there is often overconfidence.

Let us now watch our hapless pilot moment by moment. With GPS flight recording, we have a numeric history along with the emotionally charged recollection. All data is "as is" from the SeeYou program.

3:33:50 8 knot CLIMB The edge of the cloud is coming overhead. This is good lift!

3:34:02 12 kt CLIMB A few seconds later I hit the start of the strong lift and instinctively slow up.

3:34:50 17 kt CLIMB The black cloudbase is coming up fast, better push over and head for the edge. I start perhaps a 30 degree bank to the right.

3:35:32 28.6 kt CLIMB "Oh, s**t, THIS is the core!" Faster than I can comprehend, I'm in the cloud. Unaware, I almost immediately relax the controls which allowed a LEFT turn. I mistakenly believe I have the controls neutral in hopes of coming out the side of the cloud. But ... in a few seconds I realize I'm not coming out the side; it's still dark grey and worse, the wind noise along with the G force is building from the spiral dive. I know that if I pull back on the stick it will only tighten the radius of the dive and the G forces. A little voice whispers in my ear, "You're going to die!"

3:36:02 9 kt CLIMB Trying to ignore a fast-rising panic, I recall a *SOARING* article describing spiral dive recovery. When in a spiral dive, do NOT pull back on the stick. Rather, neutralize the stick in pitch, then push it to one side and see if the G force lessens. If it does, then you guessed correctly and are leveling the wings. I push to the right and feel reduced G. I then pulled back to slow the ship down.

3:36:38 15 kt CLIMB The wind noise rapidly drops off to a moment of silence. Quick!, throw out the landing flaps, dive brakes and gear to (I hope) give me enough drag to get out the bottom of the cloud. I momentarily consider a spin, but having never tried one in the 26E (intentional spins are not permitted), I pass. Unbeknownst to me, I'm pitched up at 80° vertical. Without a horizon reference, I had let the nose come up almost to the vertical. Suddenly, I'm falling backwards, which only heightens the panic. "OK, I know, I shouldn't be here in the first place, pull-eeezze can I leave now?!!" A loud "*clunk*" aft further spooks me, then a sudden negative G force pushes me towards the canopy. "What the...?!"

Now remember, I have no outside reference as it's all dark grey. The clunk was the rudder shoved to one side during the momentary tailslide, and the negative G force was from the sudden pitching over from nose high to nose down. An already terrifying experience becomes worse.

3:36:44 6 kt CLIMB The second spiral dive starts but at least all drag devices are deployed.

3:37:44 9 kt DESCENT The airspeed is 110 knots and increasing. The landing flaps are red lined at 76 knots so I'm now a test pilot. Seconds seem like hours. Reviewing the trace shows I only lost 360 feet in the past minute! Add to this an irrational claustrophobic feeling that I need to unbuckle and get out of the cockpit.

3:38:08 39 kt DESCENT It's getting lighter ... I'm coming out the bottom! Now drop a bit more to make sure ...

3:38:14 36 kt DESCENT Okay, gently pull out ...

3:38:38 5 kt DESCENT Back to level flight. Thank you, Thank You, THANK YOU! The relief is overwhelming. The 2.5 minutes in cloud seemed like an entire day.

At that one moment, I feel like the luckiest guy on earth. Almost four hours of soaring lie ahead to get back to Tonopah, but that does not matter. I cannot believe I'm alive and intact. Later inspections showed no damage to the flaps. Had the flaps failed I likely would not be here.

Since then

Why did the story go this way?

- *Poor situational awareness*

I can clearly recall how distinctly higher and darker the cloudbase was compared to surrounding clouds. Did that worry me? Of course not! Like the moth to the flame, it only served to push me closer. Hey, and I knew that lift rates can be 15 knots or more near cloudbase but I had not seen that kind of climb all day. So when the vario passed through 12 knots, I stuck with it not seriously considering that it could *double* in a few seconds. I was complacent. The unusually fast rate of increase should have alarmed me a few seconds earlier than it did. Gavin Wills [a noted New Zealand instructor] comments further:

"Climbing at 10 knots beneath the cloud, it will take 60 seconds to gain the last 1000 feet to cloudbase and climbing at 20 knots it will be only 30 seconds which will be a little more than a single turn to do 1000 feet! Therefore be cautious and if the lift increases towards cloudbase, consider action 1000 feet below cloud and carry it out by 500 feet. Action well below cloud is essential in strong lift as one does not always have a sense of rushing up to the cloud."

Keep your eyes out of the cockpit. Situational awareness means actively looking for and analyzing details such as the speed and direction of the cloud shadows, the vertical rate of cloudbase tendrils, other aircraft location, or the growth rate and state of the overdevelopment. What is the situation ahead? What is the situation behind in case I have to retreat? What is the safety margin I need at this moment? In one minute? How do I keep it? In a "Sudden Loss of Margin", you think you have enough altitude/speed/clearance until **poof**... it's gone in a few seconds. And, if you survive, you'll look back and say, "Well, I've done this for years and that's never happened before! How rude!"

- Remain calm, be fair to yourself and keep thinking. Poor situational awareness got me into this, but luck and recalling the article improved my chances. An extreme emotional state will bias your judgement. During the flight, don't beat yourself up over a slow speed and don't get too confident when you hit super lift.

What about the next time?

First, make sure there is no "next time"!

- Avoidance is the first line of defense. Keep a wider safety margin. Bob Semans shared his personal rule that as you climb, keep a 45° angle between the hori- ⇒ p9

A flight around Lake Simcoe

Tim Wood, York

THIS FLIGHT was to have been a downwind dash from Arthur to Hawkesbury, part of my ongoing quest to finally complete such a flight. Based on an optimistic interpretation of Dr. Jack's weather forecast for the area, I loaded my ASW-27 with water on the morning of 30 July 2005. I made my departure at 11:20 and flew east along Highway 9. Instead of the expected tailwind, I encountered 7-9 knot headwinds and I was unable to climb much in the thermals in my path. My going was way too slow, and by the time I reached Alliston I had already used up 90 minutes and had an average ground speed of only 34 km/h. At this point I dumped my water in disgust. I found that I climbed a lot better with neutral flap and an airspeed of over 60 knots in the day's early conditions, quite a bit different than my usual technique.

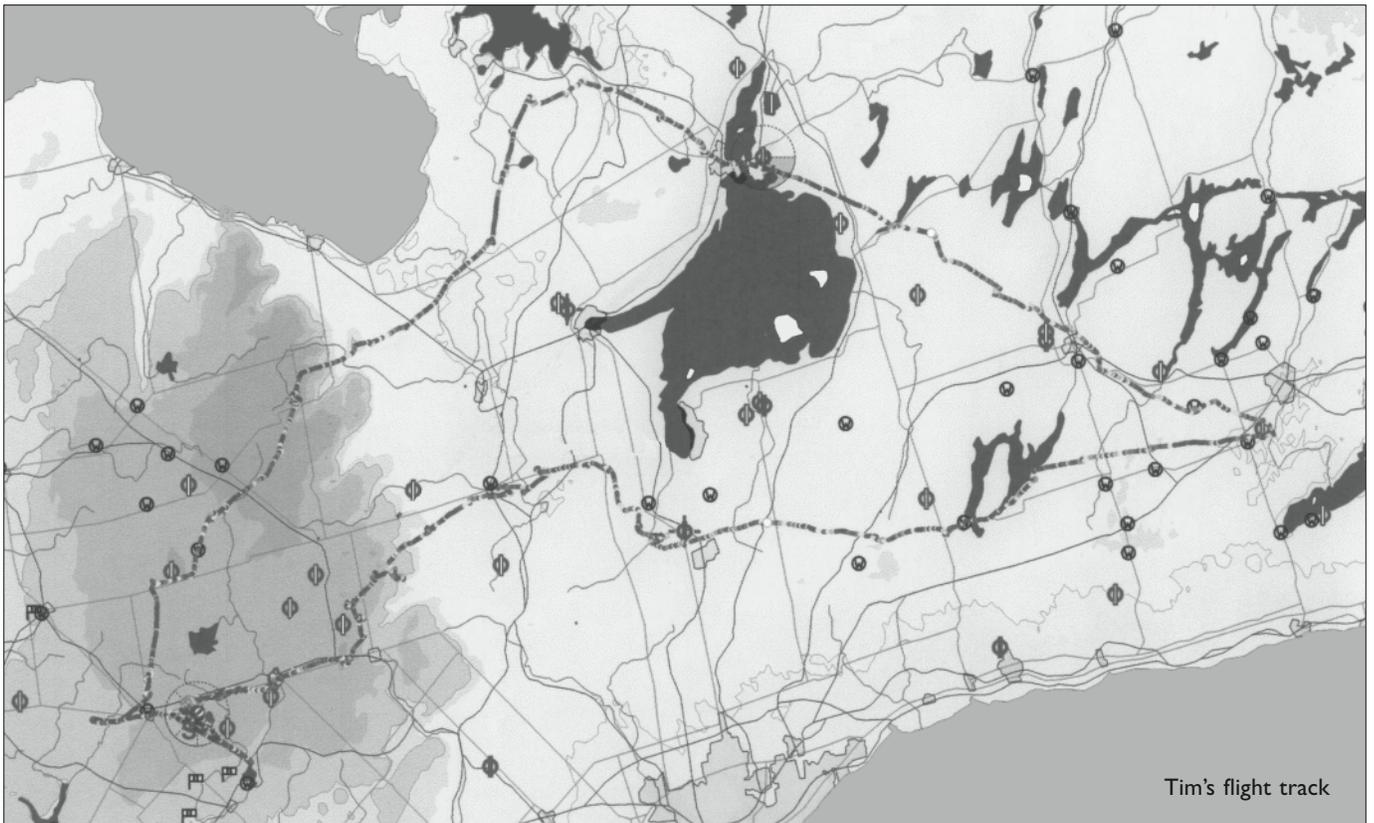
I pressed on but got uncomfortably low at Bradford and again as I crossed the Holland Marsh carrot patch. I prayed harder than usual and was able to get back up above 3000 feet asl by the time I cleared the eastern margin of the low ground.

After that it was a new ball game. As on many previous flights I found that conditions became much stronger as I entered eastern Ontario. I was soon moving along well

in the band between 5000 and 6000 feet. Beautiful well-formed cus with nice flat bottoms lined up in my path as I passed over Ernst Schneider's operation at Greenbank airport. Alas, I had now burned up three hours and I decided to abort my attempt at Hawkesbury. Instead, I went for "Plan B" and decided to fly around Lake Simcoe and go back to Arthur from the northeast. At Peterborough I made the turn and steered for Lindsay. Convection was now even stronger and I moved up into a higher altitude bracket between 6000 and 7000 feet.

As I approached Lake Simcoe, navigating towards Orillia, a big blue hole appeared in front of me. This was confirmed by cautionary radio reports from pilots on the other side. It was blue from Beaverton to a point between Orillia and Coldwater, a distance that looked to be over thirty kilometres. This was quite a psychological hurdle. The lake air over Simcoe had created a dead zone with no lift. The good news was that I was able to get up to 8000 feet before I launched out from the security of the last cumulus. I reasoned that unless I was very unlucky, this much height should be enough to easily get me across. Furthermore, Lake Simcoe has lots of airports around its perimeter.

I ran through the blue along the north shore of Lake Simcoe on a zero MacCready setting. I did encounter some lift along the way but kept going. I still had 6000 as I passed over Orillia and I connected with a thermal





Approaching the north end of Lake Simcoe.

then persisted all the way to Arthur, and I flew around for another hour, just goofing off before landing at 7:20.

The pathos of this flight made for a very memorable day. High initial expectations, a slow start, aborting my flight plan, superb soaring conditions in eastern Ontario, a white knuckle crossing through a big blue hole at Lake Simcoe, back up to safe altitude on the south shore of Georgian Bay, another long slow testing glide over low ground across the Nottawasaga Valley and finally back into super conditions up on the high ground around York Soaring. Notwithstanding the fun flight I did have, when the dust settled and the facts relating to the day were all in, a small voice keeps

just west of the town. This was now a very different kind of sky, with wispy cu in near blue conditions. I turned south before reaching Midland and stayed inland some distance from the shores of Georgian Bay. I lost height as I crossed the lowlands of the Nottawasaga Valley, and then turned west towards the security of the higher ground of the limestone plateau towards home. This part of the flight turned into a white-knuckle, hold-your-breath ride, as I steadily lost height and got no real sniffs of thermals for over thirty minutes. Half way between Shelburne and Collingwood my persistence paid off and I finally got a good thermal that took me back from 3800 feet to above 5000. Strong conditions

telling me "You should have pressed on to Hawkesbury you coward!". A glance at the OLC scorecard for that day tells a story of super conditions around Hawkesbury and Pendleton with Ulli Werneburg, John Bisscheroux, André Pepin, Bob Katz, and Alain Marie Orfila all doing outstanding long flights. Ah well, we live to fight another day!

The OLC distance I recorded was 463 km in a flight that lasted almost 8 hours. This flight track file, *57ua10d2*, can be downloaded from OLC. Thanks to Miguel Londono for generously agreeing to crew for me on this flight. ■

into the heart of darkness

from page 7

zon and the cloud edge. Thus, as you climb you move yourself closer to the edge of the cloud. I now follow this rule.

- FAR 91.155. Between 10,000 and 18,000 cloud clearance of 1000 feet below, 1000 feet above, and 1 mile horizontally. Not only does this help avoid "cloud suck" but in today's GPS world, IFR flights are direct with clearance approval, so staying clear of clouds is more important than ever. An IFR flight could pop out of a cloud and there is a glider, up at cloudbase not realizing he is supposed to be a 1000 feet lower. This 1000 foot clearance gives the margin to take evasive action.
- Install a turn & bank. Low current drain instruments from PC Flight Systems, TruTrak Flight Systems, MGL Avionics, etc. indicate turn direction. Some units are "instant on," others require a warm-up time. Turning the device on because you're worried about getting sucked into the cloud probably means that you are already in a very high risk position in the first place. Some Garmin units have an EFIS display.
- Practise true blind flight in a glider. The T&B is virtually useless without practise. Practise what? Maintain your instrument scan. Ignore your senses and act only on what you read. Sustain your concentration for what may be a seemingly long time. Know the lag of the instrument relative to your stick and rudder actions. Keep a constant airspeed. And that's only if you enter under ideal conditions like wings level and flying the instruments *before* you enter the cloud. One instructor points out that it's not just practising

steady blind flight, but handling upsets, unusual attitude recovery and doing so on a monthly basis as this skill goes stale quickly. A two seat glider (not a power plane) with a safety pilot, preferably instructor, with the student's canopy covered would be ideal.

- Benign Spiral. This is an option only if you know how to set it up *and* have practised this in your ship beforehand. Some gliders may hold a benign spiral in calm air, but an upset may tip the glider into a spiral dive. Practise with an instructor, then on your own on a calm blue day. The benign spiral is also appropriate for wave flying if you get caught above a layer of cloud.

In conclusion, my hope is that this story fosters further discussion on flying overdevelopments, risk management and emergency recovery. With more flights in the central Nevada and Great Basin area, those of us who choose to fly there need to actively work on reducing the chances of another similar incident. I was lucky, but I used up most, if not all, my lifetime supply of luck on this flight. I continue to fly the Great Basin with a greater respect for cbs and a wider safety margin than ever.

Further reading

Little is written about inadvertent cloud flights of which I'm aware, so I can only offer the Carmichael article and the sobering "*Dunderhead's Thunderhead*" in SOARING, January, 1974. See John Sinclair's excellent article, "*My PhD in Fear*" at <www.valleysoaring.net/story/jj/jj-fear>. Sailplane & Gliding magazine has more material as cloud flying is permitted in the UK. ■

Learning to soar slopes

Don Puttock, from *Sailplane & Gliding*
diagrams: Steve Longland

THIS ARTICLE is designed for instructors and students alike; they highlight training issues and illustrate how good hill soaring skills will help a pilot improve his competence handling his sailplane, and thermalling. Relatively few pilots have had the opportunity to develop their hill soaring skills. Little training material is available and even less guidance for instructors.

Sailplane design and piloting skills have developed in parallel with great cross-country achievements. As soon as the early gliders managed to break their bonds to the local hills, pilots looked to thermals and wave as the major area for training and development. Some pilots are even critical of the apparent low skill level required to soar a hill. This in turn tends to discourage pilots from exploring this fascinating area.

The recent growth of interest in mountain flying has been fuelled by cheap transport and the opening up of Europe. Pilgrimages to the Alps, for instance, are commonplace. Perhaps we should now be paying more attention to training, and ensure pilots maximize their enjoyment safely.

What is hill soaring?

Before we attempt to develop our skills we should first understand the beast. We often hear about pundits roaring along a ridge low level at some breakneck speed — it may be good fun, but it's certainly not ridge soaring. "Soaring" is to use the air efficiently and safely in order to support the sailplane; the purpose may be to buy time or to assist the sailplane across country.

Lift over hills comes in several forms with traditional hill lift, anabatic flow, and streaming thermals being the more common sources of energy. Wind-generated ridge lift is the most commonly encountered. The size and shape of the terrain and the orientation and strength of the wind all have a direct effect on the strength and position of the best lift and the value of the ground as a good lift generator.

Below the crest

Subtle skills are required to soar ridges below the crest of the hill, and techniques described here should not be attempted without proper tuition from an experienced hill soaring instructor. As well as the significant influence of the ridge's length, height and shape, and the wind direction and strength on its value as a good lift generator, airflow below hilltops can be difficult to predict.

Habits formed in earlier flying training can cause significant problems. Generally, some unlearning is required:

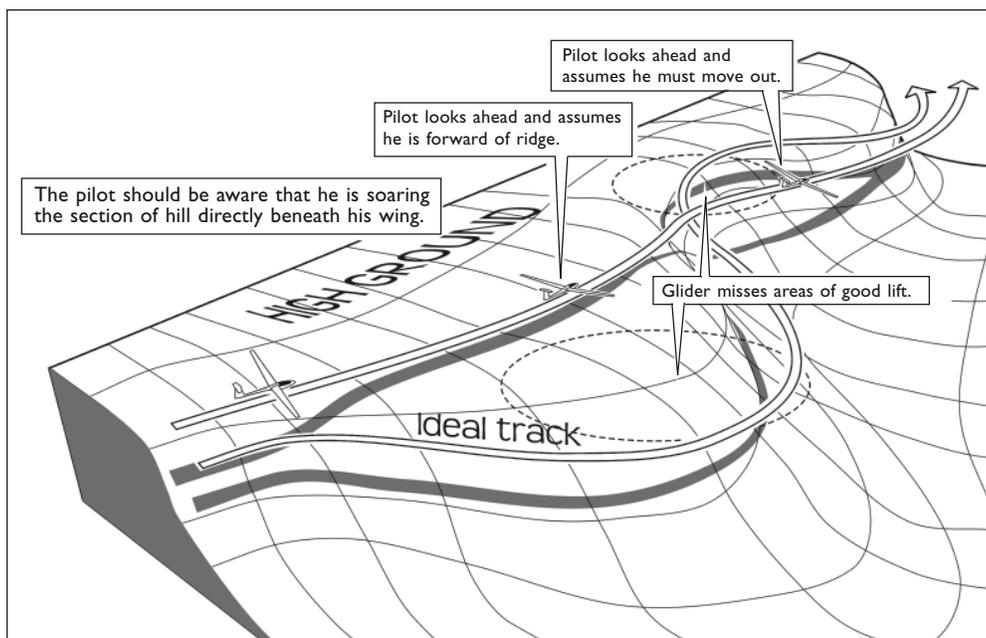
- Most cross-country pilots have an almost uncontrollable urge to reduce speed as the lift improves. This is a particularly dangerous practice when hill soaring below the tops.
- Airspeed must never be allowed to get too low; a gust can cause the glider to stall at the most awkward of times. The natural horizon is not visible and the pilot must learn to use noise levels and control response as his guide — he must most definitely not chase the airspeed indicator.
- Lookout procedures must change. A pilot can easily

become fixated on the wing tip (often fairly close to the hill), and fail to look ahead to avoid the next rocky outcrop or oncoming glider.

- Differences between the heading and the track can be quite disconcerting when the pilot is close to a hill. With the glider pointing away from the hill to correct for drift, the yaw string should be central.
- Optical illusions can lead an inexperienced pilot into difficulty.

A variometer indicating lift and the ground outside appearing to move upwards can cause the pilot to subconsciously pull back on the stick to correct the visual anomaly.

- High closing speeds with the hill are common with the relatively high ground speeds. Gliders typically approach a hill with a tailwind. The effect is not obvious until the glider is very close to the hill. Great



care must be taken to avoid an inadvertent collision with an immovable object.

- Selecting an appropriate airspeed is critical for both safety and soaring efficiency. Too slow is unacceptably dangerous and too fast may mean you are due for a field landing. If you are in any doubt, it is always sensible to seek the advice of an expert. A carefully judged balance is required between optimizing speed for soaring and leaving a safe margin for gust-related stalls or lack of concentration on the part of the pilot.
- Sufficient maneuvering room must be allowed for the glider to move away from the hillside instantly if the pilot needs to do so. The glider must always have a safe escape route.

Joining a hill below the top

Few things are more satisfying than gliding towards your next hill and hearing the sound of the variometer as it confirms you have lift.

- Keeping well clear of potential sink, approach the hill by the most expeditious route (normally 90° to the ridgeline). Keep a good lookout for other aircraft, assess the best route to avoid conflicting with them and continue to fly at best L/D.
- Look out for potential landing sites, in case you arrive too low or the hill is simply not working.
- Do not visually fixate on the hill — just as with thermals, another pilot may have exactly the same intentions as you. Continue to keep a good lookout.
- At a reasonable distance (which can only really be shown by practical demonstration), increase speed and introduce a 45° turn — this allows you to judge your next turn more easily.
- As the vario indicates an improving situation, and before you get too close, progressively turn through a

further 45° plus a wind correction angle, level the wings and follow the hill contours.

Speeds to fly should be higher than normal to start, to give you the opportunity to identify any potentially turbulent areas safely. Gullies, areas of marked change in hill direction, wind shears or wave rotors can have surprising effects on your own airspeed.

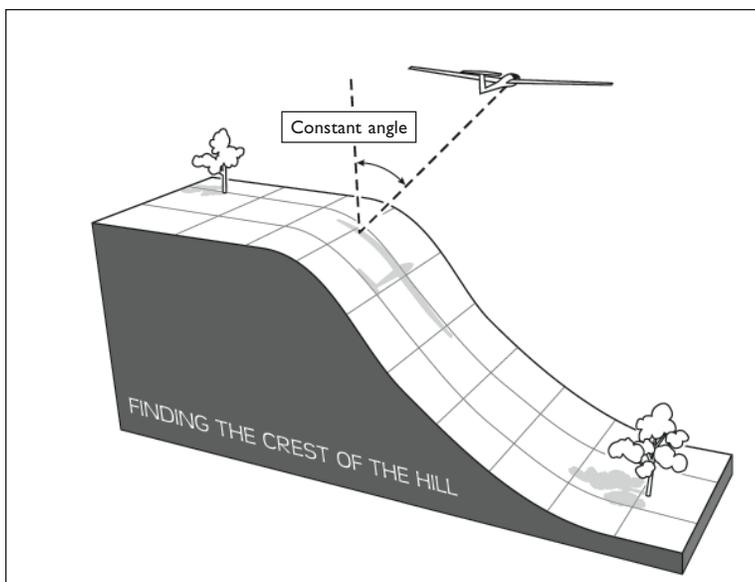
Climbing up below the top

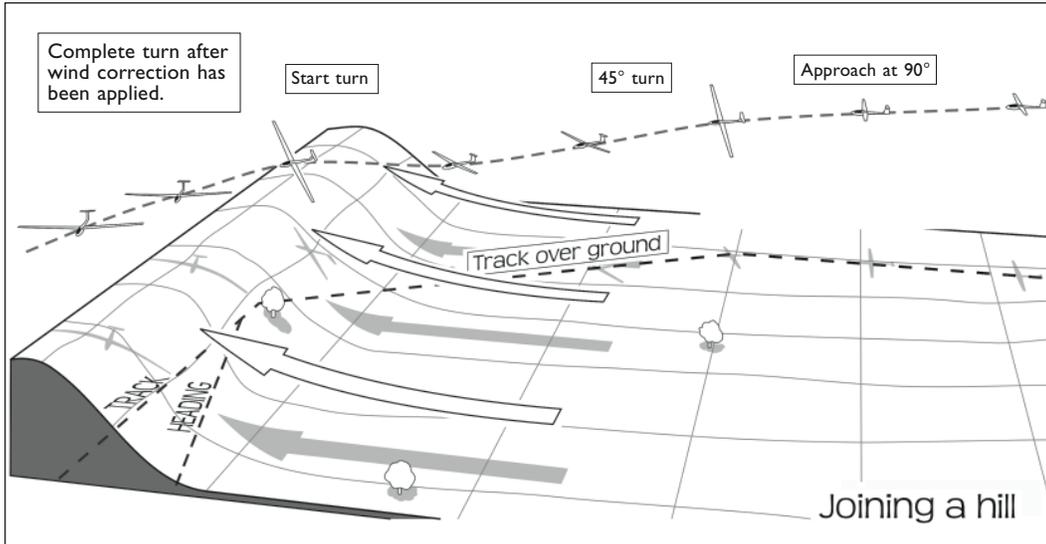
- Below the top, the best lift is normally, although not always, fairly close to the hill.
- As you get nearer the crest, the lift should improve. Conversely, the lower you are, the weaker the lift will be, and at some point the lift will be insufficient to sustain you.
- If you are in weak lift, at a high point along the ridge, try flying to a lower section. Air often leaks over these sections and provides stronger lift as a result.
- As you climb, you will need to continually reposition yourself in relation to the hill surface. Shallow slopes are a particular problem because gains in height quickly move you away from the hill.
- You should allow for a drift angle and accept the fact that your heading and track will be different. Try to keep the yaw string straight.
- Maintain a very good lookout, and pay particular attention to blind corners. It is normally safer to move further away from the hill and improve the forward visibility. Don't forget that it is not only gliders soaring ridges. Meeting a slow moving paraglider can be quite disconcerting.
- Below the top it is quite common to find sink areas in the wind shadow sections. Pay particular attention to this, if the wind is not square on to the hill.
- Do not attempt to slow down if you hit an area of stronger lift.
- Judge gullies carefully — many can be too small to negotiate safely.
- Never attempt thermalling below the top: drift will quickly get you dangerously close to the hill. S-turns are a better method of using a thermal and are quite reasonable providing there are no other aircraft in your vicinity.

Locating lift above the top

Identifying the hill's crest can be difficult. Slopes are never as obvious from the air where the flat top becomes a steeper incline at the crest. Sometimes these are marked by footpaths where walkers get a good view.

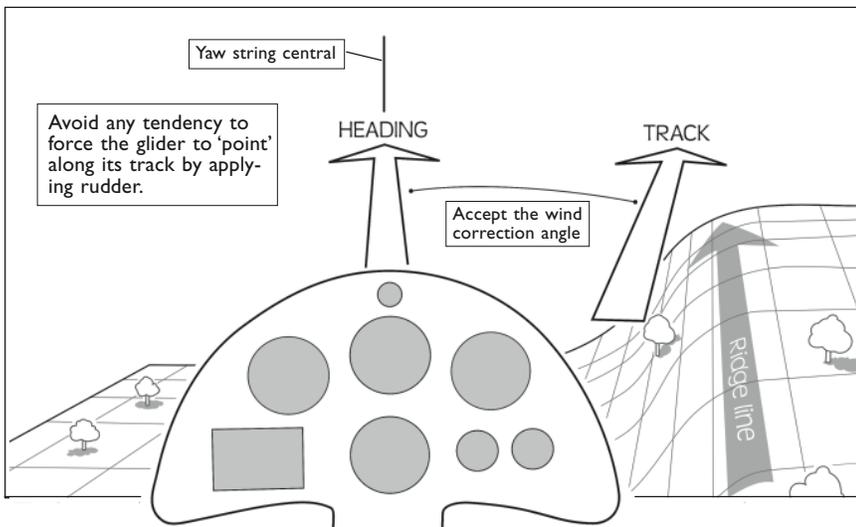
As the line of the top of the hill wanders in and out as well as up and down, the pilot is continually repositioning the aircraft to stay in the best air. A good rule of thumb is to maintain a similar angle from the crest as the actual hill slope itself.





Any tendency of the glider to turn should be used to help the pilot fine tune his position. Many pilots have developed a habit of chasing the yaw string with the rudder; this is actually counterproductive and can drive the aircraft away from the better air. The yaw string will deflect quite normally if the aircraft starts to roll even a small amount.

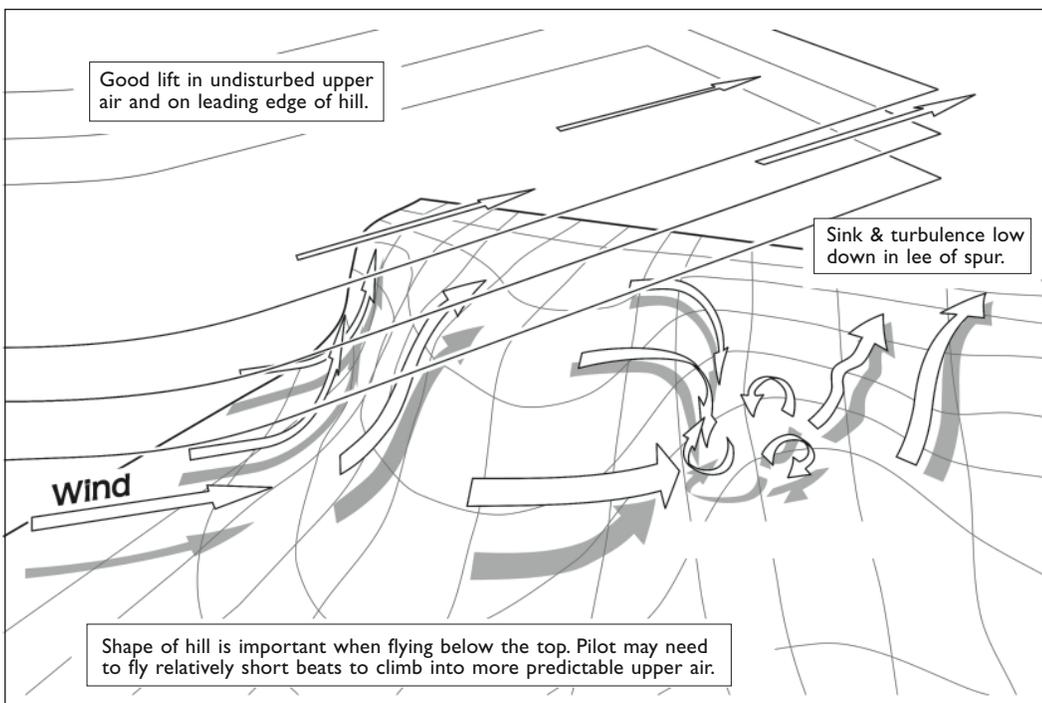
The roll is caused by a lift differential across the glider and should be corrected with both aileron and rudder, and the information used to guide the pilot towards the best lift.



The pilot should be aware he is soaring the section of hill directly beneath his wing; if he uses the forward view, he may position himself poorly.

Climbing up (above the top)

- Above the top, the best lift is normally forward of the ridge and at a steady angle from the crest. The higher you are, the further into wind you should be. The slope of the ridge has a strong influence on your ideal positioning.
- As you climb, the lift will get weaker. As your physical separation from the ridge increases, the safer it is for you to reduce airspeed. Reducing airspeed will allow you to take advantage of the weaker upper air.
- The best lift is usually over the highest parts of the hill.
- The airflow is usually much more reliable than lower down, and does not normally suffer

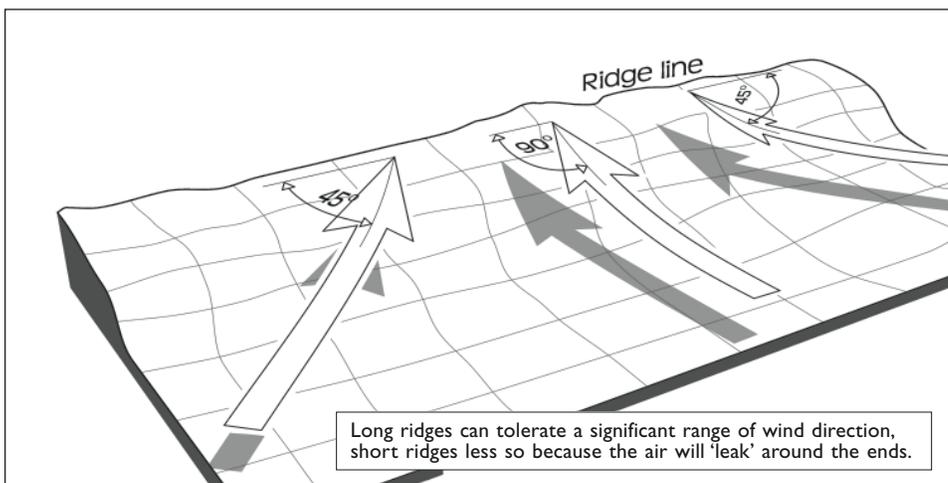
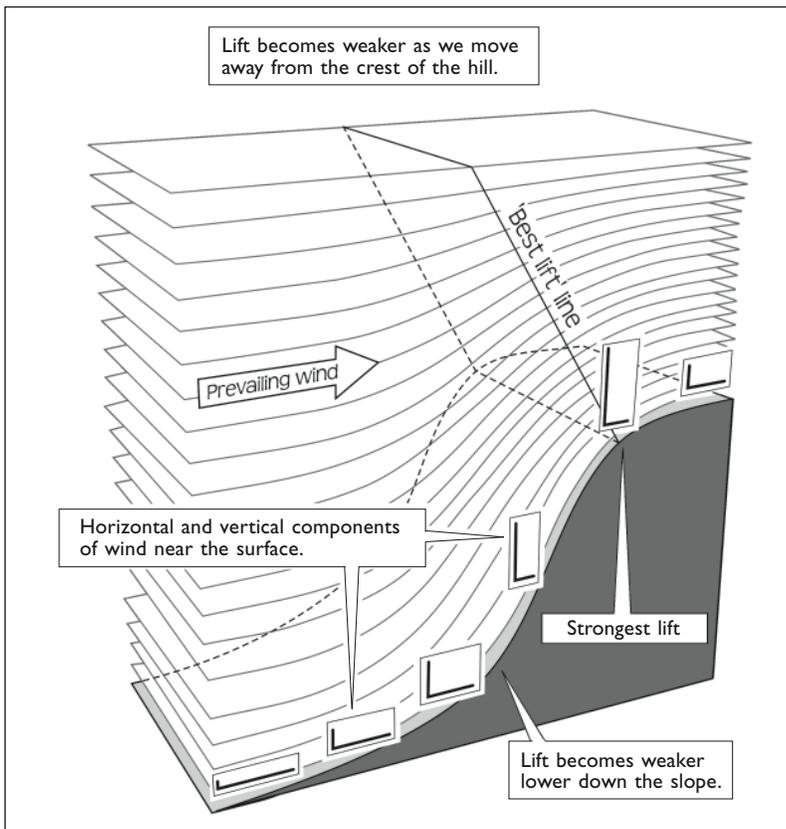
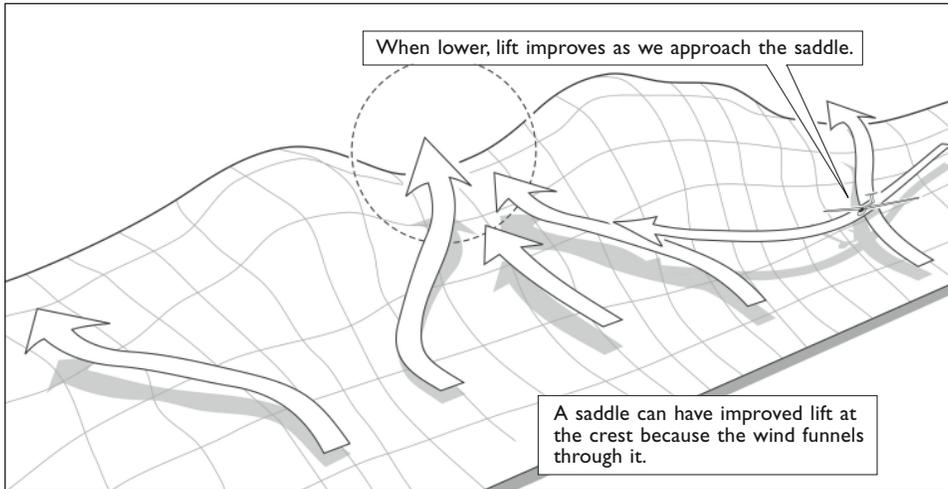


from the wind shadow effects experienced below the top.

Turning

Particularly in weak conditions, accurate turning makes a big difference. Near the hill gliders must fly faster for safety reasons, unfortunately this can mean very large radius turns. Large radius turns often take you away from the useful lift.

- Always look out before the turn, look well ahead and be certain there is sufficient time to turn before any distant glider passes you (150 knot closing speeds are common), then check behind and ensure there is no conflict with following traffic. Below the top, following gliders may not be able to pass you on the hillside as there is simply not enough



room, and a glider catching you up may be very poorly positioned in relation to your intended flight path.

- As you turn, use a good bank angle and slow down. Removing any excess speed, but still maintaining a safe margin above the glider's stalling speed in a turn, will reduce the radius of your turn. Your speed will reach a minimum value when parallel to the hill and travelling in the opposite direction. You should still be in lift and reasonably close to the hill.
- Increase speed again and roll the wings level by the time your flight path is 45° to the hill. Remember the glider will not roll quickly and you must allow sufficient time to get the wings

level. If you got stage two correct, you will be reasonably close to the hill already.

- As the glider approaches the correct position in relation to the hill, turn away from the hill and level the wings after the drift angle has been applied. The glider should now be pointing away from the hill and in the ridge lift.
- Turning below the top requires accuracy and good coordination. The lack of natural horizon can make turning particularly challenging.

Hill soaring instruction

Hill soaring instruction should always start above the top. Developing the pupil's flying skills is normally necessary: most pilots will need to unlearn some training. This is much safer if well away from the hill to start with.

Any tendency you may have to ...

- fly by ASI,
- lead with the rudder in a turn,
- look down the wing in a turn,
- chase the yaw string,
- pull up in the lift,
- allow the nose to go down in the turn,
- mechanically pull back on the stick in the turn without reference to attitude and speed,
- fail to look out, or
- slow down when approaching higher ground,

... can all be resolved *before* the "below the top" training begins.

Hill soaring is technically demanding and an excellent platform for pilot development. It is a useful way for pilots to not only remain current during the winter season, but it is probably the most technically demanding form of soaring today.

The biggest single challenge to hill soaring instructors is the improvement of the pupil's basic handling skills. After a few hours on the hill, most pilots see a new set of standards that they need to attain. ■

On the road again

David Donaldson, Great Lakes

IT WAS A GREAT DAY FOR SOARING. I was taking the season off to get caught up at work. As a compromise I got to be an airport bum for the last week in August, Great Lake's flying week.

One day, Sunday 4 September, was a bonus, and I managed to get a weekend pass from work. The conditions could not have been much better. With my Bronze badge completed, I was looking forward to my Silver but that would have to wait for next season in 2006, after all, this was an "off" season for me. I arrived at the field with the plan to just have a local fun flight. It was fun, three hours of fun, shortened only by the need to drop some water ballast. Note to self: install a relief system. The entire flight I was looking to the west and cursing, "I should have done my 50 km." With only one more day to go for my 2005 season, I made plans for the next day, Labour Day Monday.

The forecast was for much of the same but this time I arrived prepared. Trailer in tow, paperwork in hand, water and snacks, I DI'd my baby, "Rosebud", and launched. With our club's altitude restriction due to Pearson's upside-down wedding cake, my plan was to get high, stay high, fly north of the field and then southwest to York Soaring. We towed east over the Beeton field (remote start) and released at 2000 feet agl. As usual Pat did a wonderful job of dropping me off in lift. This is especially appreciated in a 1-26. The thermal only lasted to about 3000 so I headed west in search of lift. In a very short time I was back down to 2000. On a normal day I would have been looking for lift back towards the field to ensure my unassisted return, but today was no normal day; I was flying cross-country and I was going to get to York or land out trying!

Objective firmly in place, I was headed west...



Dave accepts the I-26 Travelling Trophy from Walter Chmela.

I struggled to find that all-important first thermal to get me up into the working band and really start my big adventure... I searched and scratched and searched. It seemed like hours, and I had made it all the way to Loretto, a measly 7 km. Oh well, I had a cell phone and the trailer was hooked up so I persevered. Attitude, after all, is almost as important as altitude... almost. I was pleased to be over hospitable land-out terrain.

Then it happened, slowly at first. It got stronger higher, 2000 – 3000 – 4000 and I was on my way. My plan was working wonderfully, heading northwest into some good lift. I started to relax into the task at hand, it had felt like hours but, according to my watch, it was only about twenty minutes. "Man this is hard work," I thought. By the time I reached Hwy 89, about halfway to Shelburne from Beeton, I had settled into a working band between 3000 and 4000. I was climbing often — probably much more than needed — but the goal was to make it, no time limit involved. The lift looked good in a nearly straight line towards York so I started to work in a southwesterly direction. As my confidence grew, I became more picky about the lift I was working, to the point of porpoising between thermals. I was back up to 4000 for the third time so far. A slight deviation due west to pass under a particularly choice looking cloud and I decided to take one turn... *beep... beep... beep-beep-beep*, I was averaging 8 knots up with a peak that sent my vario off the scale for a couple of seconds. Just over a minute I popped out the top of the thermal above 5000!

What a feeling! From here I could see for miles; the world was my oyster! Okay, I have been higher than that before, but never with the intent of going somewhere. I could almost see my destination! Okay, I couldn't, but boy, what a feeling. For the past few years various members of Great Lakes have been encouraging me to go cross-country "when you're ready". Freed of instructing duties for the day and a retrieve plan in place, I was finally on the way. Not even halfway there and this was quickly becoming the best flight of my life. It was going to take weeks to wipe off this silly grin. I made it back to 5000 twice more, but spent most of the time between 3000 and 4000.

West of Orangeville I approached Hwy 9 — and 1000 feet. With a field selected I desperately searched for some lift. There was one cloud just in reach to the west. Checking that I would still make my chosen field, I noticed three seagulls under that cloud and a good 500 feet below. "This is it," I thought and bee-lined it for the thermal. As I rolled in I looked up and noticed two red tailed hawks 2000 feet above me. "I'm coming!" as I circled with intent. The vario was averaging, oh, about zero. The altimeter was kind enough not to go down. At least I'm still flying. A couple more turns, 50 then 100 feet. It was one of those half-up half-down thermals and it was only the cross-reference of the altimeter that confirmed ⇒ **p21**

Breaking the mold

John Birch, *Sailplane & Gliding*, Dec 05-Jan 06

John outlines a new approach to training introduced this year by the Cambridge GC

THE GLIDING MOVEMENT IN GENERAL has bemoaned the steady loss of members in recent years. While the total number of members declared by UK clubs to the BGA has fallen by around 15% in the last decade, the number of registered gliders has increased by about 40%. Clearly we have been doing something right, but, even if we are recruiting new members as successfully as we used to, we are certainly not retaining enough of them. I often hear club officers suggest that the “year-1” dropout is inevitable, but need it be so severe?

The problem? Cambridge, in common with other clubs, has applied itself to trying to improve recruitment and retention of new members. Our exit polls of members who decide not to rejoin point overwhelmingly to one factor; frustration with the learning process. This is often expressed by the sentiment, “too much time spent on the airfield for too little flying”.

In my opinion an obvious culprit is the list system, still in widespread use in the UK as a way to allocate flying. It panders to the traditional British affection for queuing for anything worthwhile, but most people’s expectations and aspirations have changed. With a much wider variety of leisure activity available on demand (not least in aviation), an approach that amounts to “turn up, rush to get your name on the list, and we will do our best to get you airborne” just won’t do.

A solution? From March 2005, we introduced a fully bookable system for our two-seater training fleet. We have four two-seaters: on a typical weekend day, two are allocated to instructing, one to passenger flying, and the fourth available to be booked for any other appropriate use such as instructor checks and training, cross-country, members flying their friends, solo flying, and so on. Weekday allocation of slots works in a similar manner. None of this will work without buy-in from the instructors who have to deliver it.

How does it work? Bookings are made via the club website — the relevant web page is at www.glide.co.uk/rosters/twoseatbookings.aspx. This principle had already been established for our higher performance single seat fleet, used by qualified members on a day-by-day basis. The web booking facility has been vital in the process of gaining acceptance for the system. It allows members to see when slots are available, and to plan their flying training. If they don’t have web access, a telephone call

to our office can get the job done for them, and our administration team manages exceptions caused by aircraft unavailability. Booking is not limited to club members. We book trial flights and visits by members of other clubs who wish to use our training facilities.

Our overriding principle was that the trainee’s time on the airfield should be spent effectively, so the pupil-instructor ratio had to be kept low.

We eventually settled on two pupils to each instructor, with the proviso that half the capacity of one instructor would be kept available for less predictable events such as recency checks and remedial flying — so two instructors will have just three pupils on their half-day duty. We thought it important to avoid giving the impression to newer members in training that more established ones could get preferential use of the instructor and glider.

There is no option to simply turn up and expect to fly. If there is genuine unbooked capacity, then the duty instructors will fly with a member, but there is no guarantee that you will fly if you are not booked. Necessarily, booking applies to all use of club two-seater capacity, including annual checks and post-solo exercises, and not just pre-solo training.

The booked slots coincide with the instructors’ half-day duty. Those who book for a morning slot are expected to arrive to help unpack the hangar and set up the airfield while those on the afternoon slots are expected to help pack away or hand over to the evening crew. It is perfectly acceptable to fly for the morning and then leave, or to arrive at lunchtime and fly for the afternoon, subject to these criteria.

How has it worked so far? Our target was to improve the training experience, retain our new members, and make more efficient use of our capacity.

The first objective seems to have been met. In our 2003/2004 year we soloed seven members new to flying and a further eight who were returning to flying. This year those numbers are nineteen and three respectively. It does appear we are getting new members through the training system much faster. As yet we do not know how many will renew after their first year of membership but historically about 45% of our new training members fail to renew for a second year. It will be at least another year before we can judge whether this statistic has significantly improved.

On the day, members in training can usually expect a significant number of flights, especially on non-soarable days. Six flights or more (often a mix of aerotow and winch launches) with the same instructor are not now unusual and this advances the training process, leaving new pilots with the feeling they have made pro- ➔ **p18**

CLUB news

More hats

I enjoyed reading "The hat came back" in the last issue, especially because it reminded me of a similar adventure.

Several decades ago at Hope, BC, we were training in a 2-22 and later in a 2-33, and used winches. We had no radios, which was okay until we dropped the winch cable on the adjacent power line — twice on the same day! As a result, Transport Canada summoned me as the CFI to show cause why our permit to operate from the Hope airport should not be suspended.

I showed up in their offices like a beaten dog with its tail between its legs, but with a list of action items the club planned to do, one of which was to equip all the gliders with radios. One of the elements of this was to install antennas on the gliders — nice, long, strong CB antennas(!) in the middle of the wing gap cover. Given their cost, we could not even think about proper aviation radios. Come to think of it, the Bayside 990 was the ultimate in glider radios and it was very expensive. In the end, the CB radios were not useful at all due to noise, especially the ignition noise from the winch.

One day as I was instructing, a young fellow with a peaked green cap was getting in the front for a training circuit flight. As I recall he already had some experience, so I let him fly from the takeoff. Unfortunately at about 300 feet, just during the transition into steeper climb, the canopy flipped open. Before it opened very far, I was able to quickly grab the piece of bar that keeps the canopy together and closed it. But his cap flew out during that time. I kept holding the bar with my left hand, flew the glider with the other left hand and he locked the canopy.

The rest of the flight was uneventful, no damage whatsoever, except to egos and the loss of the cap.

On landing I gave him heck for not properly closing the canopy but praised him for doing things well while under stress.

He was rather sad. The landing was just a bit long, and while we were still sitting in the glider, he sadly told me, that his cap went through all the battles with him in Vietnam, only to be lost in a circuit with a glider.

We opened the canopy, I got out, I looked back and you guessed it, the cap was on the antenna!

That CB antenna was good for something after all!

George Eckschmiedt, VSA

Michael Tryggvason awarded Peter Corley Scholarship

I would like to thank the Soaring Association of Canada for the privilege of being selected as the recipient of the Peter Corley Memorial Scholarship for 2005. I'm very grateful to many in the Canadian soaring community for the time and support you invested in me.



Let me take a moment to introduce myself and say a few words:

My name is Michael Tryggvason — I'm 20 and now in my second year at the University of Western Ontario, studying Mechanical Engineering. I'm having a blast here at school. Most of the classes are a challenge, but that only makes doing well in them all the more rewarding. Engineers are typically a close family, and here at Western is no exception — it's a great feeling to always be running into good friends in the hallways at any time of the day or night.

After finishing my engineering degree, I plan to work in the aviation industry as a pilot. Not to overlook the engineering side of things, I plan to stay involved by taking part in research to promote the development of advanced aircraft designs.

I began to fly just after I finished high school, taking a year off to work and pursue the dream. I finished my commercial power licence with the multi-IFR rating ten months

later, and also competed in the 2004 Webster Memorial Trophy competition in that time. In the summer of 2004, I began training for my glider licence at SOSA. I received my licence this past summer, enjoying a few soaring flights, especially a memorable hour-plus long solo flight in the Puchacz, and another Blanik flight with Pat O'Donnell that was a great experience in both insight and technique development as I build time (and landings) and gain experience.

I have just under 500 hours of total flight time, power and glider combined, with close to half of that being flown at SOSA. I am proud to call SOSA my home airfield, and look forward to many summers of soaring there.

I would like to send a few more words of thanks. First, thank you again to SAC for this generous award. Thank you to Lorna Novosel and Scott McMaster for their time, effort and support, and also to Dixon More, who first made mention of this opportunity. I must mention others that I am grateful to: John Brennan and Dave Springford for the opportunities offered to me on behalf of SOSA, to those mentioned above, and also to Terry Macartney-Filgate, Martin Brassard, Doug Bremner, Tom Coulson, Dan Bush, Dave Carter, Anthony Kawzowicz, Jean-Marc, Roy, Adam Z, Wilf Krueger, Rod Crocker, Ernie Prack, Dan MacIsaac, Scots Graham, Joe, and many more SOSA members whose support has been incredible.

I'd like to give a shout out to the flyers who were at the Junior Camp this summer at SOSA — I had the greatest time in those weeks and met a large fraction of the future of gliding in Canada. Trust me, these young pilots will achieve — Kyle Nordman is leading a program that is becoming a great thing.

Finally, I'd like to thank my mom, my dad, and my sister for their continuing support, even when they sometimes may not have seen the method to the madness. Thanks again to all (I know this has been long-winded, but it's not often such an opportunity as this arises). Blue skies and happy soaring.

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Central Alberta Gliding refurbish their Bergfalke

Work is well under way on our winter project to refurbish our Bergfalke "high performance" trainer, C-FDLP. This not only saves the club a lot of labour costs but is a great way to stretch the social aspects of the club into the non-flying season.

As an incentive, we are "paying" members an hour of air time for every two hours of work time for those who help out in any way, sanding, painting, lacing or what have you.

The 24 year old fabric and coverings were removed and the tubing cleaned, sanded and inspected. Any suspicious welded joints were magnetically tested — we found only one in a non-critical area and it has been repaired. The fuselage was then painted and

reassembly has begun, with reinstallation of controls c/w new cables. New wood stringers, which establish the fabric shape along the top and sides of the fuselage, were made and installed.

We have donated glues and other supplies and there is lots of expertise in the club to handle the recovering job. New instrument panels are being constructed and headsets with stick mounted PTT and intercom will be installed. We should be ready for fabric by the end of January.

Our Bergfalke is the only one in service in Canada now. It was manufactured in 1965 and we acquired it from Cold Lake Soaring in 1995. It's been a well-used old bird with 2350 hours and 7726 flights to date.

Brian Davies, CAGC

Dodging raindrops in Scotland

When I was in Scotland recently, I returned to my gliding roots at the Scottish Gliding Centre where I was a member in the 70s, earning my Bronze badge under the instruction of former world champion George Lee.

Located in Fife on the eastern side of the country about an hour's drive from Edinburgh and Glasgow, SGC is the biggest club in Scotland and one of the largest in the UK with around 280 members. The club began in the 1930s when a group of enthusiasts gathered to explore the soaring possibilities offered by the nearby Lomond Hills.

Well established, the club possesses a large clubhouse and office, a canteen that serves hot tea, sandwiches and soup to keep cold and hunger at bay, a small bar for after-hours hangar flying, and a bunkhouse with half a dozen small rooms for members and visitors.

When I was a member, the gliding fleet consisted of a variety of older gliders. Today the modern fleet comprises two ASK-21s and a DG-505 for two-seat training, and two SZD Juniors and a Centrair Pegase as single seaters. Also available is an ASH-25 owned by the Scottish Gliding Association that is allocated on a rotating basis to different clubs for the purpose of advanced coaching.

A feature that SGC offers are "holiday gliding courses" in a variety of formats. Popular are five-day Learn-to-Fly activity holidays which run from May to September at a price of 180£ (about \$400) plus flying fees. These week-long courses are prebooked and each is limited to typically half a dozen people. The club offers accommodation on-site and gives guidance to nearby B&Bs for those looking for off-airfield accommodation.

This is something that more clubs in Canada might consider doing since it offers a source

of revenue, better utilization of equipment, and a way of attracting people who are more committed than casual visitors for introductory flights. It was taking part in such a course that got me back into gliding after my Air Cadet days."

Launching is done with a Supacat diesel winch and a Pawnee towplane; winching is the preferred method. The SGC does about 9000 winch launches and 1000 aerotows annually. Two ridges, known as Bishop Hill and Ben Arty, can be reached from a winch launch. The ridges are located northwest and south-east of the airfield respectively, and the topography makes ridge soaring possible with most wind directions. As a result the centre operates more or less year-round.

Wave is triggered by the surrounding hills. SGC is a popular site for altitude flights and several national records over 30,000 feet have originated there, together with many long distance flights. I have fond memories of releasing one evening from a winch launch at 1000 feet above the field into gentle wave!

Arriving at the flightline, I put my name on the list and in a couple of hours between showers my turn came to fly. Strapping into the front seat of the K-21 with duty pilot Jim Fisher in the rear, my impressions were of a roomy, well laid out cockpit. Following a refresher briefing on winch technique and emergency procedures we hooked up and ordered, "take up slack". Signalling from the flightline to the twin drum winch is done by light signals and radio. In a few seconds the cable in front of us tightened and we called, "all out."

Flying speed is attained quickly. At about 100 feet agl, with sufficient airspeed, the glider is rotated to a 45 degree nose-up climb and held in that attitude with increasing back pressure on the stick until near the top of the launch, when the speed decreases and the cable self-releases as the winch driver reduces power. We reached 1200 feet altitude, and headed off to try our luck on Ben Arty. However, after polishing rocks at close quarters it was clear the ridge wasn't working in the prevailing wind and we returned for a circuit with a fine mist of rain on the canopy.

The voice from the back seat declared my approach to be the work of a flat land pilot, so we did another flight in which Jim demonstrated the Port Moak technique for handling windy days when the rotor is working. I was very impressed with the K-21's docile yet responsive handling, roomy cockpits, and good visibility.

If you happen to be travelling in Bonnie Scotland, I recommend you pay a visit to this fine gliding club. You can find more information about the club and its prices on the web site at <http://www.scottishglidingcentre.co.uk>.

Ian Grant, Gatineau

Miscellany

How to fly a world record

Oswaldo Ferraro of Argentina broke the World class 100 kilometre triangle record on 28 November with a speed of 136.85 km/h.

The Argentinian authorities have been slow to amend the maximum allowed height for the PW-5 which is still fixed at 5000 metres in that country. As a result, Ferraro had to fly most of the course with his airbrakes open to stay below the limit.

Swidnik glider production goes to ZS "Jezów"

PW-6U and PW-5 production has been transferred from PZL Swidnik to ZS Jezów ("The Glider Factory"). This factory is where Edmund Schneider produced a thousand Grunau Baby gliders before and during World War II. It is located in the Polish town of Jezów Sudecki, formerly the German town of Grunau.

ZS Jezów is a private company whose skills have been long recognized by the LBA (German equivalent of the FAA). Post-war, the company has repaired, maintained, and refinished fibreglass gliders and it holds the Type Certificates for more than thirty Polish glider designs.

Swidnik will concentrate its 2500 employees on production of helicopters.

Some FAI stats

There are 97 member countries in the FAI. Total participation in world sports worldwide was reported as 900,717 as of 2004. The percentage by sport was:

aeromodelling	38%
hang gliding	19%
gliding	12%
parachuting	10%
power flying	9%
microlights	7%
amateur built	2%
ballooning	1%
aerobatics	0.25%
rotocraft	0.10%

Fatal sports accidents are a significant concern. There were 249 fatalities reported in 2004. The number by sport (with fatalities per 1000) were:

hang gliding	74 (0.42)
parachuting	56 (0.61)
microlights	53 (0.86)
gliding	35 (0.32)
power flying	13 (0.16)
aerobatics	10 (4.20)
rotocraft	6 (5.36)
ballooning	1 (0.08)
aeromodelling	1 (0.00)

Glider rescue system earns 2005 OSTIV prize

The OSTIV PRIZE can be awarded for any outstanding improvement in sailplane technology. The nominations are made by the Sailplane Development Panel and the selection is made by the Board of OSTIV.

The OSTIV PRIZE was awarded to Hansjörg Streifeneder for the development of a parachute rescue system, leading to improved safety of gliding. The citation stated:

"A glider parachute rescue system has been required for many years to bring the pilot and

the glider safely to the ground after mid-air accidents or structural failures. Hansjörg Streifeneder and his company has developed such a rescue system with great enthusiasm. He financed the work and performed a series of test flights himself. Additionally he made radio controlled test flights in the high-speed range. With those flights he proved the efficiency of the system over a wide speed range and over a series of in-flight maneuvers. He has created a well-designed parachute rescue system that was certified for use in gliders. His excellent tireless work and his determination to achieve his purpose have increased the safety of gliding and will save the lives of pilots in the future."



Test release with a Discus b. Shortly after the release, the deploying parachute slows down the sailplane; the breaking force is evident. Photo OSTIV / Peter Selinger

Now the public can watch competitions

When the Sailplane Grand Prix took place in New Zealand recently, spectators had a whole new view of the action, thanks to state-of-the-art real-time 3D animated computer graphics created by a New Zealand company that did the same for the America's Cup race.

"In most sports we can look and see who's winning and losing but in gliding, as in yachting, there's no sense of the field," said the company's managing director. "But now we can create that field, even when it covers thousands of square miles." The contest area had a radius of over 50 miles and a height of 20,000 feet, and it was impossible to follow the competition visually, of course.

The graphics are built from data transmitted by GPS units installed in the gliders. The Grand Prix software is based on the America's Cup graphics, but extended so that it can move along three axes in space. The competition, held in Omarama, was open to the public on the final three days. It featured 11 of the top pilots from around the world. A giant outdoor screen displayed the graphics along with live helicopter video and commentary.

SAC AGM

Vancouver, 24-26 Mar
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Still being organized as *free flight* goes to press. Details will be on the SAC Roundtable and go to clubs soon.

Friday	BoD & FT&S meetings, evening meet & greet
Saturday	short morning AGM, then presentations: OLC in 2006, mountain soaring, composites, parachutes, Strepla info, Flight Training & Safety workshop, etc. evening: Awards Dinner and guest speaker
Sunday	BoD & FT&S meetings

safety & training

Collision at Montpellier

(from S&G November 2000)

Abridged and translated from
Vol à Voile by Alan Montague

On 12 February 1999 at 1459 UTC an Airbus 320 left Paris Orly with 163 passengers. Its route was approximately south, descending over the southwest corner of the Alps, then the foothills into the Mediterranean airport of Montpellier.

At 1452 a Grob 103 with two experienced pilots was towed out of St. Martin de Londres aerodrome on the edge of the coastal plain, towards the slopes of Pic Saint-Loup. It climbed in thermals then wave in class G (uncontrolled) airspace to 8600 feet in a restricted (military) zone, inactive at that time.

The air was clear, visibility was 100 km and the wind northerly at 35–40 knots.

At 1528 the Airbus captain heard a message from Montpellier ATIS alerting him to gliders around Pic Saint-Loup and he advised the copilot. The Airbus descended through Class A airspace, then Class D. At 1537, under IFR and the direction of Montpellier Approach Control, it entered Class G airspace at 11,500 feet at 250 knots with 38nm to go. The landing lights were on.

At 15:39'21" the Airbus pilots looked out for Pic Saint-Loup and ten seconds later the copilot saw gliders in the distance. Twenty-one seconds later the captain observed a glider on their left. Fourteen seconds after that the copilot shouted, "Hey! There's a glider right in front – there!" He had seen it flying right to left at a constant relative bearing. The captain turned the Airbus hard right, reaching maximum roll six seconds later.

The pilots, not knowing whether contact had occurred, transmitted an 'airprox' message. The leading edge of the Airbus's left wing struck the left of the glider's tailplane, shearing off the tip, a 77 cm length of elevator and a hinge. The Airbus received a deep dent 23cm x 15cm with a surface tear and damage to internal structures. The glider pilots were unaware of the Airbus until they felt the heavy blow, after which they saw it descending on their right. Both aircraft landed safely.

An inquiry discovered that the glider pilots were not aware that IFR flights crossed the area. In 1988 a protocol was agreed between the gliding club and the civil air authorities to protect the approach/departure path passing directly over the club between two radio beacons, MEN-FJR. The protocol never changed. Club members learned only infor-

mally, through an airline pilot member, of the establishment in 1996 of a second approach path a few miles to the west, MEN-VALAG-FJR. They did not know that IFR traffic was being directed away from the western route, by way of a shortcut, across the uncontrolled airspace in which they soared. It was estimated that the aircrafts' closing speed was 300 knots; that the copilot first saw the glider at 15:40'05", a second before he shouted and three seconds before the controls were moved, and that the collision occurred between 15:40'09" and 15:40'11". The time between detection and collision was between four and six seconds during which the gap of 600–900m closed.

The Investigation Bureau repeated recommendations that the NGAC (French civil authority) acts to ensure every passenger-carrying aircraft flying under IFR be aware of every aircraft representing a potential collision risk. It also recommended measures to ensure that IFR flights do not receive clearances away from published routes (except for operational or safety reasons), that inactive military airspace crossed by approach and departure routes be used, and regular meetings be held by the civil aviation services on general aviation airfields so that protocols are modified as necessary, and that the French glider pilots' manual should explicitly point out that IFR traffic can fly in uncontrolled airspace.

comment by Ian Oldaker SAC Director of Operations

- No mention is made of the apparent lack of good lookout by the glider pilots. The Airbus landing lights were on which should have aided seeing it. The Airbus pilots were obviously practising good see-and-be-seen techniques.
 - Why did the Airbus copilot not himself move the controls rather than defer to the captain with a verbal warning? He might have initiated the roll that much sooner, possibly avoiding the contact. Was CRM, (cockpit resource management) a problem? Remember that immediate and fast action
- Good communication between the Civil Authorities and local gliding clubs is clearly vital to maintaining clear understanding of who can and does fly what and where. Protocols must be kept up to date and need to be communicated to glider pilots frequently, even to the experienced ones.
 - The rapid closing speed gave an alarmingly short time for the pilots to react and to avoid the collision. The distance covered from initial sighting to collision was large compared to what a glider pilot is used to covering in a few seconds only, even at, say, 80 knots.
 - The sky was clear, making it difficult for pilots to identify another aircraft. However the airline pilots did see the glider! Think of the added hazard with limited visibility – and we have to be very disciplined to remain clear of cloud.
 - Do you know your club's airspace situation? Jets have no speed limit above 10,000 feet and in class E airspace found above many club locations, a transponder is required at that altitude. Airspace users above that altitude (including NavCan staff) may not be aware gliders are transponder exempt or interpret that gliders could be above 10,000 feet in class E airspace without transponders. At closing speeds in excess of 500 knots, a thermalising glider would likely not see a closing jet and TCAS would not alert its crew.
 - Flying near cloud at 10,000 feet and above is at higher risk near potential IFR routes and descent paths. Airlines are also moving to custom IFR departure/arrival procedures that may effect airspace where you soar. Know the IFR routes/procedures that may interact with your soaring.
 - When flying above 10,000 feet, monitor area control frequencies if you are able and/or contact controllers to let them know your position/altitude and intentions. This is part of CRM and we should not be intimidated to use the radio; don't just put your head in the sand! ■



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gress. Going solo in fewer than twelve visits to the airfield is now not unusual. All this goes a long way to dispelling the "too-much-time-for-too-little-flying" feeling. Considering effective use of capacity, we do seem to be getting more flying done than last year, although our utilization levels on our two-seat fleet have been higher in the past.

The downside?

There are fewer people at the launchpoint, yet the same amount of work needs to be done — log keeping, truck driving, launch signalling, etc. This falls on a few members and has been a cause of unfavourable comment. However, generally we manage. Perhaps with the flying list, we were running a bit of a fraud — expecting the members to show up and help at the launch point only to deliver less flying than they expected and deserved.

Conclusion

I would like to be able to assess retention percentages in a year's time. That will be the acid test, but so far booking is generally appreciated by trainees, and many instructors have commented favourably on their experience of being able to spend extended periods helping an individual pilot's progress. From an operational point of view, it is much easier to see if we have spare capacity and market it appropriately. ■

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† Luc Morin

Nous avons le regret de vous apprendre que Luc Morin est décédé le 30 décembre dernier des suites d'un combat contre le cancer. Luc a été membre des trois clubs francophones du Canada: Luc a été membre du CVV Québec dans les années 70 ou 80 où il a obtenu la licence de pilote de planeur. Il s'est ensuite adonné à l'hydravion. Lorsqu'il a pris sa retraite, il est retourné au vol à voile avec l'AVV Champlain en 1998. Il est devenu instructeur de planeur en 1999 et fut très actif, et ce, surtout durant les jours de semaine. Il a aussi été membre très actif du conseil d'administration de l'AVVC de 1999 à 2001. En 2002, il s'est joint à l'AC Outardes à Bromont jusqu'en 2003 où la maladie le força à s'arrêter de voler temporairement, l'espéra-t-il. **Sylvain Bourque**

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Youth Issues

vacant

on the road again

from page 14

I was actually climbing. Adjusting the circle was of no concern as long as I kept flying. I s-l-o-w-l-y climbed. Time enough to wonder what the farmer directly below was thinking and also wonder, "are those hawks taunting me?" As I got higher the lift got stronger. Topping out at 4500 I thought I had final glide but topped off with one more climb a bit to the north just to be sure.

Since the Ontario Provincials were on at York, I was surprised how quiet the radio had been. This was partly due to the fact that I carried a handheld that was wedged between my leg and the fuselage. I put the radio up in a pouch for better reception. As I prepared to call York, the radio cracked to life:

"Toronto Soaring, this is X-Ray Tango, what's your active?"

Jo Stanley had just completed his 50K too! X-Ray Tango has the most powerful radio I have ever heard in a glider and had been my only contact this flight. A call to congratulate Jo was in order.

Crossing mid-field at about 2500 feet, I had not needed that last thermal. After a normal circuit I was glad to be on the ground; I really have to install a relief system. A quick call to Dolores, my wife, to let her know that I had safely made my destination, then a call to one of my partners, Alan Mills, offering him the flight home. He took me up on the offer. All I had to do now was wait. What a great way to end the flying season!

With the paperwork completed I was enjoying catching up with some old friends on the field when Richard Sawyer (York's CFI) called me into the clubhouse. He brought Walter Chmela out of the office and said, "We have a presentation to make to you." A bit much for a 50K, I thought. "The 1-26 Travelling Trophy — it's here!", I exclaimed. I hadn't expected this;

last year when I was at the Provincials I had checked and the trophy was at SOSA.

It seems that every time I fly there is something new. Soaring has a depth that takes a lifetime to explore. Aerobatics, the spectacle of the Rockies, even the joy of introducing this wonderful sport to the uninitiated all pale by comparison. For those of you who haven't flown cross-country yet, I highly recommend it. When we purchased Rosebud two years ago, I knew that a new phase in my soaring career had begun, not only ownership but the freedom to go cross-country. It has taken us some time to put all the pieces in place but we are finally there. My first cross-country goal was to get the trophy. Since it was at

SOSA I had started plans for a flight to SOSA to claim it. Thank you, Tim Wood, for bringing it back to York. [see story in the 6/05 issue.]

Checking the record data in the trophy's base, it was at SOSA for a couple of years. The intent of this trophy is to encourage cross-country flight. Why the 1-26? Simple, that was the 'normal' first solo ship for many pilots. Although SOSA has sold all of their 1-26s, they are still at York and Toronto Soaring. Let's not let the trophy sit, it is a travelling trophy. Come and get it!

This article is dedicated to the memories of Jo Stanley and Felix Pilorusso who, less than a week later, took their final glide. ■



Alan Mills

30 October in Rosebud heading west from Tottenham with Luther Lake under the Pawnee's starboard wing. Hope spring's eternal; there's another soaring season around the corner so we'll see you then.



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2005 Annual report

As you can see from the table of badge statistics below, 2005 was a little better than 2004 but still not even close to 2002. Is it the weather that causes these fluctuations? Or just apathy? I'm convinced that badge flying is an important part of maintaining and developing club enthusiasm. I hope we do better next year.

SAC Badge and badge leg statistics, 1996 – 2005

	96	97	98	99	00	01	02	03	04	05	5 yr avg	% of avg
1000 km	2	0	0	0	1	0	2	0	0	0	0.6	–%
Diamond	4	1	0	3	2	1	2	1	1	1	1.2	83%
Gold	6	3	2	4	5	5	5	7	2	5	4.8	104%
Silver	16	8	17	17	7	8	19	19	7	7	12	58%
C Badges	39	30	34	33	15	38	57	26	18	33	34.4	96%
Badge legs	91	79	87	79	67	71	111	99	51	47	75.8	62%

A new family of FAI badges

The 1 October 2005 revisions to the Sporting Code include the creation of a new badge family. A badge is now awarded for distance flights of 750 kilometres and above in 250 km increments – so there is a badge for 750, 1000, 1250, 1500 and so on. As each badge is awarded the name of its recipient and details of the flight are to be recorded in the Soaring Register of the home country. Details of flights of 1000 kilometres and above are to be forwarded to FAI headquarters in Switzerland and an FAI diploma is issued to the pilot.



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As a badge flying advocate I find it personally satisfying to plan a task, prepare for the flight, wait for suitable weather, attempt the task unsuccessfully possibly many times and then finally succeed. It doesn't matter whether you are looking forward to 50 km or 1500 – the feeling of satisfaction and accomplishment is the same.

Many pilots claiming their Silver distance flight tell me it was an experience they will never forget and they get great pleasure from reliving the flight in their memory again and again. Try it! Plan a task that's one level up from what you have done so far. Find out what's necessary to accomplish the task and to document it so that it can be accepted. Keep at it until you succeed and I promise the personal rewards will make it worthwhile and enrich your life.

Look down here!



The SAC office continues to get applications for badges and badge supplies that should be sent to Walter Weir. Jim then has to repackage and remail them, all of which is a nuisance and a delay. As I've written before, at least once a year you should actually read all the fine print in *free flight*. Tony

FAI BADGE SUPPLIES

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3 Sumac Court, Burketon, RR2, Blackstock, ON L0B 1B0

Note: items 5 and 6 not stocked – external purchase approval is given

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2	FAI 'C' badge, cloth	\$ 6.00
3	FAI SILVER badge, pin	\$45.00
4	FAI GOLD badge, gold plate pin	\$50.00
5	FAI GOLD badge, 10k or 14k pin	
6	FAI DIAMOND badge, 10k or 14k pin and diamonds	
7	FAI Gliding Certificate	\$10.00
	10 for \$39.00 to clubs	
	Processing fee for each FAI application form submitted	\$15.00
36	FAI SILVER badge, cloth 3" dia.	\$12.00
37	FAI GOLD badge, cloth 3" dia.	\$12.00

Order these through the SAC office

33	FAI 'A' badge, silver plate pin (available from your club)	\$ 3.00
34	FAI 'B' badge, silver plate pin (available from your club)	\$ 3.00
35	SAC BRONZE badge pin (available from your club)	\$ 3.00

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5	Insigne FAI d'OR, 10c ou 14c
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34	Insigne FAI 'B', plaqué d'argent (disponible au club)
35	Insigne ACVV badge de BRONZE (disponible au club)

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Libelle 201, CF-TQL, #113, 1515h, fresh CofA, all ADs complete, enclosed trailer, located in Edmonton. \$17,500. Dave, <loretta@second-impressions.com> (780) 221-8535.

PW-5, C-GBVS, 550h, great cond, all ADs (incl 2003 tension members upgrade). ILEC audio vario, PZL mech, Dittel FSG 71M radio, Sierra trailer with inside foam spray. At SOSA; if an Ontario buyer takes over the syndicate ownership, no PST. Photos: <<http://ca.geocities.com/jaimepinto@rogers.com/PW-5/>>. \$31,000. (416) 505-1477, <jaimepinto@rogers.com>.

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Std Cirrus, C-FDFN, 1972, 2300h. Ball 703 electric, PZL mechanical varios, Microair 760 radio with boom. Turn & bank, O2, enclosed metal trailer. Gel coat in good cond. Located in Calgary. \$19,000 plus GST. Gerald Ince, <gince@shaw.ca> (403) 242-6331.

Grob Astir CS-77, 1977, #1616, 1500h, 38:1, large cockpit, retractable gear, water ballast tanks. Std instr. including Cambridge vario, ATR720 radio and boom mic. Always stored in trailer or hangar. Asking \$24,000. Dave Springford, (519) 884-4242, <CS77@sosaglidingclub.com>.

SZD-36 Cobra-15, C-GQWQ, 1977, 897h. No damage. L/D 38/1, A-1 condition, kept in hangar. Modified PIK-20 fiberglass trailer. Located in Toronto. Asking \$15,000. Charles Kocsis (416) 908-5638, e-mail: <karoly_cobra@yahoo.com>.

LS-6b, 1988, 1248h, 405 take-offs. Not flown this year but annual done August 2005. Vg cond. Zander flight computer, Becker transceiver, unique custom-made all-terrain solo rigging device, metered and pressure regulated ballasting system, tow-out gear, modified Komet trailer with twice stand and storage space, solar battery charger. Cal Gillett, (519) 471-3203, <cp342@sympatico.ca>.

Genesis 2, '98, 331h, 100% race ready. Excl. cond., CAI302, 303, SageCV, WinPilot, ATR720C, trailer, parachute. US\$45,000. Dave, <djmercer@telus.net>, (780) 987-6201, Alberta.

ASW-20A, GTRM, 1981, Borgelt 50 Vario, wired for Ipaq, Dittel with boom mike, Komet Trailer. Frank Pilz <horst_pilz@telus.net>, (604) 657-7241 (BC).

Nimbus 2B, C-GAJM, 1977, #25, 1120h, 20.3m, 49:1. Flaps, tail chute, 110L water ballast, Filser LXFAL flight computer/GPS/final glide calc, chute, trailer, and all glider covers. An absolutely beautiful flying machine, and proven competitor. Based at York. \$37,500. Peter Luxemburger <iluv2soar@yahoo.ca>.

Discus CS, C-GRLG, 2001, 145h, numerous options, no damage, like new, winglets, top instruments, Cobra trailer, \$89,000. For sale or will rent. Will buy it back if unsatisfied (conditions to discuss). Pictures and extensive info at: <www.aerosport.8m.com>.

Sailplane Grand Prix video

The "1st FAI World Sailplane Grand Prix", held in France last year in September, is now available as a 25 minute DVD that can be purchased through
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two-place

RHJ-8, 1979, 1400h. Based on the HP-14, side by side reclining seating, T-tail. Many improvements: elevator and rudder gap seals, increased rudder length, wing root fillets, winglets. Best L/D 34 at 50 kts, thermal 40-42 kts, stall 35 kts, roll rate under 5 sec. Fits tall pilots. A parallel hinged single piece canopy, improved ventilation. No trailer. US\$18,000 (.0019 L/D points per \$). John Firth, (613) 731-6997, <firsys@magma.ca>.

misc

Volkslogger, IGC approved flight recorder accepted for use in contest, badge and record flying. \$900. <ls6b@rogers.com> or phone Dave (519) 884-4242.

magazines

GLIDING & MOTORGLIDING — world-wide on-line magazine for the gliding community. Edited by Gillian Bryce-Smith, <www.glidingmagazine.com>.

GLIDING KIWI — Editor, John Roake. Read world-wide with a great reputation for being first with the news. US\$40. Personal cheques or credit cards accepted. NZ Gliding Kiwi, 79 Fifth Avenue, Tauranga, New Zealand. <gk@johnroake.com>.

SAILPLANE & GLIDING — the only authoritative British magazine devoted entirely to gliding. Bi-monthly. US\$45 per year airmail, US\$35 surface. <beverley@gliding.co.uk>.

SOARING — the monthly journal of the Soaring Society of America. Subscriptions, US\$43 price includes postage. Credit cards accepted. Box 2100, Hobbs, NM 88241-2100. <info@ssa.org>. (505) 392-1177.

suppliers

Canadian Soaring Supplies Borgelt instruments and soaring software. Svein Hubinette, 343 - 150 rue Berlioz, Verdun, QC, H3E 1K3, (514) 765-9951 <svein@videotron.ca>.

Flying High Parachute sales, repairs, repacking, and custom containers. Al MacDonald (403) 687-2225 <www.flyinghigh.net>.

Invermere Soaring Centre Mountain soaring, camping, glider rentals. Mountain flying instruction in Lark or Duo Discus. Trevor Florence, Box 2862, Invermere BC, V0A 1K0, cell (250) 342-1688, ph/fx (250) 342-7228. Website: <www.soartherockies.com> e-mail: <info@soartherockies.com>.

Swidnik Sailplanes Today's technology, polyurethane finished, instrumented, type approved PW6U and PW5 from CM Yeates & Associates. Avionic trailers with fittings also available. Phone/fax (902) 443-0094. E-mail <yeates@ns.sympatico.ca>, or see <www3.ns.sympatico.ca/yeates/world.htm>.

Sportine Aviacija LAK sailplanes <www.lak.lt>. LAK-17a - 15/18m flapped; LAK-19 - 15/18m standard; LAK-20 - 2-seat 23/26m Open. Exclusive dealer for Canada, Nick Bonnière <bonnfutt@magma.ca>.

High Performance Sailplanes Planeurs de grande finesse. AMS-flight DG ELAN Std class and 2-seaters. DG Flugzeugbau GmbH 15m, 18m gliders/motorgliders and 2-seat gliders. <willem@langelaan.com>

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