

free flight • vol libre

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I enjoyed my first glider flight as a teenager. I still have pictures taken from 10,000 feet of that flight over Moose Jaw. Now, some 45 years later, the appeal of soaring is still as strong. To the cadets who are receiving this colour cover (summer) issue of *free flight*, welcome to the brotherhood of glider pilots. Hopefully, years from now, some of you will look back on your early gliding experiences with similar fond memories.

Like most pilots, I enjoy reading articles about flying. In the October 2004 issue of *Flying*, one struck me as being particularly relevant to glider pilots. The article was written by Tom Benenson of the National Association of Flight Instructors (NAFI), and titled "Train the Way You Fly". Much of the material he quoted was from a presentation by Martha King, a flight school operator. There were a number of other presenters at the day-long session on flight training, some of whom are paraphrased here. Many of their issues sound very familiar! The complete article is worth a read.

In soaring, as well as general aviation, we are losing too many friends and too many airplanes. One is too many! Insurance is costly and hard to get. According to King, people who talk about insurance problems are wrong. They are not insurance problems, they are accident problems.

Since few accidents are the result of mechanical problems, King's question is why pilots, in command of perfectly functioning airplanes, are involved in accidents. The responsibility for improving the accident statistics falls on us. Pilots have to learn to fly the "physical" airplane, developing good stick and rudder skills. Equally important is to learn risk management, decision making and single-pilot resource management. Accidents are primarily caused by poor decision making, so it is important to help pilots learn to assess the risks involved with each flight.

King's schools are accomplishing this through a concept known as Scenario Based Training, or SBT. It is essentially based on the idea that you should: "Train the way you fly, fly the way you train." She suggests that 80 percent of training should be based on standard, practical tasks with 20 percent on risk management and related tasks. Students are put in situations where they require decision making and in-flight planning under the supervision of an instructor. For example, during dual cross-country flights, students rarely land at the planned airport. They are required to divert and land at an alternate. It requires them to make decisions and experience the consequences, and not to always expect to complete each flight as originally planned.

The SOAR decision making model used in training SAC students is an excellent tool for developing risk management and decision making skills. Some of us learned to fly long before its introduction. Have clubs encouraged all members to be familiar with and apply SOAR? Are "senior" members invited to ground school sessions for refreshers? During proficiency check flights, does the instructor require a situation where the member must apply decision-making? Are members competent risk managers before making the transition to different gliders? In the article, one of the presenters discussing transitioning suggested that, in many cases, "The airplanes of tomorrow are being flown by the pilots of today with yesterday's training."

By the time this issue is distributed, we will be well into the soaring season. Enjoy it. Fly often. Fly safely.

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Le journal de l'Association Canadienne de Vol à Voile

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Instructor Yanik Gendron and I are flying a Duo Discus out of St. Auban, France. The March day was just fabulous but cold, something like -10°C at about 3000m. We flew northeast of St. Auban from one mountain to the next. We got about 100 km away to one of the first glaciers. In the background is "Le Glacier Blanc". I cannot convey in words the scenery and the excitement of this fabulous area. Flying metres away from the mountainside is simply breathtaking and needs great concentration. The way back home was a little difficult as the wind dropped, making ridge flying more unpredictable.

photo: Réal Le Gouëff

Notes on the state of the sport

from the keynote speech at the International Gliding Commission
plenary meeting on 4 March 2005 at Lausanne

Wolfgang Weinreich

DURING MY TIME AS FAI PRESIDENT, also as president of Europe Air Sports and as president of the German Aeroclub before, I had the opportunity to gather much information about air sports in general and about our sport of gliding in detail. Now, after completion of all my mentioned mandates, I speak to you as a grassroot glider pilot. This sport, in which my whole family is engaged, is a substantial part of my personal living quality. I think this refers to all of us. And so you will understand that I have a very strong interest that this sport cannot only survive but also extend and develop positively in the future. You, dear delegates, you are the highest authority in this sport and the responsibility, to do everything possible (and even impossible) to safeguard the future of our sport, is on your shoulders.

I identified four topics, which I want to address now. None of them is a stand-alone issue as they are all interlinked. But please, do not take me wrong. It is not my intention to raise my voice and forecast a dramatic future like Cassandra of Greek mythology did, I will try to analyze some future hazards threatening our sport and I also hope to find at least a few answers or proposals. These topics are:

- The sport, its rules and its attractiveness.
- The gliding community, a shrinking and aging family?
- The burden of regulations, administration and cost explosion.
- Airspace.

The sport, its rules and its attractiveness The responsibility for the sport and its rules stays still exclusively with this body, the IGC. There is – luckily – no other organization, unlike some other air sports, that competes with IGC. Also the FAI, our umbrella organization for all the air sports, is not interfering when IGC is setting the rules for gliding in the Sporting Code. In this regard IGC has full autonomy.

Over the years you have accomplished a complete set of “failsafe anti-cheat” regulations and rules. Based on these rules all our competitions, records and even badges are flown. Unfortunately these rules are sometimes too complicated to be understood by the users and certainly too complicated to be understood by the public. In addition too many changes and amendments occur too often. I think that, at least, those who are interested in our sport should be able to follow what is going on in a championship or any other competition. On the other hand I want to emphasize that some quite positive developments in competition flying were definitely achieved by setting new formats of tasks, for instance the assigned area tasks. This has to be seen also in the light of improved safety.

I know that it is very difficult to find proper wording that fits all the required criteria. But must a rule sound like this? Let me just give you one example taken from Annex A to the Sporting Code, the definition of turnpoints and assigned areas. In 7.5.2 we read:

An Assigned Area shall be formed by:

- A circle of a given radius, centred on the central GNSS position or,*
- Two radials originating at the competition site, or any other designated point, intersecting with arcs located between a minimum and / or maximum distance from the site or from the designated point, with the central GNSS position lying on the bisector of the radials halfway between the minimum and maximum defined distances.*

My plea: please, try to keep these rules as simple and understandable as possible! Can you imagine what a journalist of the local press, who intends to report about yesterday's championship and the day's discipline, an assigned area task, will write after receiving this quotation as an answer to his question “what does assigned area task mean?” ⇒ p16



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.

free flight is the official journal of SAC.

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

free flight also serves as a forum for opinion on soaring matters and will publish letters to the editor as space permits. Publication of ideas and opinion in *free flight* does not imply endorsement by SAC. Correspondents who wish formal action on their concerns should contact their Zone Director.

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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 vélivoles 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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Des photos, des fichiers .jpg ou .tif haute définition et niveaux de gris peuvent servir d'illustrations. Les photos vous seront retournées sur demande.

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Roger Hildesheim flying his SZD-55 at Gatineau.
photo: Rémy Knoerr

Freedom's wings

Charles Petersen, York Soaring



Carl Hiebert

IF YOU LOVE FLYING, and you wouldn't be reading this if you didn't, you will be able to imagine the smile on Marie's face — a former pilot who thought that she would never fly again. She had taken the controls of a Grob 103 fitted with hand controls, operated by *Freedom's Wings International*. That flight, on an obscure airfield east of Buffalo in the summer of 2001, was the genesis of *Freedom's Wings Canada*, born in May of 2004 at York Soaring, with the arrival of a hand-control equipped Krosno and trailer.

I had driven to Buffalo with Marie Winter, a friend from my time racing a beautiful 1938 vintage, 48 foot International 8-metre Class sailboat. Marie had taken up sailing and flying and driving a Lamborghini after she was diagnosed with MS and forced to retire as a concert pianist. I had known nothing of the MS when I raced in the 1970s and 80s, and I was shocked to see her in a wheelchair when we again met in 1999. We caught up on the missing years, and discovered a shared passion for aviation — mine for the soaring I had just discovered, and her longer career that had advanced to aerobatics in a Pitts Special and the warbirds she flew with her commercial multi-engine rating. The MS had of course put an end to her medical, and she missed aviation painfully.

When I suggested she try a flight in a glider she accepted with enthusiasm. Licensed for less than a year, the only two-seater in which I was checked out was a 2-33, and the prospect of a transfer into and out of that was daunting. Fortunately, gliding is built on volunteerism, and a willing club member flew her in the 2-32. She was too excited to take the controls! The next year I was checked out in a Blanik L-13, and we could transfer her into that; it was the transfer out that was difficult.

There must be a better way. Searching the net, I found Freedom's Wings International. Founded almost twenty years ago, they operate three Grob 103s from tiny Van Sant airport in Pennsylvania. The mechanics of the hand controls are simple, really. A 'rudder stick' is fitted beside the left thigh. Pivoting on a hard point on the side of the cockpit, it is attached to the rudder cable (in a Grob by a pushrod that connects to the rear rudder pedal bell crank). Pushing it forward gives left rudder, pulling it back, right. The other modi-

fication is to the spoiler so that it can be locked into one of a number of notched positions, allowing the pilot to return his left hand to the rudder control. Marie had two flights with a retired airline pilot, while I talked to Ray Temchus, the president, a paraplegic CFIG and the CFI of the organization. When I heard her talk between flights, I knew this was something we should have in Canada too. I asked Ray if he would bring his aircraft to my club the next summer for a week and he responded by asking when. I set four objectives for his visit:

- validate the community demand,
- validate the volunteer ethic at my club,
- demonstrate the ability of the program to generate press coverage (the better to attract sponsors), and
- form a strategic alliance with one or more community organizations serving the disabled community.

Despite the eleventh hour cancellation by a major charity for disabled children, the demand was beyond our capacity, and we brought one and sometimes two additional club or private gliders into service. More than enough volunteers assisted with everything from the transfers in and out of the glider to running wings and entertaining / briefing the waiting crowd. Actually, surprisingly few people were required; about three at a minimum, and there was a negligible impact on flight operations. We were able to attract media attention despite competition from the Pope's visit, and received both print and TV in mainstream and special press. As for the strategic alliance, following an additional week of better scheduled flying the next summer, we agreed with *KW Access-Ability* (a Waterloo-based charity offering its clients wheelchair sports and adaptive computer systems) and the *Canadian Paraplegic Association of Ontario* to form a collaborative to apply for an *Ontario Trillium Foundation* grant for a glider of our own.

Writing grant applications is not something I would ever choose to do for a living, but the website for the Ontario Trillium Foundation now features a fill-in-the-blanks form that puts access into the realm of the nonprofessional. However, it's onerous and it took me three revisions, with the finally submitted four copies weighing five pounds.

To my delight and surprise, we were granted the maximum for which we were eligible: \$75,000!

Freedom's Wings International has been using the Grob 103, but they are no longer in production, and although they have an approved modification for adding the hand controls, the accessibility is difficult with the "roll bar" between the two cockpits and the keyhole shaped instrument panel hampering transfers. I chose the Krosno, which at \$US45,000 is very little more for a new plane than a used Grob, and offers other advantages as well; it is lower energy with very effective spoilers, has an oleo for harsher student landings, is all metal to resist the weather when tied down outside, and has a proven track record. The production rights, certificate and tooling were acquired by Barry Aviation, who will produce it as the Peregrine, using US materials.

I had contacted Tim Barry long before we applied for the grant to ask about hand controls. Tim didn't hesitate, "Sure will," he said, "we were talking about it just a week ago after someone in a wheelchair asked about it, and we think it'll be no problem." Tim not only agreed to devise and install the controls at no additional cost but also to include them in the type certificate. That obviates the need for an STC in Canada, and will make the issue of a Certificate of Airworthiness much easier.

When we got confirmation of the grant, we placed the order, and Tim agreed to loan us an historic Krosno — the very last one built in Poland — and he showed some ingenuity in getting an Experimental certificate to cover the installation of the prototype hand controls. His support was amazing. There was to be no rent on the loaner, Tim paid the insurance, and he delivered it in a covered trailer. Both were freshly painted and wearing the logos of our primary sponsors.

Freedom's Wings Canada is an operating division of Youth Flight Canada Education Fund, a registered Canadian charity, and is under the direction of a Board of Advisors nominated by the collaborative members and community representatives. The "collaborative" is a strategic alliance of community groups who collectively signed the application for the Ontario Trillium Foundation grant, although the cheque was

payable to and the title of the aircraft vests with Youth Flight Canada, the lead applicant. Members of the collaborative include York Soaring, where the aircraft is based, and KW Access-Ability, a Waterloo-based community service group offering wheelchair sports and adaptive computer systems to its members. After the election of a new Board of Directors, the Canadian Paraplegic Association, which had originally signed on, chose to be "supportive" but not to be a signatory to the application. So we asked Michael Clarke, the past chairman of CPA Ontario, and Harley Nott, past chairman of CPA National, to join the advisory board.

York Soaring has authority over the operation of the aircraft, and it is tied down proudly in front of the hangar. KW Access-Ability and CPA Ontario have responsibility for outreach, recruiting from amongst their members, and assisting with publicity. Youth Flight Canada has the financial responsibility for the operating costs. It is worth noting that I took the strategic decision that Freedom's Wings Canada not be an organization for the disabled, but rather serve other organizations for the disabled and their clientele. So it does not have "members" as such — those who fly and become student pilots will become members of the gliding club.

A key to that, and so much more, has been our corporate sponsor, The Dominion of Canada General Insurance Company. They have been terrific! They were the second company we pitched to sponsor us. We met with their president and vice-president, showed them a video, and described our program. The president turned to the vice-president and said, "Al, I know we haven't discussed it, but I like this program, what do you think?" He agreed, and then they committed to pay our operating budget. That enables us to give an "Inspiration Flight" free to anyone with a disability (excluding some where weight or safety is an issue, eg. someone with impulse control issues). Paraplegics with good arm and wrist strength and the ability to grasp are candidates for flight training. If money is an issue, we will pay for both their tows (and obviously there is no charge for the glider rental) and their membership in the glider club. Anyone

Mike Clarke, the first paraplegic to earn a glider pilot licence in Canada. He is chairman of the Advisory Board, and past chairman of the Canadian Paraplegic Association of Ontario.



Carl Hiebert

living on the meagre Ontario Disabled Support Program will fall into this category.

The 2004 season was wet, windy, cool and cloudy. Spring was so wet that, rather than the usual mid-April start, we began flying in late May, and even then, we sometimes needed to support the glider on a plank for the initial roll at launch. A souvenir furrow marked our every launch.

Mike Clarke is not only on the Advisory Board, but also our first student, and now is our first licensed paraplegic pilot. Wheelchairs, once an unusual sight at the field, became common. One of our instructors tells of overhearing a conversation between two students discussing their progress — one in a wheelchair and the other sitting on the ground at the edge of the runway beside him. Almost all our instructors took check flights and tried the hand controls, finding it difficult to have hands do what the feet have been trained for initially. But there is no need for the instructor to fly with the hand controls himself, and it is better if he doesn't.

We found fairly little difference in instructing a paraplegic student. Ground handling is of course more challenging, because the student can't jump out and assist, but Youth Flight Canada acquired a golf cart ("registered" as C-GOLF) and an overly long student landing is easily retrieved. To quote Paul Moggach in an article he wrote for the British publication, *SAILPLANE & GLIDING*, "The instructor corps has developed a better appreciation of ground handling and operations from having to take into account an immobile student. This has spilled over to all flights and certainly has improved general operations at the club in this regard."

The real challenge for the student using hand controls is the landing, especially in a crosswind, because the left hand is used for both the spoiler and the rudder. But here too, our paraplegic students learned to set up a final glide slope at about 300–400 feet with 1/2 to 1/3 spoiler locked in. While the spoilers can be reset, it takes the left hand off the rudder for a moment. This we require of our able-bodied students too, and for both, practice does make (more) perfect.

Emplaning and deplaning is another challenge. Many paraplegics have developed improved upper body strength, and can get themselves into and out of the glider unaided. The low to the ground glider cockpit and a split piece of 2" plastic tubing to soften the cockpit rail make this easier. This is at present a requirement of Transport Canada, but we have requested that their CAM/RAMO committee revise this to the more liberal regulation in the US that permits a paraplegic pilot to be aided in and out, and to supervise another licensed pilot do the Daily Inspection. We are also developing a "personal aid" back rest to enhance upper body stabilization, as most have no muscular control of their trunk.

The experience this summer led to a pages-long list of changes and improvement requests, to which Barry Aviation cheerfully agreed. The rudder pedals for paraplegic students and intros are run fully forward to eliminate interference by the feet of the student or passenger. Barry Aviation devised foot blocks with Velcro straps to keep the feet in place, even in aerobatic flight, supplemented by foam pads and Velcro straps. The rudder stick has been re-engineered to be more sturdy, longer for better leverage and further forward for better ergonomics. There is an improved canopy and an effective wheel brake, along with many little things that will improve the design of the aircraft. All this is not easy — Tim

showed me the 3-ring binder with the documentation for the hand controls which was several inches thick.

In July we towed the glider to Ottawa for a week of outreach at Gatineau Gliding Club. My son Niels, myself and GGC's Doug Laurie-Lean operated the glider for a full schedule giving around 30 flights. Of the paraplegics who took introductory lessons, five indicated they would join the club as students, along with the able-bodied father of one. The *Ottawa Citizen* newspaper ran a full page photo essay, and the New RO, the local CHUM network affiliate, ran a two and a half minute item on the 6 pm and 11 pm news. We also received coverage last season on the CBC's "Moving On", which ran a 20 minute feature, a half page in the *Toronto Star*, a cover story in the Canadian Paraplegic Association's newsletter, four pages in *Abilities* magazine, and some local coverage. Next spring the *Globe and Mail* will write a feature. When was the last time you saw that kind of coverage on gliding?

We have a motion simulator at York under construction at a budget of \$30,000. Academy Award winning special effects genius, Colin Chilvers, is devising the motion platform. Paul Moggach is the project director, and has other team members restoring a canopy we cut from a wrecked Krosno in Pennsylvania, building the electronic instruments, integrating the control movements with the computer, etc. This simulator will be useful for teaching and promotion. We will be able to teach a coordinated turn before the student leaves the ground. We will be able to focus on a problem exercise without waiting for our turn in the launch line. It is conceivable that we can teach 50 minutes of the hour in this device. And think of the possibility at shows. I predict there will be a line-up all day for a 'flight' in the simulator.

Colin also teaches film at Niagara College; he and fellow teacher Bill Bolan's students will script, direct, shoot and edit two videos for us — a short one for use at a Rotary Club lunch or to pitch a foundation (focusing on the recreational therapy benefits), and a longer one with lots of gliding footage to inspire potential students at rehab hospital peer groups. We will use these to try to raise the funds to produce a 22 minute broadcast quality video to distribute to TVO, PBS, etc.

Since I began gliding, I have heard again and again that we cannot interest new people in the sport, we can't get publicity and we can't get corporate sponsorship. Well we can with the Freedom's Wings program. This concept has the potential to be as successful across the country as disabled sailing. Any club has the infrastructure: the instructors, the towplanes, the runways. Put that together with a corporate sponsor and several community groups and stir gently. If your club could use new members, students, corporate funding, publicity, eligibility for club house improvement grants and a satisfying activity flying and teaching some of the most excited and grateful passengers and students you'll ever meet, consider establishing a chapter of Freedom's Wings Canada where you fly. Contact me to discuss at <cfpeter@total.net>. ■

Photos: Carl Hiebert, a professional photographer and motivational speaker, is also a paraplegic. He has published several books, including a coffee table book of photos taken from his ultralight as he flew across Canada. See <www.carlhiebert.com>.

Soaring philosophy 101

Steve Hill

The obstacles that deter us from actually attempting our early cross-country flights are mostly mental.

WHY ARE SOME PILOTS DRAWN TO cross-country flying while others are loathe to try it? My goal is to align your thoughts towards achieving that Silver badge cross-country flight. I write this to stimulate you to ask questions. My intent is to share with you some of the main issues that can pose stumbling blocks in the beginning of our soaring careers. The obstacles that deter us from actually attempting our early cross-country flights are mostly mental. There are other issues that must be considered, but mainly the perceived worries of landing out, or not returning to our home base are the larger hurdles. I want you to evaluate yourself, your skills, and your ability to make decisions. You need to answer a couple of important questions: is cross-country soaring for me, and what do I need to work on to become a safe and competent cross-country pilot?



Pilot ability *When you fly your glider, are you practising or just floating around having fun?* By practice, I mean continuing to hone your soaring and thermaling techniques beyond merely staying in the air. I turn better to the right than the left, so I work on my left-handed thermaling skills each time I fly. My goal is to equalize my thermaling abilities.

When you fly, do you find a thermal and milk it until it dies, or do you evaluate it, sample its lift band, and use that as comparative analysis for the next thermal? The following suggestions for practising thermaling skills are some of the issues we can all work on to become more adept in the air.

Assume a cumulus marked day. We arrive under cloud and begin a logical search for lift, going to the windward and sunward side of the cloud immediately. Once in lift, try to recognize the stronger areas and quickly work to centre them. The goal while practising should be to try to use your time to the maximum extent possible to increase your skills, therefore you should try to work as many thermals as possible. This means leave thermals before you get to cloudbase. Try to find a thermal, centre it, evaluate it, take a sip and move on. Easy to say, hard to discipline yourself to at first. You will find you are working more, but you will also find that there is tons of lift on a decent day, and what you really find is that your confidence will go up to a point where you don't feel "lucky" to have found lift — you feel confident that you used your skills and made good decisions. Learning to evaluate where the best height bands are and to work those banded areas are very important aspects of the sport.

Often you may see a pilot struggle after sinking out of the best working altitude band while you are on thermal auto-

pilot, wondering how much easier can things get. Oddly, many times you will see the same pilot do that over and over again. Recognizing that there are altitude bands where it is easy to climb is a major revelation for soaring pilots. Once in the efficient area to climb, try to stay in that working band.

Situational awareness is very important. Learning to be aware of your surroundings on the ground is relatively natural to us, but in the sky it's not the same. Everything is important in the air — airspace, traffic, the weather trend, wind — everything matters. This is an experiential issue and awareness comes in time. Initially, being aware of your goal and remaining focused on your progress and your available layers of options is the most important part of this.

Options diminish the lower you are. Once you've broken a decision height (which you determined before take-off) you now direct your game plan towards maximum survivability, nothing else matters. So, your outlanding scenarios have been set, and now your job is to make a decision and commit to it... implement your plan.

Though your plans cannot change dynamically, doing so adds layers of unnecessary risk. Know when to give up! If you drop below 2000 feet, you need to have a landing area within reach — 1500 feet — still hoping to find lift, but the odds are shrinking and you have a couple of fields picked out, 1000 feet — pre-landing checklist — gear down — flaps down. You are now committed; *do not* change your mind at this point. Clear your mind of everything else and EXECUTE! An outlanding is very stressful the first time — after that they become part of the game. Fly enough, attempt enough cross-country, and you *will* land out. The idea is to remain calm, stick to a plan, and *trust yourself*. Even saying out loud, "I can do this" — while it seems silly — calms you. Virtually every aspect of cross-country soaring revolves around trusting yourself. Another important aspect of successful cross-country soaring is our ability to effectively analyze cloud structure and density. The difficulty is in learning to think and plan ahead. While climbing or cruising, we should be keenly aware of the development of clouds along our intended route. As we progress, we constantly make corrections or deviations from the direct route, based on the best looking clouds.

Sometimes the issue is to create the most opportunities for continuing the flight; sometimes it is better to take a route that gives us more average chances than one big chance. I am a fan of being conservative based on my desire to not land my expensive sailplane at non-airport sites. That being said, I have often deviated from what I know to be the more direct route to pursue a series of

clouds that provide me multiple chances of gaining altitude and staying in the game. I make many of my decisions based on the desire to complete my goal. When the weather is amazing, I will try to stick to a rigid course line, keeping deviations small, only pursuing the absolute best looking clouds and associated lift. If things turn weaker and I am away from home I shift gears to begin thinking in much smaller increments — 10 or 15 kilometres at a time, whatever helps me get closer to my goal.

Committing to a goal, difficult at first, becomes completely clarifying. You stop doubting yourself. What you must do above all else is to think and evaluate. Constantly calculate when flying. This much altitude for that much glide — this many miles left — that much time — *everything matters!* The difficult but fun part of this process is that you become totally immersed in the process of flying, navigating, analyzing the developing weather while on course and, most important, *keeping an eye out for traffic!* This is pretty much the one that kills us — traffic and colliding with terrain — so it

must be rigidly adhered to particularly when soaring at a ridge or mountain soaring locale.

The thing I'd stress the most is to adjust the way you look. When you are looking around, look for something. If it's the clouds, don't

just look at them, *see* them — are they building or dying? What is the interval between the two? All this can be learned on the ground and perfected in the air, and it will make you a better sailplane pilot. Keeping most of your attention outside the cockpit and doing a decent scan is imperative to safe flight. If you lack in this area, practise diligently and get help from an instructor on how to develop a safe scan technique.

Weather There are many books written on meteorology, and specifically soaring weather. However, there is no substitute for being able to look at what is actually going on throughout the course of the day. We need to be aware that as the weather changes, we must also change our game plan. If things are better than expected, it's good practice to take advantage and fly faster, fly farther. What really matters is when the weather gets worse, and we are out on course away from home. Never place such an emphasis on completing a task or making it back home that you allow yourself to be jeopardized by the weather.

If things are changing for the worse in a dramatic fashion, and your options are becoming limited, ACT! Find a place to land, and get on the ground. I've made the mistake of flying too close to thunderstorms, or tried flying through what looked to be a small rain shower — I've also scared myself with poor decision-making in these areas. I now discipline myself to get away from adverse weather early and, if I can't escape it, I land. You know the saying: *"It's better to be on the ground wishing you were in the air, than in the air wishing you were on the ground."*

Route planning This section could also be called dream planning. We all dream of making dream flights. What separates those who attempt and achieve those flights from those who don't are a couple of very specific things. Spend some time planning a flight. Draw the lines on the map, plan your route, examine what terrain will affect the flight's success and calculate the amount of altitude required to fly

it. If you fly a 35:1 glider, and your cross-country cruise L/D is 25:1, take the total distance of say 60 kilometres in feet (196,860 feet) and divide by 25, giving 7875 feet). That's the altitude you need to make the distance in calm air. You need eight thermals of only 1000 feet each to make that 60 kilometre flight. Use this as the basis for evaluating the correct day on which to attempt that first flight. The next time you fly, see how long it takes you to gain the required 8000 feet, and look out in the direction of your planned course to see if it actually seems do-able to you.

Draw an intended course line on the map, break it into smaller goals, and then establish the altitude required for each portion of the course. The issue here is to do your homework. Don't simply run off and try to go somewhere. Plan a flight, think it through, perhaps drive the route if possible. The more knowledge about the route you have, the more at ease you will be with your plan. The best plans are thought out in advance, and when you actually accomplish the flight, it's almost a relief that it finally happened — now you can get on to thinking about a *longer* one! Actually, we have to have several flights planned to take advantage of the weather that a day presents us. It is no good having a plan to fly south, if clearly the weather to the east shows a run that way is more do-able. Cross-country flights are planned; they are intentional. They should also serve as great sources of pride, and good ones should always be shared.

Outlanding worries You should *never* start a cross-country (or any flight, actually) with the thought in the back of your mind, "I hope I don't have to land out." You must fly *expecting* it will indeed happen. You are then psychologically prepared to commit to a well-planned landing when you get low rather than delay decisions on the inevitable and make unsafe choices.

We will have to deal with an outlanding at some point in our cross-country careers — I happen to think it is a respected tradition — and experiencing it sooner rather than later is no bad thing. You will be a better pilot after you have landed out the first time. You will trust yourself more and that worry in the back of your mind is gone. You will know in your heart that you are the pilot of this elegant machine, and that she will respond to your commands. Familiarity with the local area combined with planning lowers worry. If you can plan flights using airports as your outlanding sites, then you will be more comfortable in your attempts. But there are times when events conspire against us, reduce our options, and commit us to a landing in a field. In this situation clear your mind of everything except the basics.

The height at which we make a commitment to land is an old argument. Landing skill levels are different. In the beginning be very conservative — 2000 feet agl is a hard number then. Once below it, you shift gears into full-blown survival mode. At 2000 feet have landable fields within sight. At 1500 feet, one or two should be chosen. At 1000 feet, game over, now we land. That's all, no self-doubt. We trust ourselves. We have examined our field, we have our plan in mind, we commit to our circuit and we follow through. In even the worst of outlandings, the odds are very high that the worst we will do is damage our beautiful glider. (By the way, *never* let concern for your equipment outweigh your concern for yourself.)

Never start a cross-country (any flight, actually) with the thought in the back of your mind, "I hope I don't have to land out".

Do not let a fear of failure paralyze you. In this sport you'll have to face your fears. If you allow your fear of failure to overcome your desire to succeed, you will never accomplish a goal. By logically and intentionally dealing with those fears rationally, by breaking them down and understanding those fears, you can succeed. Landing out is *not* a failure! It is the proof that you tried and believed in yourself enough to commit to something amazing. Most people will never experience this the way a "Sailplane Pilot" will.

Unnecessary worries Many times you'll see a pilot come to the airport to fly who is in a bit of a hurry because he wants to be at his son's baseball game at 3 pm. His wife calls while he's rigging to remind him to pick up a jug of milk on the way home. The dog barfed on his new Lexus' leather interior ... Soaring is a Zen thing — a focus thing. Cross-country is *really* a focus thing; after a couple of hours in a glider by yourself, concentrating on actually going somewhere, you'll be amazed at how tired you are when you complete your flight.

Soaring is pure endeavour. You have to clear your mind of everything that isn't pertinent to the flight and simply immerse yourself in "being the bird". That may be tongue in cheek, but when I'm on a big flight I think, I calculate, I evaluate, and I tell myself to go on. Many times I talk to myself aloud. Positive reaffirmations work in soaring. They remove doubt. I can. I will. I was taught to plan solidly, and then focus wholly on the task, putting all else away for the time. It is the best advice as a sailplane pilot I ever received.

Flight success One thing we all need to do in soaring is share our accomplishments. Flight recorders are great tools for doing so. The biggest thing I advocate in soaring is to evaluate your flights based on your decision-making process, not on the mileage, height, or speed.

When you evaluate, separate your bad decisions from the good. Talk about those mistakes; use mistakes as building blocks to become a well-rounded competent soaring pilot. Too many times I see a pilot let their ego or bravado get in the way, and the outcome can be bad. The mistakes I am talking about here is when someone pulls off something truly dumb and gets away with it. In their mind, they can convert their bad decision-making into a success. The error is shared as the exciting part of the flight and it's embellished so that other pilots may view it as a success as well. This behaviour encourages others to attempt to keep up with the dumbness, and perhaps further the behaviour. Bad decisions work their way into our actions in subtle and insidious ways and we all need to be careful to evaluate our decision-making with each flight.

It's very important to share our failures. The ones I got away with are called experience. But still, bad decisions should be shared. Flights must be evaluated as a process. The more we can share our flights and evaluate them, accepting critique when warranted, the more we will all help each other to learn and be safe and proficient in our quest to fly further. Again, risk tolerance increases with experience, and what may seem risky to you, I may not have the same level of concern over. But even this bears discussion, as sometimes the risks we downplay are the ones that can kill us.

Goal planning I add this to point out that it makes little sense to jump into deep water without starting at the shallow end of the pool first. If we set reasonable goals for our-

selves, we can use those successes as building blocks for setting bigger ones in the future. If we set goals too high and fail repeatedly we tend to lose interest — no one likes to end up a loser all the time. To stimulate a positive mindset, we should set goals that are achievable given good planning and some effort. The FAI badge program is an excellent for those very reasons. The Silver badge in particular is a realistic goal for almost any competent and mid-level skilled pilot on a reasonable day. It's a great place to start. The goals are designed to develop your skills and judgement in an incremental fashion, with small, easily digested steps.

Perhaps the single most important issue of this entire discussion is knowing when to call things off and head back home. Call it the art of throwing in the towel. When we have done all the hard work of planning a flight, and declaring it, filling out the paperwork, and finally jumping in and getting on our way, sometimes our judgement can be clouded. I will stress again that your survival is more important than *any* goal. If you don't like what you see, go home, go land, do something, trust yourself and your plan. This is a difficult bit as no one else is with you to make your decision. It's no time to be brave, and there will always be another day to try again. Consider the flight a success based on secondary goals being met; the good decision-making, and the trust placed in yourself, as you become a decisive, proficient and improving soaring pilot.

Triangles I love flying triangles. Even the smallest force us to begin to flying a heading for at least a third of our flight away from our trusty home airfield. Even if you stay well within gliding distance, simply turning the nose of the glider away from the runway is a healthy move in your plans to become a cross-country pilot. It is an effective learning tool, it will give you a great building block tool to work from. If we can use GPS to establish very reasonable tasks, it is easy to establish cylinders or rings around the turnpoints. By varying the diameter of the cylinder we can extend or shrink the task very easily. This minimizes task planning, and allows us to build on familiar successes.

If you believe you can accomplish your flight based on segments of a flight having been accomplished previously, it makes it very reasonable to envision going just a little farther over the same general areas. I recommend this approach as it allows you to often remain within gliding distance of airports while able to plan triangles that fit a specific geographic region. The beauty of this approach is that you can plan one flight and continue making the triangle incrementally larger while maximizing your time spent over familiar terrain. Familiarity is a comfortable thing, particularly in the early stages of a cross-country career. Get out there and good luck. ■

Steve lives in western Washington on a private airstrip with a Cessna 180 and his DG-400. He has 2500 hours in power and 920 in sailplanes. Steve completed his Gold height this winter in the Mt. Rainier wave, won the "Best Flight in the Columbia Basin" from the Seattle Glider Council with a flight from Buckley, WA to Ephrata and return, crossing the Cascade Mountains twice in the process. His main soaring goal is to earn his Diamond Badge from flights originating on the we(s)t side of the mountains.

Going solo

Kenna Morris, Rockies Soaring

"From the moment that canopy closes, you'll have two little shoulder angels with you; they never stop talking."

club member Evelyne Craig

SHE WAS COMPLETELY RIGHT. I closed the canopy and locked it in place and, as I went to fasten my straps, I heard a steady commentary of:

"don't forget the trim ..."

"remember to get off the tail wheel ..."

"the wind is coming from which direction ...?"

"is that fastened right?" and Trevor's infamous,

"stay straight, woman driver!"

I felt the tow rope tightening, checked my trim once more, and radioed "all out" to towpilot Sebastian. Now the Canadian Rockies Soaring Club's 2-33, nicknamed *Cookie*, started to move forward and my stomach began to lose pace with me as Seb brought the Pawnee, DUQ, up to speed:

"Stay straight behind the towplane,"

"Don't get too high on him,"

"Are you flying coordinated?"

"Where would you go if the rope ..."

Oh, please don't let the rope break — my two shoulder angels were excellent company.

As we climbed in tandem I watched Uniform Quebec's tail and wings closely, keeping behind him steadily — *"watch around you too, not just with your eye, turn your head so I can see you're looking"*, my head swivelled and I saw a power plane head off towards the other side of the valley. My altimeter was reading 4850 feet above sea level as Seb brought us over towards the northwest flank of Mount Swansea. I released and banked right, yaw string not entirely straight, turning myself to fly alongside the tall forested mountain. It was comforting to be flying a route I'd done with Bryan, Mark and Trevor over and over again.



There wasn't much in the way of traffic and the air was smooth, so I let my altitude dwindle and practised my coordinated turns, slow and gentle, a few mildly steeper. I had no desire to put myself in any possible situation involving a spin or other such maneuvers on this flight. With my altitude good for landing, erring a little on the safe side and staying on the higher end of the scale, I started my pre-landing checks and pointed myself at the north end of the runway, inbound for 33. Just as my thumb rose towards the radio button, a power pilot radioed in a call for landing. My first thought was, "I don't know if I can stay up here long enough for him to land!" Trevor came to the rescue, simply telling him there's a solo student in the air, and I breathed again.

The shoulder angels reminded me, *"Radio in, you're getting close to the runway and you can't see the power pilot"*. I radioed my intentions and spotted the power plane off to my left, not the same one I'd seen as I was taking off.

I checked the runway and the windsock once more as I crossed midfield, Delta-Quebec was clear, only a slight breeze, and so-far-so-good. As I turned base, and on to final, the wind picked up a few knots, and I was high, really high. *"Remember when you do a side-slip, really push (or project) the stick into the slip, you never push the stick hard enough."* Gritting my teeth and displeased with my altitude on final, I glanced at the wind sock and pushed the plane into a side-slip, losing the altitude, but being blown sideways by the stronger wind. Well, this can be dealt with. Now almost hypersensitive to my height and being parallel to my runway, I bank left and try to place myself back on track. Spoilers wide open, I round out and feel *Cookie* land firmly on the asphalt...

"Crazy woman driver, stay straight! That's what the lines are for..."

Grinning manically, I came to a complete stop 3/4 of the way down 33. Elated that I flew solo, and horribly displeased with my landing, I climbed out and began pushing the faithful training glider back towards the silhouettes walking towards me. I think that is quite impressive as I am only 115 lbs, and managed to move the 2-33 at least twenty feet, only to be told by Bryan, "Kenna, you're going the wrong direction". I'm not on the ground for long; Trevor kicks me back up into the air almost immediately, a few friendly criticisms given. My next landing was much, much better.

After the second flight and with my feet once again on the ground, I knew the buckets were somewhere. I was sure they'd stick to the picture routine, and Evelyne was walking with her arm around me, so I was definitely safe. Actually, I was definitely wrong. I didn't make it to the deck for the photo session. Mark was the first one out between the rows of glider trailers, and Evelyne all but

vanished. The first bucket of water was wonderfully warm, the others were definitely cold and wielded by my fellow pilots, all wearing identical grins. I never felt so good.

Invermere is the first place I ever flew in a glider, and I still remember looking out of Cookie's canopy at all the scenery and thinking: hey, cool, I'm flying without any sort of engine. I spent two years watching my dad as he went through his training, and helped in the ritual soaking that came after his first solo flight. It wasn't long before I started to really pick up interest, and by the time I had turned thirteen, I was given a radio and allowed to help work on the runway.

It was through a scholarship that I was given my opportunity to finally take the training I had been waiting for since watching my dad land after his solo. The Norman Marsh Bursary fund was started in 2003. It sponsors a student between the ages of 15 and 18 for a two-week flying camp at the airport. The club itself sponsors a second student, and so the pair are often able to laugh and aid one another throughout the process of learning to fly.

My first flight of the season last year was on 12 July, and though I had flown several times in the 2-33 with my dad over the previous two years, the first take-off was an experience. We were back in Cookie. My instructor, Bryan Deans, expertly levelled us behind UQ and the training began. We popped off tow at roughly 2000 feet agl into a deep blue sky, with some little cumulus clouds a few valleys over our only company.

Four days later I met the other scholarship student, Dan, a quiet boy from Invermere whose older brother had won the scholarship the previous year. Between the two of us and the two instructors, Bryan and Mark, there was no shortage of amusement on the airstrip. Some of the memories that firmly embedded themselves in my mind are the short clips of ground school in between flights or after our daily flight quotient was spent. "Gadio Round School", as it was accidentally dubbed by a visiting student pilot from Vernon, was often invaded by any other pilots with some free time. The practice with radio calls often ended in the most amusing situations; at one point, Bryan wandered the airport and asked anyone he met to spell things with the phonetic alphabet — words like Trevor, GIEW, DUQ, and 'Flying rocks!'; the last of which drew hardy applause.

Evenings were also something to be remembered, especially since once every few days there would be a small informal concert. There was musical talent at Invermere, and once the group finished eating, Bryan, Brad, Marissa, Risa or one of the others would be asked to play. Trevor, our CFI, and Evelyne, were almost always there. The atmosphere in the afternoon and evening, once the day's soaring was over, was absolutely incredible. Everyone unwinds, and Invermere's unofficial mascot (Jip, a Husky canine) comes over to the main deck to sniff everything and chase her giant tennis ball. It's one of those places where anyone is welcomed in, and it's not unusual for visiting pilots from New Zealand, the USA, Britain, or other parts of Canada to drop by.

Nearing the end of our training, there are whispers everywhere about the students going solo. Especially Dan. His landings are solid and reliable, circuits thought out, and his take-off/tows are pretty nice too. He went solo on the last day of the camp. I was on the deck when Brad (a meteor-



Sporting grins so wide they were chewing both earlobes!, Kenna and Bryan complete a "congratulations" flight in her dad's PW-6 at the end of the 2-week soaring scholarship. An article on the prelude to this flight can be found at www.canadianrockiessoaring.com under Flights, 2004 – Rod and Roger Morris, July 16.

ology student and pilot) casually pointed out that Trevor hadn't gotten into Cookie with Dan. Everyone grinned a little bit, itching to see the glider take off so they could start filling the buckets. The flight was well done from the small bits I witnessed on the ground, and when he landed we let Trevor and Bryan talk to him while we pushed Cookie back. He made it to the clubhouse deck for pictures before we got him. Trevor readied his camera for a picture of just Dan, and when the signal was given, the rest of us rushed around the building and absolutely drenched him with water

He had the biggest smile on his face that any of us could ever remember seeing.

The two weeks I spent at the airport in my dad's little yellow tent were two of the most amazing weeks of my summer, and the week I returned for my solo flight was the best. Not just because of the solo, but because of the people who backed me up, who were patient when I didn't understand something, and who are just as smitten about having their heads in the clouds, as I am. ■



Not your usual gliding club entertainment – (l. to r.) weatherman Brad, Risa McDonell, Kenna, and instructor Bryan performing an after-dinner concert.

Low Saves

Kai Gertsen

HAVE YOU EVER BEEN ENTHRALLED BY SPELLBINDING accounts of heroic saves from 97 feet. However, it should be mentioned that some glider pilots have been known, on rare occasions, to stray ever-so-slightly from the perpendicular truth when recounting their aeronautical adventures. Also, there is an amazing illusion which mysteriously comes into play in these situations: 400 feet actually looks exactly like 97.

How low is TOO low?

Many flights have come to a bad end because the pilot attempted to climb away from an impossibly low height. A discussion on the subject is prudent.

In discussions on the subject of off-airport landings we often neglect to mention that the optimum course of action when faced with a field landing is, not to land. Naturally, there will come a time when all your

efforts to continue the flight must be abandoned so as not to compromise a safe landing; and that's the big question, when must we commit to land?

Pundits are often asked, "How low is it safe to thermal?" The question hardly ever brings forth a definite response; most often the question will be evaded entirely. The reason this question fails to bring forth a nice firm, quantitative answer which you can tuck away and have handy when needed, is that there isn't one. The height at which the decision should be made to discontinue a flight depends on several factors such as level of skill, currency, familiarity with the sailplane, the terrain, and the weather conditions.

Extra airspeed and well-banked turns Low level thermaling should always be done using well banked turns with an additional 5–10 knots of airspeed. One of the common causes of spin accidents is circling close to the ground in gently banked turns near stalling speed.

In a sailplane, it is far easier to stall and spin from a gentle turn than from a well banked one. Due to the higher stalling speed in turns of more than 35 degrees of bank, the control response remains firm and crisp until the last moment before the stall, and recovery can be made instantaneously without any loss of altitude by simply relaxing the back pressure on the stick. In straight flight or a shallow banked turn, the stalling speed is lower and control response gets sluggish when approaching the stall. Should a stall occur, greater control input is required and recovery cannot be made without a significant loss of height.

The good news is that using well banked turns is no disadvantage as thermals at lower levels tend to be small, and steep turns are necessary in order to climb. Extra airspeed also improves the climb as it enhances maneuverability which helps in dealing with low level, disorganized thermals. What's more, when making that first turn in what you think is a thermal and you are concerned about losing too much height if it doesn't work out, a 45° bank will get you around with minimal loss of height.

Experience and instrumentation One prerequisite which has to be met before attempting to thermal at low levels is that you must be capable of flying the sailplane with only occasional glances at the instrument panel as 99% of your attention has to be directed elsewhere. Consequently, any attempt to thermal will be severely impaired if your glider is not equipped with an audio variometer.

Although you may have acquired the level of proficiency outlined above, if you get down to 800 feet agl on any of your first few cross-countries, by all means abandon the flight and concentrate on the pattern and landing. Those first off-airport landings will tax your capabilities without further challenges. Do not attempt to thermal below 800 feet until you have a handful of field landings under your belt and begin to feel a little more comfortable in those situations. That is, shear terror has been replaced by just a normal state of panic.

Currency You made good progress last year and have reached new levels of performance. Now it's spring and you are primed to continue where you left off, but not being current is somewhat like being slightly intoxicated. You will not notice the effect till you get in a tight situation, as for example when scratching around low down out over the boonies. So watch out, do not get too aggressive right away.

Familiarity with the sailplane Regardless of your level of experience, if you are flying a type of glider that is unfamiliar to you it is a good idea to fly more conservatively until you get thoroughly acquainted with it.

Spin proficiency Inasmuch as we spend a lot of time flying near the stalling speed, proficiency in spin recognition, prevention and recovery should be a prerequisite for flying a glider under any circumstances. But definitely do not expose yourself to the additional stress and workload of low level thermaling over unfamiliar terrain until you have reached the level of spin training and practice where spin entry recognition and the correct control input for recovery is intuitive. When workload is high, as it is when trying to latch on to a feeble scrap of a thermal at pattern height while scrutinizing your selected field for obstacles at the same time, that is when you are most likely to experience an inadvertent spin entry — you better be ready.

To be fully effective, spin practice should be done in the glider to be flown, as spinning characteristics will vary from one glider to another.

In order for this spin training to be of any value, it needs to be done in a glider that truly spins. Spin demonstration in a glider such as a 2-33 is detrimental to training, as it will inevitably leave anyone with the impression

that it is virtually impossible to spin a glider, and recovery is instantaneous regardless of control input. Nothing could be further from the truth. I do not know of any single seat glider that will not spin, given the right conditions. If you fly a glider long enough, sooner or later you will experience a spin entry when you least expect it.

Weather conditions In windy and turbulent conditions you need to raise the minimum altitude for attempting a save. There are days when it is not safe to thermal below 1000 feet regardless of your experience level.

Radio use Needless to say, the radio should have been off long before you get to this stage, if it isn't, by all means turn it off. Scratching around close to the ground, checking your selected field for slope, wires, fences and scrutinizing the intended touchdown area for stones, holes, etc. while frantically attempting to centre this scrap of a thermal you stumbled into at the last possible moment, is most certainly the most demanding flying you will ever be faced with. Trust me, this will keep your mind fully occupied. The radio will not help you stay up, it will not help you land, and nothing else is of any consequence.

People have crashed because they were preoccupied with the radio. If you should fail to stay up, any message to your crew can much better be transmitted at your leisure when you are safely on the ground, and in case you are unable to contact anyone to relay your message, it is of no consequence. You can always get to a phone — you won't be doing anything else that afternoon. Even listening to a transmission is distracting because it can't help but divert some of your attention from the task at hand at a time when you can least afford it. My policy is to turn the radio off when I get down to 1500 feet. Do likewise.

Criteria The criteria I have used for many years is simply this, "If I can afford to lose 200 feet, I give it a try. If I can't afford to lose 200, I proceed with the pattern." Why 200 feet, you may ask. Well, on the average soaring day it is reasonable to expect areas of sink in the magnitude of 600 ft/min. It is also reasonable to expect that you will turn in the wrong direction, which could place you very nicely in 600 feet per minute down. The rate of turn will probably be about 20 seconds per 360°. Consequently, you may be 200 feet lower by the time you complete the circle. If you expected this, and planned for it, you won't get in trouble.

Let's assume you meet all the prerequisites. You have the experience noted above, you are current and thoroughly familiar with the glider. You are on another cross-country flight; and you are in the pattern to an apparent inevitable landing in an alfalfa field. Halfway along the downwind leg, and you feel a surge. Should you try a circle? If there will be enough height left to complete the pattern if you lose 200 feet, albeit a little on the low side, but not uncomfortably so, you can give it a try. Hold off for a moment, if it feels solid roll quickly into a 45° bank. With a little bit of luck, you may find yourself going up half way around so you haven't lost or gained any height at the completion of the circle. Incidentally, this is about the best you can hope for on the first circle as the thermals tend to be small at that level. It is highly unlikely you will gain much during the first few circles.

If you didn't lose any height, try another circle and if you can keep the variometer on zero, stay with it. The combination of your presence, helping to break the thermal free,

and your centering efforts will eventually (most of the time) improve the climb rate. However, if you continue to merely hold your own, you must abandon the effort before you drift too far from the field. In case you eventually are forced to give it up, your effort will not have been completely futile as you gained some extra time to further scrutinize the field.

Position Your position with respect to your chosen field is as much a consideration as your altitude. Crowding the pattern must be avoided. You should be in a comfortable position, off to the side. The distance to your selected field is all as important as your altitude, you may be high enough to circle, but if a 200 foot loss will prevent you from reaching the entry point of the pattern at the appropriate altitude, don't try it.

If you do find yourself too low for a full, standard pattern, don't insist on it. The prime objective is to make the turn onto final at 300 feet any way you can.

The climb When starting to climb, you need to make a real effort to keep concentrating. There is a natural tendency to heave a sigh of relief and relax just a little when reaching a thousand feet, promptly losing concentration and the thermal.

A climb stopping at a 1000 feet is not always caused by inattention. It is rare, but there are times when a thermal does not go any higher. Sometimes a thermal draws in excessive amounts of cold air and loses its buoyancy. A thermal may fade away when drifting into the shade. At times like this, keep in mind that on any specific day, the thermals tend to sprout from the same source. Consequently, if you lose the lift before you get high enough to continue on course your best bet is to go back to the spot where you found it. Chances are there will be another bubble coming along which may have enough temperature differential to continue all the way up to the inversion.

Accidents Most accidents occurring during attempts at low saves are attributable to: distraction, forgetting to fly the glider, work overload, inadequate spin training, or not knowing when to quit.

Summary of the fundamentals of low saves

- Be sure the radio is off.
- When low, use extra airspeed and well banked turns.
- An audio vario is a must.
- When faced with your first field landings, do not attempt to thermal below 800 feet.
- Stay within your capabilities.
- Don't do anything you are uncomfortable with.
- Never thermal at low heights unless you are experienced and current.
- Be familiar with the glider.
- The task of flying the glider must be intuitive.
- Be proficient in spin recognition, prevention, and recovery.
- Raise your safety margin on windy, turbulent days.
- Never try a circle unless you can afford to lose 200 ft.
- Your position with respect to the chosen field is as relevant as your altitude.
- Don't forget to fly the glider.
- Don't lose concentration after gaining a few hundred feet.

Be assured, he will write nonsense and he will never ask you again.

Nevertheless, I think we have to stick to strict rules for championships to avoiding endless internal discussions and protests. Discussing this matter we should also differentiate between internal and external publications and PR. Internally, the sport is attractive by itself. We might know some of the active competition pilots personally or we have our personal heroes, sometimes we know the region where the competitions are held and also we have a comparison of the performance achieved in competitions or record flights compared to our own personal, individual performance.

In addition to the internal PR, a big step forward has been achieved by the OLC, the online contest. We can obtain almost instant information about where and what is happening in the world of cross-country soaring and receive the data on where and how the flights have been performed worldwide.

I really would like to congratulate the initiator of the OLC, Reiner Rose, for this great contribution to our sport. However I would also like to express one concern I have in this regard. We should be very careful not to create a different set of rules, standards and judgement of a flight's performance and thus drift away from the FAI Sporting Code.

So now a few thoughts and my personal view about our existing system of competition flying. As seen from the public's and from many media representative's viewpoint, our format for competition sport is not very attractive and definitely not media friendly. That's a fact. On the other side I have heard some of our (even high ranking) competition pilots saying: *"We do not need the public, we will never be a Formula 1 attraction, forget all about public interest"*.

This is an attitude which is very shortsighted, dangerous, and one which we cannot afford. We need the public interest in our sport more than ever. Let me give you just one reason — there are powerful political groups in our society heavily opposing any air sport for ideological reasons. We need to create a positive image in the population of many countries by showing our peaceful and environment friendly sport in an understandable way, in order to argue against these politically motivated groups. We also must clearly point out the high educational value our sport has.

We must make our sport attractive, not only to watch but also, especially for young people, so attractive that they even want to participate. In order to achieve this goal we need to create, besides our championships, additional competition formats that are easily understood, that can be followed live using modern techniques, and that give instant results when the first pilot crosses the finish line. I think

Roland Stuck and Terry Cubley are on the right track with a very promising way to present our sport in a different, simple and easy understandable competition style, possibly called "Grand Prix" or "Cup". *[a short multi-lap task with a "race horse" start that is visible by spectators over a large part of the course line.]*

I had the chance to watch the test run at St. Auban two years ago. My judgement is very positive, I am convinced that we should continue and develop this competition format for the future. If the FAI manages to have World Air Games #3, this format shall be used to show gliding to the interested public.

There is a side aspect to the media attractiveness of our sport. We all suffer from the high costs. Only when our sport is shown in an attractive and media-friendly way can we expect financial support by sponsorship, not before. We must also know that we have to deliver media-friendly activities of high value for a sponsor in order to succeed.

The gliding community: a shrinking and aging family?

This may sound provocative. Are we aging heroes? If so, what is bad about that? How representative is this statement? As far as the "shrinking" is concerned, I refer to the statistics from John Roake and from the German Aero-club. Both show an annual loss in membership of between 1% and 2%. In Germany the number of active glider pilots decreased by 4115 in ten years. This is roughly 11%, but in the very last years, the loss is in the range of 1.7% annually. This is an alarming trend. We need an urgent strategy to stop this process.

For the "aging" of our community I could find no statistics. Nevertheless, it is very obvious for me that this trend is also progressing. Have a look to the glider clubs and you will be aware of the reality. Unfortunately, it is more and more difficult to attract young people to our sport. What are the reasons and how, if at all, can we counteract them? The IGC, of course, cannot directly counteract this problem itself. This has to be done by the national federations but the IGC should analyze the reasons and find strategies that can be used via the NACs and national federations from the top down to the clubs.

We know that in modern society a vast variety of activities are offered to young people. What do young people seek? They certainly look for challenging and sporting activities with high profile in line with their life style. What they also look for is easy access and early success. That is our first problem. In order to be a licensed glider pilot and so enjoy the benefits of your learning you must study a lot, invest a lot of time and money, and have a lot of patience.

For those who accept all these conditions, the result certainly pays off. But many others look for an easier way to reach a similar flying thrill in shorter time and with less engagement.

Instead, they go to paragliding, where they get their licence in a few weeks or even few days time at reasonable costs. Here we have competition in our own FAI house. By the way, for similar reasons the number of hang glider pilots is also decreasing and, at the same time, the number of paraglider pilots is quickly increasing. There is some comfort that when those hang- and paraglider pilots get older they very often turn to gliding. One of the most prominent ones is Terry Delore from New Zealand.

Besides the relatively small group coming from other air sports to gliding, where do our clients mainly come from? A remarkable number of youngsters have been raised on airfields — the sons and daughters of active or former glider and other pilots. Other young people have the idea of making a professional career out of flying and look for an entry in aviation. Another group may find interest in flying initiated by flight simulator programs. Summarized, it is still a relatively small group that approaches a club or a flying school in order to learn to fly.

It is up to our clubs to be attractive for newcomers. It must be seen to be in their own interest to be open-minded and to be willing to accept new members. It is also important to integrate new members quickly and so to bind them to the club and thus to the sport. There is *no* room for a closed shop mentality. Clubs should also create a family friendly environment. It is very important that our husbands, wives, fiancées and kids feel at home at our airfields. Take the principle of the MacDonald's restaurants. *"Look for and take good care of the kids, they are your future customers."* Wherever possible have kid's playgrounds at a safe part of your airfield. Make your airfields visitor-friendly. Give explanations whenever wanted. Offer guest flights. Have an annual open house day showing your activities to the public and your fields' neighbourhood. Do not greet your visitors with big signs of: FORBIDDEN, NO TRESPASSING, or DANGEROUS!

Try to create youth groups in your clubs. (Be sure to have also some nice young girls in this group.) All this may sound trivial, but I think that all these single items may contribute to a club's success. During the flying season go to a different airfield with your student pilots for a summer training camp and there you may start an initial simple type of competition flying.

The burden of regulations, administration, and the cost explosion

Did you ever count how many bureaucratic hurdles you have to overcome before you are allowed to take off? Let me just mention a few of them. You must hold a valid licence based on a valid medical. Before you are allowed to start your flight training you may have to prove that you are not a criminal. You have to be licensed to use a radio. For the beginner, the biggest hurdle is to pass the

initial medical test at a central medical unit (this applies to Europe now). All these steps cost you a lot of money.

Of course your airfield must also be registered according to your national criteria. Your glider must hold a type certificate, a certificate for airworthiness, a maintenance release, a registration and certification of the radio and, if installed, of your transponder. All the maintenance and overhaul costs you another fortune. Besides the tremendous amount of money you have to pay for all this, it may take weeks before the bureaucracy has worked through your files and gives you the green light. Until then you are grounded.

In some countries, devolution of power from the government has been provided. In these cases, either the NACs or federations issue the pilot licence and in some cases issue the aircraft type and airworthiness certificate. The costs for the user are significantly reduced, as the NAC or gliding federation has much lower overhead costs. The greatest devolution of power is found in the field of microlights, hang and paragliders and parachutists.

In addition, for all these categories, less stringent rules and requirements apply. Also pilot licences and medical requirements are less stringent. It should be our aim to reach this status also for glider pilots and gliders. The only countries, to my knowledge, where this has been achieved include the UK, NZ, USA and Australia. But this ideal situation for the BGA in the UK is endangered now by the expanding activities of the European Aviation Safety Agency (EASA). The IGC has a responsibility to set up a lobbying team to be active in this field or at least to delegate this task to a regulatory body that deals with these issues. In Europe we have Europe Air Sports and the European Gliding Union. As the EGU itself is not accredited by the EC, Eurocontrol, or EASA, it makes sense to act here in cooperation with Europe Air Sports, as it is accredited at all these organizations.

We can be happy that we have quite a number of highly qualified specialists who represent us. They are volunteers who come from our own numbers and really do a hell of a difficult job for the benefit of our sport. When arguing for our needs and requirements, our opposites normally are highly paid lawyers representing governments, high level administrations, airlines, pilots or air traffic controllers unions and so on. So the least we can do is to offer our experts all the training, information, and background they need to do their job for us. Of course this also costs some money but it is certainly a good investment into our future.

Unfortunately the harmonization of European aviation law did not bring the relief we hoped to gain. With EASA, the burden of regulations has become even worse. It sounds silly, but the biggest success we can achieve today is to stay out of the aviation law harmonization.

Earlier I mentioned a group of sports aviators who are not under the jurisdiction of EASA as far as licensing, certification and maintenance of the equipment is concerned, the microlight gliders. And that is exactly the additional potential I see when we look for young people to join our sport. As mentioned earlier, in this case the medical requirements are much less stringent, as is the licensing. The gliders are much cheaper to build, certify and operate. The limited all-up weight of the microlight gliders certainly is a disadvantage, but not normally a factor for young sporting people.

I think IGC should support this possibility of a reasonable alternative entry into our sport and integrate microlight glider flying into our system. Once a pilot has gathered enough flight experience in this field most probably he will then turn to full-sized gliders.

Summarizing all the questions and topics I have raised so far, I see good chances for the IGC to manage the future of our sport in a positive way. On the regulatory side there are also chances at least to influence, by aggressive lobbying, legislation that affects gliding, or even better, to get or keep us out of the general aviation law as far as possible. Certainly all this will demand a lot of effort and engagement from all of us. However, without such activity, and without a certain open-mindedness to reform parts of our system, we will definitely be on the losing side.

In the case of my final topic, the future access to airspace, I see the development and our influence unfortunately more critical.

Airspace Will we be limited to a number of reservoirs like game reserves for endangered species? That's my question. There is one fact we all are sure of; there is no air sport without airspace.

Presently, and mainly in Europe, there are large changes in progress to establish the future airspace system. Depending on the outcome we will see how much airspace will be left for us that can be accessed by VFR traffic. We will also see how our gliders have to be equipped to get access to controlled airspace. Transponders are already a must in some areas. In the next few years we will have to go to Mode S.

The overall airspace restrictions are primarily threatening the core European states, Japan, some parts of the USA and Canada, and major areas around metropolitan areas worldwide. In the longer term these limitations will expand widely since commercial air traffic is forecast to double by 2015 compared to the amount of traffic at the turn of the century. It is not only this figure that gives us a headache, it is the fact that a big portion of this growth is caused by short haul regional traffic using small airports. All these factors will definitely limit our flying activities or even end them in some areas.

What can we do? Most probably we will not be in a position to solve the problem in such a way that we will be able to conduct our flying activities like today. We might be able to negotiate arrangements that will still allow us to fly cross-country, conditional on strictly observed limits. Be assured, we will have to fight for proper solutions, not by blocking airports or roads with our trailers and so alienating the public from us – as I hear it from time to time from our upset pilots – but by putting convincing arguments together, by seeking accreditation in top level meetings and, of course, by sending our highly qualified specialists there to negotiate on our behalf.

We should be prepared to accept and work out compromises, but that is still better compared to a situation where we gain nothing. This body, the IGC, can and shall not act by itself of course, but you delegates should feel responsible to find the right specialists and to get things moving. Identify those highly qualified experts, support them, and be ready to take over the expenses for their work. Be assured it will pay off for the future of our sport.

There is a lot to do, not only to beware the present, but to safeguard the future of our sport. I see this assembly, the plenary of IGC, as a very capable, competent, motivated, engaged body determined to take the responsibility for our sport in the presence and in the future. This fact gives me much confidence in the future development of our beloved sport of gliding. ■

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Winning II

George B. Moffat

— book review by Jon Joss —

ANYONE ASPIRING TO EXCELLENCE IN SOARING has a long and arduous road ahead. There can only be one winner in any specific contest. The budding competition pilot can learn from previous winners by competing with them, seeing what they do, how they do it, what choices, decisions and mistakes they make, what struggles they endure, what problems they solve, what mountains they climb. He or she can also learn via reading, if past winners have written competently. In fact, not learning will almost certainly lead to failure. There are no short cuts to the podium.

George Moffat is a twice world soaring champion (Open class, 1970 and 1974), a frequent national champion and among the most skilled, experienced and courageous sailplane pilots. Better still, he is a writer of formidable power and purpose. When he 'speaks,' we must pay attention.

His first book, *WINNING On The Wind* (1975), traced his early soaring and contest flying from the era of 'sticks and glue' gliders (Ka-6, Std Austria, Elfe), to his triumphs with the early Nimbus crafted by a young genius, Klaus Holighaus, and beyond. Comprised primarily of his past articles in *SOARING*, the book revealed the principles by which pilots learn to fly faster, safer and more competitively. You didn't have to be a contest pilot, a glider pilot or even a pilot to enjoy it. The writing alone was worth the reader's time.

Moffat has done it again, updating his masterwork into a new book that no pilot — competition or pleasure — can afford to ignore. Everything he writes has both competition purpose and everyday flying value. In fact, as Moffat has observed, every flight should be used to improve one's skills, without which it

is merely lollygaggin' about in the sky, as the late, great soaring writer and pilot Gren Seibels might have put it.

The book is usefully divided into sections from *Changes in Competitive Soaring*, to *Contest Flying Techniques*, to a series of compelling *Soaring Stories*. Moffat's summary of 'Changes' enables the reader to climb ahead at redline (yes, it can be done in the Sierra wave, and it can even be hard to get down safely) through the Sixties, Seventies, Eighties and Nineties into the 21st century, in a summary that is as informative as it is economical, and candid as only Moffat can be.

Winning II contains no formal pilot reports but includes handling comments. He is, if anything, kind to the pitch-sensitive early Ventus, and traces sailplane evolution since the difficult first Nimbus (lethargic roll rate, savage yaw); but doesn't note the ASW-20's 'double-bottomed' polar that can lead an unsuspecting pilot close to incipient spins.

His section on contest flying includes four chapters from the original book but expands the subject in depth, with ten additional chapters. It covers in meticulous detail every aspect of contest preparation from pilot psychology to podium pride: low-loss flying, practising, thermal entry and departure techniques, attitudes and safety. He saves special and deserved scorn for that loathsome form of soaring dishonesty: contest leeches (may they land out in severe sink).

Soaring Stories (and soaring people) provides endless enjoyment. Crews/soaring wives/airport widows should read this section first. George's curiosity and intellect shine, with anecdotal material that will amuse and inspire the hardest heart. He talks about many of the great soaring men and women and interesting places he has flown, including California, France, Germany, Australia and New Zealand.

His material on working with Dick Brandt to improve the Nimbus 3 (attaining a measured 62.5 L/D, exceeded in history only by Hans Werner Grosse's *ETA*), is absorbing — Moffat works as well with his hands as with his mind. Read between the lines, too, for a continuing primer on soaring's essentials.

There is poignancy here, since so many of the greats about whom he writes have been lost to soaring like Reichmann and Holighaus. He reveals individuals of remarkable personal power, typical of soaring, leading one inevitably to the conclusion that habits create character and character determines destiny.

Moffat cuts to the heart of the matter, page after page. One longs for the next edition, in which more *Infamous Last Words* (which close both the original and *Winning II*) can be extracted and used to inform, amuse or punish the reader. The tough part: noting his skills, honed over thousands of hours, so evident despite their seemingly effortless minimalism. I landed back humbled after flying with him. It's the same with his writing — the genius pilot is also a masterful literary stylist. How does he do it? The same way one gets to Carnegie Hall — "practice, man, practice." It only looks easy. Trust me.

Moffat has updated every chapter in his new book to October, 2004, but it will be many more years before anyone writes with equal clarity about our marvelous, difficult, frustrating but inspiring sport and art.

Winning, Moffat writes, comes out of energy. What a coincidence, since extracting energy from nature is the essence of soaring.

Winning II, ISBN 0-9704254-4-9
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Safety message

Did you know Scott Richmond, Willy Burhen, or Joe Patton? If you didn't, it's too late, they were all killed in glider accidents in Region 8 (in the Pacific Northwest) during the last two seasons.

Each accident involved a different part of soaring flight and all were different gliders. They were all licensed pilots and they had one other thing in common: none of them started their flight expecting it to end the way it did. I think it's time that we take notice of these losses to our community and each of us take the time to reflect on how we can be safer in every aspect of our flying and help others to be safe also.

I don't believe a detailed review of these accidents is necessary here, but we can take something away from their loss. We can remind ourselves that complacency in our sport is something that will kill us as surely as any other cause, and we must be ever watchful not to fall into it.

In the world of commercial aviation, it's an axiom that no accident is the result of a single failure: it's the result of a chain of events. Our job as pilots is to recognize the threat, take positive action and break the chain. How do we do that?

One way is checklists. We teach checklists for rigging gliders, pre-flight checklists, landing checklists. For some it is a simple rote. For one pilot I met at the Nationals in Hobbs this year, it was a solemn ritual involving two pages of carefully checked items before every flight. Which are you? How well do you review your checklists? Checklists aren't just something to quickly skip through; they are there to remind you what has to be done to remain safe.

Another way to break the chain is to always have a plan. If you have a plan you can take action when a crisis occurs and not simply react to it. Do you review your emergency options before closing the canopy? Do you call out 200 (or ?) feet on tow? At a new or unfamiliar field do you ask what the rope break options are before flying? Do you know what outlanding options to choose, and what to avoid – before you fly? You should have contingency plans for any situation from the time the rope is hooked up for takeoff until the wheels stop rolling and you are off the runway on landing.

What else can you do? You can check out the Soaring Safety Foundation's website, <www.soaringsafety.org> and read the latest on how to be a safer pilot. And you can help others by making sure they do their pre-flight checks and planning too. But in the end it's up to each of us to be responsible for our own safety by making sure that we are ready to fly each day.

Dennis Wright (SSA President)

Checklists

I am still amazed that people have checklists that tell them to look at the ground or to land. This is the one I use:

- W Wonder what to do today.
- W Wander on out to the airport.
- W Waste a lot of time talking to the other pilots.
- W Whine for someone to help me put on my wings.
- W Wheeze after pushing it out to the launch point.
- W Wait around for the towplane to get to me.
- W Wrestle with the shoulder straps.
- W Wait a sec. My O₂ isn't on – I have to get out to turn the knob.
- W Wipe the sweat off my face after getting back in.
- W Waggle my rudder to signal I'm ready to go.
- W Wince as a wing drops on takeoff.
- W Whip around behind the towplane.
- W Wrap up into a turn in a thermal.
- W Wish I'd remembered to put some ice in my water.
- W Wiggle my legs and toes so they won't go to sleep.
- W Waste time in weak thermals.
- W Wander around looking for lift.
- W Water. Dump it because I am getting low.
- W Wadio. Call for my trailer because I have just landed out.
- W Weeds. Pick them out of my wheel well.
- W Wait for my trailer to arrive.
- W Weturn. Drive home thinking about what a great day it has been flying instead of working.

John Shelton

creator of the great *Pez D. Spencer* cartoons at <www.soaravenal.com>

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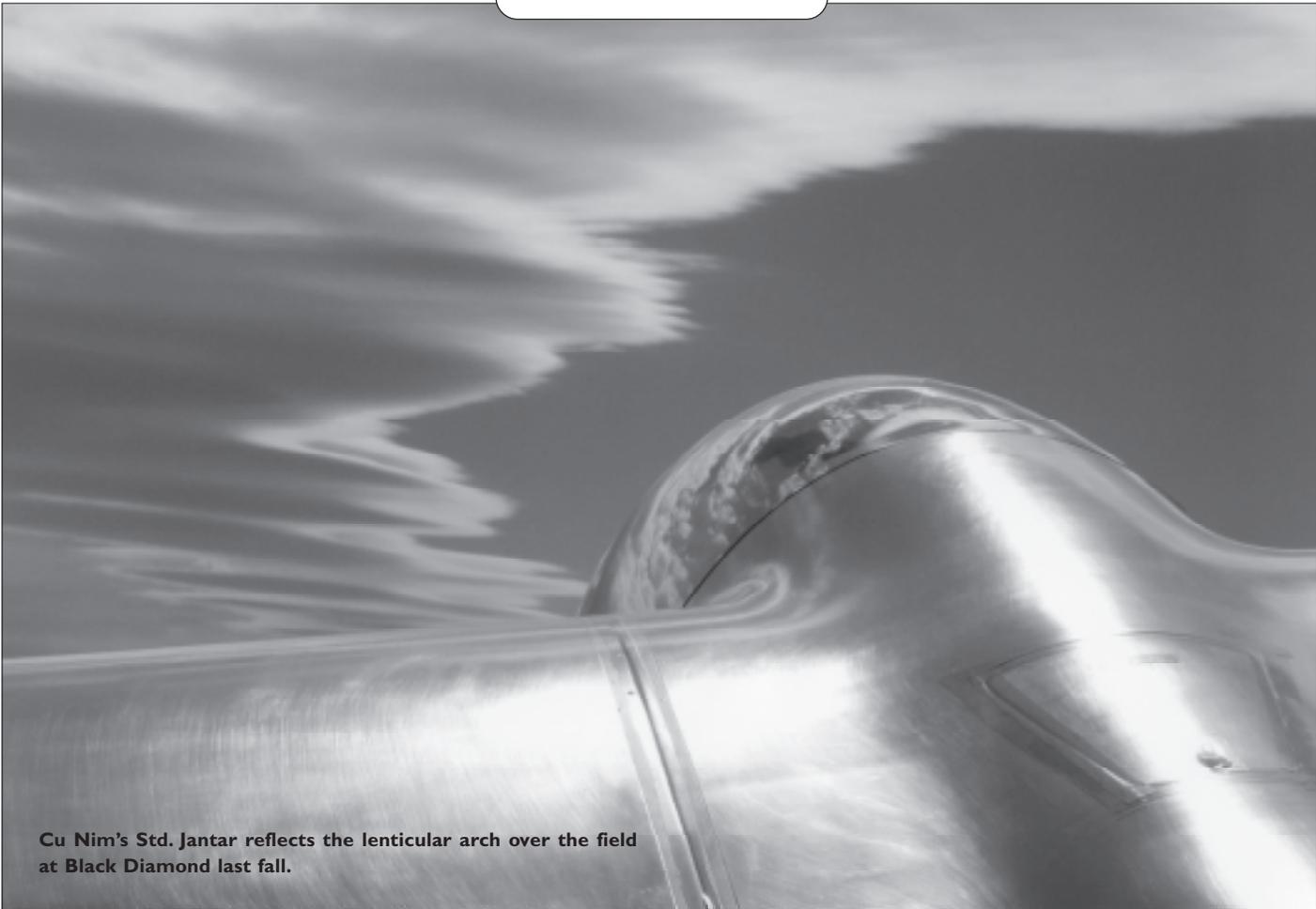
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Joe Gegenbauer landed out his ASW-20 at the gorgeous Jasper airstrip during the '02 Valemount Camp.



Scenes of the West



Cu Nim's Std. Jantar reflects the lenticular arch over the field at Black Diamond last fall.

Dave Bradley

and paraglider pilots to look at the frequency distribution of flights by distance.

The stats showed that the mean distance flown by all entries in the hang glider OLC (HOLC) was only 95 km, and 75 km for paragliders. Not surprising — with a glide ratio about one third that of a sailplane, hang gliders go about a third as far. Based on these averages, I made a proposal to the CIVL Plenary in Guatemala this year, and it was approved unanimously.

The revised badge levels now look like this:

Hang gliders	
distance	Silver 50 km, Gold 100 km, Diamond 150 km
alt. gain	Silver 1000m, Gold 2000m, Diamond 3000m
duration	Silver 3h, Gold 5h
Paragliders	
distance	Silver 30 km, Gold 75 km, Diamond 125 km
alt. gain	Silver 1000m, Gold 2000m, Diamond 3000m
duration	Silver 3h, Gold 5h

With this new, more graduated approach to badge requirements, it is hoped that we will see a resurgence of pilots involved in the FAI badge system.

But more accessible requirements mean nothing if we tie up the pilots in red tape. The CIVL also approved another change: no OO is required for badges. Instead, all that is required is a GPS capable of recording altitude in the tracklog (a simple Garmin Geko will do), and the flight can be submitted through the hang gliding On Line Contest (HOLC). Approval by HOLC is sufficient for flight verification.

Now that the badges have been made more accessible, I'll be looking for a hang gliding Gold badge to go along with my soaring Gold and paragliding Gold. ■

*Come and soar with
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fsacvideo@aol.ca

Website

Tony Burton t-burton@telus.net
Bob Lepp boblepp@aci.on.ca
Martin Vanstone mvanstone@tinc.net

Youth Issues

vacant

3 Sumac Court, Burketon, RR2, Blackstock, ON L0B 1B0
(905) 263-4374, <waltweir@ca.inter.net>

The following badge legs were recorded in the Canadian Soaring Register during the period 1 December 2004 to 21 May 2005.

GOLD BADGE

313 Rodney Morris Rockies

SILVER BADGE

988 Rodney Morris Rockies

GOLD DISTANCE (300 km flight)

Rodney Morris Rockies 316.0 km Discus Omarama, NZ

GOLD ALTITUDE (3000m gain of height)

Rodney Morris Rockies 3540 m Discus Omarama, NZ

GOLD DURATION (5 hour flight)

Rodney Morris Rockies 7:20 h Discus Omarama, NZ

SILVER ALTITUDE (1000m gain of height)

Rodney Morris Rockies 3540 m Discus Omarama, NZ

SILVER DISTANCE (50 km flight)

Angelo Savoia SOSA 59.5 km PW-5 Rockton, ON
Rodney Morris Rockies 94.0 km Discus Omarama, NZ

SILVER DURATION (5 hour flight)

Philip Hinton SOSA 5:04 h SZD Jr. Rockton, ON
Rodney Morris Rockies 7:20 h Discus Omarama, NZ

C BADGE (1 hour flight)

2807 Ambrose McDonald SOSA 1:07 h SZD-50 Rockton, ON
2808 Sean Cappleman SOSA 1:02 h SZD-51 Rockton, ON
2809 Alan Thomson Montreal 2:23 h L-33 Hawkesbury, ON
2810 Rodney Morris Rockies 7:20 h Discus Omarama, NZ

FAI badges for hang gliding significantly changed

Stewart Midwinter, Canadian CIVL delegate

The world hang gliding commission, CIVL, has a system of badges that parallel those set out by IGC. They were originally proposed by Ann Welch of the UK, who brought a number of concepts from gliding to hang gliding back in the 70s and 80s.

Until this year, the Gold and Diamond badge requirements for hang gliders were demanding in the extreme. So difficult were they, that after 25 years only four pilots had ever achieved a Gold badge — and all four pilots flew full time in the deserts of California in order to meet the requirements. Over the same period of time, over 6500 sailplane Diamond badges have been issued.

The Gold badge used to require a 300 kilometre open distance flight *and* a 200 km triangle or out and return flight. Not so hard, you say — sure, if you're flying a sailplane with a 30:1, 40:1, or more glide ratio. Imagine instead that after release from tow your spoilers pop open slightly and reduce your glide ratio to 12:1. Now imagine setting off on a 300 kilometre flight, and you'll get an idea of what hang glider pilots were up against.

Even more absurd was the Diamond badge requirement: 500 kilometre open distance, or 400 a kilometre flight to goal, or 300 a kilometre triangle. Any one of these requirements would be a *world* record. In fact, the only Diamond ever issued was to Larry Tudor of the USA for a 503 kilometre open distance flight out of Hobbs, NM, that took him 11 hours and established a new world record at the time.

Over the past year I took a serious run at the badge requirements. I began with the concept that the badges should step up from easy to difficult in a series of steps. I posited that the Gold badge should be achievable by maybe half the advanced pilots in any one year, and the diamond by 10–15% of them. I analyzed all of the OLC submissions by sailplane pilots, hang glider pilots => **p21**

FAI BADGE SUPPLIES

Order through FAI badges chairman – Walter Weir

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

Note: items 4 and 5 not stocked – external purchase approval is given

1	FAI 'C' badge, silver plate pin	\$ 6.00
2	FAI SILVER badge, pin	\$45.00
3	FAI GOLD badge, gold plate pin	\$50.00
4	FAI GOLD badge, 10k or 14k pin	
5	FAI DIAMOND badge, 10k or 14k pin and diamonds	
6	FAI Gliding Certificate 10 for \$39.00 to clubs	\$10.00
	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

Please enclose payment with order; price includes postage.
GST not required. Ontario residents, add 8% sales tax.

SAC forms (downloadable from SAC web site forms page)

FAI badge application, Official Observer application, Flight trophies,
FAI Records application, Flight Declaration form

ARTICLES FAI POUR INSIGNES

Disponibles au président des prix de la FAI – Walter Weir

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

Les articles 4 et 5 ne sont pas en stock – permis d'achat externe

1	Insigne FAI 'C', plaqué argent
2	Insigne FAI d'ARGENT
3	Insigne FAI d'OR, plaqué d'or
4	Insigne FAI d'OR, 10c ou 14c
5	Insigne FAI DIAMANT, 10c ou 14c et diamants
6	Certificat FAI de vol à voile (recueil des insignes)
	Frais de services pour chaque formulaire de demande soumis
36	Insigne FAI ARGENT, écusson en tissu, 3" dia.
37	Insigne FAI OR, écusson en tissu, 3" dia.

Disponibles au bureau de l'ACVV

33	Insigne FAI 'A', plaqué d'argent (disponible au club)
34	Insigne FAI 'B', plaqué d'argent (disponible au club)
35	Insigne ACVV badge de BRONZE (disponible au club)

Votre paiement devrait accompagner la commande. La livraison est incluse dans le prix. TPS n'est pas requise. Les résidents de l'Ontario sont priés d'ajouter la taxe de 8%.

Formulaires ACVV

Formulaire de demande pour insignes FAI, Observateur Officiel, trophées, records FAI, formulaire de déclaration de vol

Trading Post

Personal ads are a free service to SAC members (give me name of your club). \$10 per insertion for non-members. **Send ad to editor.** Ad will run 3 times unless you renew. Tell me if your item has been sold sooner. Subject to some editing for length (usually 6 lines max).

single seat

Skylark 4B, C-FPNU, 1964, 2138h, #1398. 18m span provides 38:1. Flight computer/final glide calc, Garmin GPS, electric vario, hand held radio, trailer, and all required rigging equip. Absolutely beautiful flying machine & proven Diamond performer. At York Soaring. Asking \$10,000 obo. Peter Luxemburger, <iluv2soar@yahoo.ca>. Photos on request.

1-26, CF-ZDD, #73, 1958, 3466h, good flying cond. Price includes open trailer, basic inst. \$5000 obo. At Pendleton, ON. Contact Ian Grant, <granti@igs.net>, (613) 737-9407.

K8, C-FRCE, #526, blown canopy, instruments and radio, trailer, current CofA. \$7000. Charles Yeates, (902) 443-0094, <yeatesc@ns.sympatico.ca>.

HP11A, 1969, modified, 200h, NDH. Retractable nose gear. Fully equipped except for flight computer, Schreder trailer, O2, bailout bottle, ground radio, two chutes, tools and misc. parts. \$US15,000. <dahlem@sasktel.net> (306) 955-0179.

HP-14T, C-FAXH, 1480h, glider & trailer in good condition. Trailer very stable when towing. New MicroAir 760 with boom mike, ILEC SB8, ELT, O2, new winglet fences. Low maintenance A/C giving good bang for your dollar. E-mail me for current photos. Asking \$19,300. <spencer.robison@rogers.com> (416) 620-1218.

Phoebus B1, C-FGBH, 1025h, good cond, basic inst. radio, O2, chute, one-man rigging & tow-out gear, trailer. \$15,000 obo. Imre Bereczki, <mbereczki@sympatico.ca>, (519) 842-5463.

Std Cirrus, C-GEOD, 1800h. Refinished. Microair radio, elec and mech vario on good TE probe, connections and mounting for Volkslogger and PDA, O2, wing wheel, tow-out bar, trailer nice to tow. Easy flying, great thermalling glider for the low price of \$25,000 obo. Many photos by e-mail on request. Al Hoar, (403) 288-7205, <gwen.al@shaw.ca>.

ASW-15, C-FBEQ, 1846h, built 1970. All ADs done, one-man rigging device and towout gear. 720 chan radio, O2, barograph, chute, CofA to July 05. Factory trailer, excellent finish. Estate settlement \$10,000 (best bargain in years). Tom Foote, (902) 466-2906.

Hornet, C-GQMB, #87, 3440h Blumenauer EFA1 electric vario and flight computer, Sage mechanical vario, 760 chan radio and boom mic. Wings refinished in 92, fuselage refinished in 02. Trailer in vg cond. Asking \$21,500. John Brennan (519) 856-0033 <hornet@sosaglidingclub.com>.

ASW-17, N71KS, 1050h, historic glider, completed first ever 1000 mile flight in history, 48:1, 20 and 15 metre tips, refinished, new instrument panel, LX5000, chute, XL water bags, Blanik main wheel, great rigging aids, trailer and tow-out gear, covers \$US27,000, contact Ray at (519) 752-4485 or <wgm@bellnet.ca>.

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-55, C-FTVS, 1996, low time high performance Standard class sailplane in like-new condition. Never damaged, never tied down outside. Trailcraft clamshell trailer, full instrumentation, radio, Win-pilot flight logging and calculator system. \$60,000. Colin Bantin <ccbantin@sympatico.ca>.

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 Soaring. \$42,000. Peter Luxemburger <iluv2soar@yahoo.ca>

towplanes

L-19, 4250h, 1290h engine SOH, O-470-11B, 217 hp. Full history, in service, fresh annual. At VSA, club downsizing. Asking \$60K. Dave Baker (604) 541-7671, <sezpilot@yahoo.ca>.

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 filets, 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. \$US21,000. John Firth, (613) 731-6997, <firsys@magma.ca>.

K7, either C-GALN #772 or C-GRGD #536, blown canopy, instruments and radio, trailer, current CofA, \$11,000. Charles Yeates, <yeatesc@ns.sympatico.ca>, (902) 443-0094.

Lark IS28-B2, C-GVLI, #67, 1800h, basic inst, Cambridge vario & repeater, Varicalc computer, Alpha-100 radio, g-meters, professional open trailer. 20 year inspection/o'haul in '99 at 1585h. Best offer. Matt Chislett, (204) 254-3767. More info at: <www.autobahn.mb.ca/~mbc/Lark%20advent.htm>.

Blanik L13, 2240h. All control surfaces recovered Ceconite 1993, annual due Aug 05. Radio, TE vario/ audio, open trailer. Needs new cockpit upholstery for that young and classy look. Picture on <www.flymsc.org>, photos/media/club gliders section. \$17,000 obo. Mark Lussier <mar.lus@sympatico.ca>.

misc

Parachute, Security 150, April 04 repack. Best offer. Mike Glatiotis, (250) 354-0308 <mike-deb@shaw.ca>

Ilec SN10 ft comp with remote control and **Volkslogger** both for \$4200. GPS moving map display, AAT calcs, emerg landing field func, final glide comp. One of the best electric varios avail. Save \$600 plus taxes over new SN10, easy upgrade to SN10B. Dave Springford (519) 884-4242 <ls6b@rogers.com>.

Zander SR 940, Flight computer connected to Cambridge GPS Model 25 with Navigation display. Features: wind, final glide, super E-vario, averager. audio, best L/D, and statistics. Wilfried Krueger, <Wkrueger@cogeco.ca> (905) 845-7825.

Scheibe **L-Spatz 55**, Schleicher **K7**, and **American Eaglet** motorglider kit. Eaglet and K7 are projects. Spatz may need work? Located in Nova Scotia. No trailers. Info plus gliding related items listed at <http://home.cogeco.ca/~yard_sale/> Peter Myers, (613) 531-9364, <petermyers@cogeco.ca>.

magazines

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

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.

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. Bimonthly. US\$45 per year airmail, US\$35 surface. <beverley@gliding.co.uk>

VOL À VOILE — une publication bimestrielle éditée par Aviasport. 300 F les 6 numéros. Tel 01 49 29 44 22 <info@volavoile.com>.

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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 <bonnifut@magma.ca>.

Schempp-Hirth Sailplanes, glider importation and brokerage, **Strepla**, and **Winpilot**. Ernst Schneider, (250) 270-9009, <ews@ews.ca>.

Solaire Canada LS series of sailplanes, LX glide computers, Dittel radios, Colibri FRs. Ed Hollestelle, <solairecanada@sprint.ca>, (519) 461-1464.

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