

free flight libre



2012
Summer



Priorities

David Collard, SAC Treasurer

WHAT AN APPROPRIATE WORD PRIORITIES IS as an opener for a discussion on issues that continue to surface from members and were agenda topics at the last SAC AGM in Hamilton in March. What is SAC doing for “me” and what value do I get for my SAC membership fee? An article on page 24 by John Toles, our past president, outlines the SAC committees and their areas of responsibility. All are volunteers and provide an invaluable service to every SAC member. These are the primary areas of SAC’s effort at the national level:

Flight Safety should be the first priority of every flight and club flight operation. “Think Safety” – are you thinking about the risk factors for your flight and attempting to reduce them where possible? Or are you flipping the coin: “Heads I win – tail I lose”. A better approach is having an out – “Heads I win – tails I have considered a way out of a potential problem”. If the first, then the odds are that the end result will be the old saying about running out of altitude and ideas all at the same time. I encourage all clubs to implement the SAC Safety Management System program, and each member to attempt to make each of his/her flights the most safe, all risks considered.

SAC Membership Declining numbers are a worldwide problem. What efforts are “you” making at the club level to get and keep members? An example of what Gatineau Gliding is doing is on page 4, by Douglas Laurie-Lean. I asked Doug to do this article as an example of what a large club has been doing to address this common club problem. A further example, a small club’s effort, is on page 27 by John Toles, CFI of Saskatoon Soaring.

Member recruitment & advertising at the national level and at the club level? Montreal Soaring Council has submitted three excellent articles by Bob Katz for the April, May, and June issues of the COPA magazine, *FLIGHT*. This was directed at the power pilot community in an effort to attract new members to soaring. The SAC Marketing committee also placed a ½ page advertisement in the June issue, inviting power pilots to contact SAC if they wish to pursue our sport. Any leads will be passed on to the appropriate SAC club.

Member retention Do you have mentoring programs in place to ensure a new member has a *reason* for wanting to continue showing up at the field? The initial purpose is getting to solo and licence; after this accomplishment, then what? Does the club have the equipment allowing the members to progress or are they expected to purchase their own glider? This is a challenge for many and maybe a reason to not start in the first place or to leave the club.

Volunteers Our sport is by and large a solo activity, appealing to capable individuals who welcome the challenge. At the same time our clubs require a team effort to be successful. In any endeavour, be it a commercial business or a club, success is very dependent on good leadership. Business has the need for a profit to help motivate activity; what is ours?

Club motivation Is the goal to get more members to share the fixed costs and workload? In some cases no agreement is reached to expand membership or acquire new equipment. In some cases this disagreement on goals has caused such animosity that the club is no longer active. Each group has “won the battle but lost the war. Not good!

- *Your club model* – If it has been in place for a number of years, is it still appropriate in the current economic environment and changing demographics? Many sell the sport as being less expensive than power flying – is this still a valid statement if one takes into consideration busy lives and all the other activities youth have available? All day at the glider field for one flight is *very* expensive in time. For those who are passionate about our sport, this time to participate is acceptable. Maybe many potential members do not feel the same way we do and we are challenged to understand why.
- *Change* – In the past ten years SAC membership has declined by about one quarter. Clubs in general have followed a repetitive pattern in their efforts to attract and retain membership. Are we doing the same things over and over and expecting a different result? If we are to accomplish the growth and retention that clubs desire, I believe we need to leave our egos at the door and encourage harmony and cooperation by all members. SAC is a bottom-up organization, with each club responsible for its operation. YOU are the ones at the club level that need to carry the ball.
- In closing, the primary question I ask is this one: Is “your” club a happy place to be and as a club member are “you” giving back more than you take? ❖

free flight

2012/3 – Summer

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

ISSN 0827 – 2557



gliding membership & retention	4	internationally and what Gatineau is doing ♦ <i>Doug Laurie-Lean</i>
the “accidental” 2070 km flight	6	the first for Canada ♦ <i>Brian Milner</i>
waiting for a window	11	free triangle distance record at GGC ♦ <i>Nick Bonnière</i>
a US Nationals win	12	a US 15m Nationals win for Worlds practice ♦ <i>Jerzy Szemplinski</i>
why compete?	14	the rationale for the beginner ♦ <i>Tim Martin</i>
simulator in a box	16	a realistic, compact and economical simulator ♦ <i>Dan Cook</i>
how horizontal gusts deceive	17	TE variometers ♦ <i>Mike Borgelt</i>
when dehydration isn't	18	all about isotonic volume loss ♦ <i>Dr. Daniel Johnson</i>
Uvalde	20	Canadian team update ♦ <i>Dave Springford & Art Grant</i>
avoiding airsickness	22	going easy on your passenger ♦ <i>Ken Armstrong</i>
SAC – what and why	24	structure and member support ♦ <i>John Toles</i>
... about Free Flight	25	the future editor and magazine costs ♦ <i>Tony Burton</i>
Oscar Boesch	28	obituary ♦ <i>Marin Bolkovic</i>



1 June. Cu Nim's new DGI000S on one of its inaugural flights that day in an active sky. Both are beauties.
photo: Sandy Stevenson

DEPARTMENTS

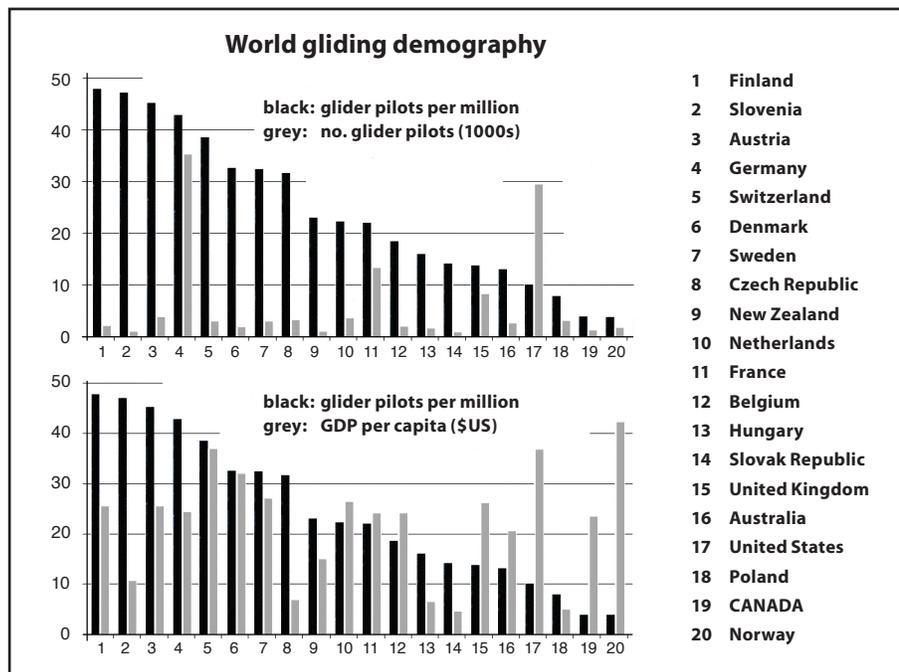
- 26 **Miscellany** — how do you say “glider” in Hungarian?, wrestling with units, Saskatoon Soaring - marketing a small club
- 30 **Badges and Records**

Gliding membership and retention

Doug Laurie-Lean, Pres. Gatineau Gliding Club

GLIDING IS 116 YEARS OLD and began with the 2500 leaps of faith by pioneer Otto Lilienthal from hills around Berlin, and became a sport between the two World Wars when a group of High School students from Darmstadt built their own gliders and began flying them at the Wasserkuppe, the Mecca of gliding aviation. Gliding as a sport almost attained Olympic status in the late 1930s, but was prevented by WWII. After WWII, the sport of gliding resumed and blossomed, and with the advent of lightweight and strong materials such as fibreglass and carbon fibre, together with refined aerodynamic designs, the modern sailplane is a highly sophisticated aircraft capable of routine cross-country flights up to 1000 km, and absolute world record flights of just over 3000 km.

Gliding demographics The charts below show the extent of gliding activity in the countries around the world that are active in the sport. The statistics are from 2005; however, the relative trends are still typically current. The upper chart compares the number of glider pilots in each country to the population density of glider pilots per million of the population. The lower chart lists the countries in order of population density of glider pilots compared to the GDP per capita (\$US). This is a measure of the average wealth of the population, hence an indication of the potential for individuals to afford gliding as a sport.



Observations from the demography

- The majority of countries have less than 3-4000 glider pilots, and the four countries with much larger number of glider pilots are Germany (35,236), USA (29,390), France (13,300), and the UK (8,341) – each of these have a history of gliding and aviation dating back to the early pioneering period. It is interesting to note that although the USA has the second greatest number of glider pilots, its pilot population density is only 17th in the list.
- Canada ranks 19th in population density, and although it has a great pioneering history of aviation (bushplane flying), it has a limited gliding season that lasts typically from April to October. Interestingly however, Scandinavian countries also with similar winter climates lead Canada in this regard such as Finland (1st), Denmark (6th), and Sweden (7th).
- There are at least six countries with a population density greater than Canada that have a much lower average GDP per capita, so it would appear that cost is not a factor for them, but most of these were former Eastern bloc countries with state-supported gliding.
- Gliding clubs tend to be within range of larger metropolitan areas. As an example,



SOARING ASSOCIATION of CANADA

is a non-profit organization of enthusiasts who seek to foster and promote all phases of gliding and soaring nationally and internationally. 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 the 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, published quarterly.

Material published in *free flight* is contributed by individuals or clubs for the enjoyment of Canadian soaring enthusiasts. The accuracy of the material is the responsibility of the contributor. No payment is offered for submitted material. All individuals and clubs are invited to contribute articles, reports, club activities, and photos of soaring interest. An e-mail in any common word processing format is welcome (preferably as a text file). All material is subject to editing to the space requirements and the quality standards of the magazine.

Photos: send unmodified hi-resolution .jpg or .tif files.

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 communicate with their Zone Director.

Material from *free flight* may be reprinted without prior permission, but SAC requests that both the magazine and the author be given acknowledgement.

For change of address and subscriptions for non-SAC members (\$30 or \$55 for 1 or 2 years, US\$35/\$60 in USA & overseas), contact the SAC office at sac@sac.ca. Copies in .pdf format are free from the SAC website, www.sac.ca.

President	Sylvain Bourque
Vice President	John Mulder
Treasurer	David Collard
Secretary	John Mulder
Office:	SAC office 71 Bank Street, 7th floor Ottawa, ON K1P 5N2
Office Manager	Tanya Storing
tel: (613) 236-4901 ext. 109	
fax: (613) 236-8646	
e-mail: sac@sac.ca	
website: www.sac.ca	

Deadline for contributions:

10 March, June
September, December

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.

free flight est le journal officiel de l'ACVV publié trimestriellement.

Les articles publiés dans *free flight* proviennent d'individus ou de groupes de vélivoles bienveillants. Leur contenu n'engage que leurs auteurs. Aucune rémunération n'est versée pour ces articles. Tous sont invités à participer à la réalisation du magazine, soit par des reportages, des échanges d'idées, des nouvelles des clubs, des photos pertinentes, etc. L'idéal est de soumettre ces articles par courrier électronique, bien que d'autres moyens soient acceptés. Ils seront publiés selon l'espace disponible, leur intérêt et leur respect des normes de qualité du magazine.

Des photos, des fichiers .jpg ou .tif haute définition et niveaux de gris peuvent servir d'illustrations.

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

Les articles de *free flight* peuvent être reproduits librement, mais le nom du magazine et celui de l'auteur doivent être mentionnés.

Pour un changement d'adresse ou s'abonner à la revue, communiquez par sac@sac.ca. Le tarif d'abonnement est de 30\$ pour 1 an et 55\$ pour 2 ans. Pour l'extérieur du Canada, le tarif est de 35\$US pour 1 an et 60\$US pour 2 ans. La revue est disponible gratuitement, en format "pdf" au www.sac.ca.

EDITOR

Tony Burton
Box 1916 Claresholm, AB T0L 0T0
(courier service to 335 – 50 Ave. W)
phone (403) 625-4563
e-mail t-burton@telus.net

copy proofing – Ursula Wiese
French content – Sylvain Bourque

ADVERTISING/SUBSCRIPTIONS

SAC office (613) 236-4901 ext. 109
e-mail sac@sac.ca

Date limite:

10 mars, juin
septembre, décembre

Ottawa has two clubs with about 100 flying members for a population of the greater area of around one million. This gives a population of about 100 per million which is about three times the national average. Therefore, although Canada is a large country, it has a limited number of larger cities to act as similar nuclei for gliding movements.

Club atmosphere People who join a gliding club to learn to fly typically drive about 1-2 hours to the airfield and can expect one to three instructional flights per day, each of which lasts about 30 minutes. Therefore, factors that encourage joining and in particular, retaining membership in a club, include:

- Advertising and marketing the sport.
- A culture of inclusiveness.
- A good student rate of progress.
- Hierarchical levels of progress, from solo to licence, and to higher performance gliders.
- A good, club-based cross-country flight mentoring program.
- Club facilities and social events.
- A family environment.

Youth involvement Even with half-price student membership, the cost of glider training is too expensive without parental support. However, some entry into the sport is facilitated through youth movements like the Air Cadets, and through flying scholarships. The Gatineau Gliding Club (GGC), as an example, tries to award up to four such scholarships per year, valued at \$1000 each. These include the Adam Sneyd award from a trust fund in memory of a 16-year-old pilot who died of cancer, and up to three SAC flying scholarships, which are cost-shared equally between SAC and the club.

Ground school The two Ottawa area clubs run a Glider Pilot Licence ground school each winter, but only about a third of these students use the included complementary flight in the spring, and fewer yet actually join one of the clubs.

Advertising and visibility The sport of gliding, unlike hang gliding, is not high on the awareness of the Canadian public, but over the past eight or nine years GGC has raised this awareness through its *Freedom's Wings Canada* program providing free, therapeutic and inspirational flights for people with physical disabilities. In collaboration with the Paraplegic Association of Ontario (CPAO) and the Ottawa Rehabilitation hospital, the club through its volunteer efforts is seen to be putting something back into the community. In addition, the club usually flies a celebrity person with disabilities during the Canada Day celebrations at the Rockliffe airport in collaboration with the Canadian Aviation and Space Museum. In the past these have included:

Rebecca Kadloo, a young Inuit girl with meningitis
MCpl Paul Franklin who lost his legs to an IED in Afghanistan
Scott Richardson, Captain of the Paraplegic Hockey Team
Justin Hines, Pop singer and song writer, and,
Six young disabled Canadian Forces (CF) soldiers from Afghanistan.

This has included coverage on both English and French CBC radio and TV. GGC also participates with the static display of a glider at the Vintage Wings airshows, twice per year at the Gatineau Airpark, where it gets large public visibility. GGC was also listed amongst the top 50 finalists in the *Champions of Change* program organized by the CBC in 2010, as a result of its involvement with *Freedom's Wings*, and we appeared on prime time TV.

Conclusion Gliding needs better approaches to raising public awareness through advertising our sport, which incidentally costs about the same amount of discretionary spending as golf. However, we need to provide a better environment of inclusiveness once people do visit the club, and this involves mentoring in all the supporting activities, such as minor maintenance and flightline management, etc. However, in spite of all the foregoing activities, GGC still experiences an annual membership turn-over of 10 to 20%.

Freedom's Wings provides free inspirational flights for people with disabilities and the costs of the aerotows are refunded to the club from the *Youthflight Canada*, supporting charity. This involvement in outreach to the community requires a certain level of volunteer involvement by the club but, besides being rewarding in itself, does provide excellent public awareness of our sport.

the “accidental” 2070 km flight

Brian Milner

in 1983, I had the honour of flying the first Canadian 1000 km in my Jantar

Since then, I and many other glider pilots have been trying to break the 2000 kilometre barrier. That earlier flight was also flown along the Allegheny Mountains that run in an “S” curve from central Pennsylvania all the way into northern Georgia as the illustration shows.

There is an almost continuous line of ridges that run from Williamsport, PA down to Knoxville, TN – used by the “Ridge Runners” for many record distance and speed flights. At Williamsport, the ridge runs almost due east to west and needs winds with a “northerly” component to work well. The section from Altoona swings more to the south and ideal winds for this section are westerly. Further south in Virginia, the ridges turn more westerly and again winds with a northern component work best.

Winds above 25 knots at 3000 feet and 310 degrees are sufficient to give useable lift over the whole length of the ridges. This usually requires a low over Southern Ontario or Quebec and a high over Georgia to give suitable winds over this 500 mile area. Conditions such as this for long flights only appear every three or four years and you have to be ready and available. In my case business issues have always interfered and I have always had to let previous opportunities pass.

The US 15m Nationals were at Mifflin, PA soon and Cheri and I arrived on 9 May hoping that would give us enough time to get our motorhome prepared and the glider ready. Up until this time I had not looked at the weather and had no idea of what to expect in the next few days. Also, I had never flown my Ventus 2cxT in the 15 metre configuration.

Late that afternoon, one of my friends was talking to me and mentioned that they expected ridge winds out of the northwest the next day – had I made any plans for long flights? I said no; however, when I finished dinner that evening I did check the weather and found that the winds over the whole length of the Allegheny range were forecast to be 310 to 320° and 25 kts in the north and 15 kts in the south. This got me somewhat excited and I got out my computer and checked some of the tentative flights that I had planned for different records. The winds were forecast to stay northwest for all of the next day, although the northern end near Williamsport was expected to start the day more westerly.

One of my longtime ambitions has been to fly a 15m Out & Return world distance record. Flying from the extreme

north end of the ridge to a point about 100 miles southwest of Knoxville and returning to the start point would give me that record. The section from Knoxville to the turnpoint and back would be a thermal flight as the ridges are too low to be useable there.

I checked with Tim Wells and he was willing to be my OO, so we loaded that task into the *ClearNav*, rigged the glider and filled it with water. We left it outside that night as the weather was expected to be benign. I called Brian Glick in the evening to see if he was available for a dawn tow in the morning. Yes, he would see me at 5:30 the next morning. The tow would take me to Williamsport with the release at 6000 feet.

I would have to be up early to check the weather. At 4 am it showed that the winds at Williamsport were not quite aligned with the ridge, were two hours old, and reported as 260° on the ground so would not work well. The winds at Altoona were 310° at 15 knots and Tri-Cities (at the south end of the ridge) was reporting northwest winds at 10 knots. The winds from Lock Haven south looked like they would work and the winds down at Knoxville were forecast to be quite light at about 10–15 knots. The one thing I did not check, due to the hurry to get going, was the rain and cloudbases enroute, all I was concerned about was the winds – that was a big mistake!

Brian arrived at 05:30 and we actually got off the ground at about 05:58, which was well past dawn and we could have actually started the flight at least 15 minutes earlier in legal daylight. The sky was clear, there were no clouds and the tow to Williamsport was routine and smooth. I released at 06:27 at 6100 feet, did a quick engine run so the engine noise would show on the barograph, shut the engine down, and dived through the start gate aiming to be below 5000 feet when I went through the gate (about 3000 above ridge top).

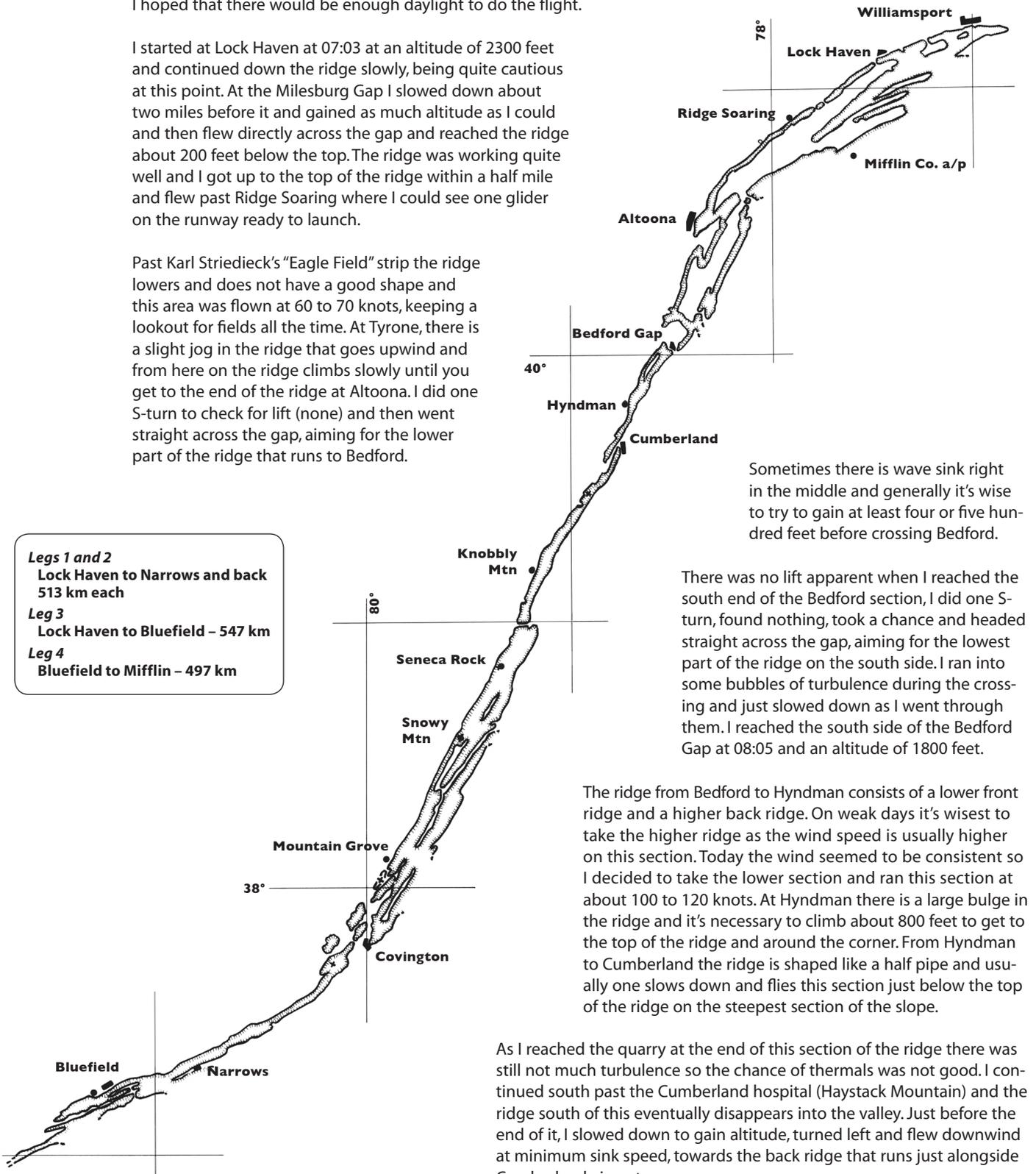
I started at 06:35 and an altitude of 4000 feet. As soon as I was through the gate I pulled up to get as much altitude as possible and started to glide towards Lock Haven. I made a huge tactical mistake then – I flew way too fast during the first half of this leg and lost too much altitude. The result was that by the time I was three miles short of Lock Haven I was actually below the ridge and the ridge was not working at that point. This killed dead my record flight attempt! There was no way I could fly back to Williamsport and do the same flight and still have enough time after a restart.

I had looked at other plans and thought that I could do a long 3TP out-and-return flight and possibly beat the 2000 km mark. I started the engine at Lock Haven and while I was climbing back to ridge altitude entered the following task: Start point "Lock Haven"; first turnpoint "Narrows"; returning to "Lock Haven" for the second turnpoint, south again to the country club at "Bluefield" for the final turn, then back to "Mifflin County Airport". The course length was 2070 km and I hoped that there would be enough daylight to do the flight.

I started at Lock Haven at 07:03 at an altitude of 2300 feet and continued down the ridge slowly, being quite cautious at this point. At the Milesburg Gap I slowed down about two miles before it and gained as much altitude as I could and then flew directly across the gap and reached the ridge about 200 feet below the top. The ridge was working quite well and I got up to the top of the ridge within a half mile and flew past Ridge Soaring where I could see one glider on the runway ready to launch.

Past Karl Striedieck's "Eagle Field" strip the ridge lowers and does not have a good shape and this area was flown at 60 to 70 knots, keeping a lookout for fields all the time. At Tyrone, there is a slight jog in the ridge that goes upwind and from here on the ridge climbs slowly until you get to the end of the ridge at Altoona. I did one S-turn to check for lift (none) and then went straight across the gap, aiming for the lower part of the ridge that runs to Bedford.

I reached the Bedford ridge level with the top of the lower section at 07:59 and an altitude of 2660 feet and flew down the Bedford ridge running at 120-130 knots. At this time of the morning there are usually few thermals so the ridge lift was quite smooth. The Bedford Gap is notorious for being a trouble spot.



Sometimes there is wave sink right in the middle and generally it's wise to try to gain at least four or five hundred feet before crossing Bedford.

There was no lift apparent when I reached the south end of the Bedford section, I did one S-turn, found nothing, took a chance and headed straight across the gap, aiming for the lowest part of the ridge on the south side. I ran into some bubbles of turbulence during the crossing and just slowed down as I went through them. I reached the south side of the Bedford Gap at 08:05 and an altitude of 1800 feet.

The ridge from Bedford to Hyndman consists of a lower front ridge and a higher back ridge. On weak days it's wisest to take the higher ridge as the wind speed is usually higher on this section. Today the wind seemed to be consistent so I decided to take the lower section and ran this section at about 100 to 120 knots. At Hyndman there is a large bulge in the ridge and it's necessary to climb about 800 feet to get to the top of the ridge and around the corner. From Hyndman to Cumberland the ridge is shaped like a half pipe and usually one slows down and flies this section just below the top of the ridge on the steepest section of the slope.

As I reached the quarry at the end of this section of the ridge there was still not much turbulence so the chance of thermals was not good. I continued south past the Cumberland hospital (Haystack Mountain) and the ridge south of this eventually disappears into the valley. Just before the end of it, I slowed down to gain altitude, turned left and flew downwind at minimum sink speed, towards the back ridge that runs just alongside Cumberland airport.

The next section of ridge is the dreaded "Kaiser Knobblies" and they can be very difficult to transit. My habit in the past has been to thermal as high as possible after passing Cumberland and getting onto the back ridge, then thermalling for the next 20 miles until I'm well past the Knobblies. Today there was not much chance of thermals but the wind was blowing quite steadily and I decided to take a chance on ridge soaring my way through here.

Initially I stayed on the back section of the ridge which is a little higher than the front section although there is nowhere to land. After about 10 miles it ends, forcing you to use the front ridge which at this point is about 600 feet above the valley floor. There are a few places to land in this area and as long as you keep a good eye on the landing spots it is not that dangerous to transit at this altitude. After Kaiser there is a section of ridge about 5 miles long that is quite high and then drops down again to form some low ridges where it is necessary to slow down and fly carefully. Once past this low spot the ridge climbs and becomes quite high again and, by the time you reach the Petersburg Gap, is about 2000 feet above the valley floor. I call this section of the ridge "Walt Disney North" as the rock formations you fly by are absolutely fantastic.

As soon as I reached the high ridges closer to Petersburg I upped my speed to 120-130 again. The section from Petersburg to Snowy Mountain is very high and rugged, you pass Seneca Rock on your right, which is a spectacular vertical outcrop as it sticks out of the ground and is about 600 feet high. Just before Snowy Mountain there is a section of ridge that jumps out at 90° to the main ridge and sometimes it is quite difficult to ridge soar around the end of it. Today I was lucky and gained some altitude as I approached it and just flew directly across. (This is where Dale Kramer crashed a few years ago and was on the ridge overnight in heavy snow.)

From this point southward we are downwind of Snowy Mountain. Because it is a much higher single mountain upwind of the ridge, quite often there are downdrafts, turbulence, and wave sink that can kill the ridge lift here. I was lucky; while there was turbulence, there was no major sink. The next section down to Mountain Grove is routine and again was run at high speed and I reached Mountain Grove at 09:28, and found my first thermal of the day, climbed 800 feet in a 2 to 3 knot thermal and then headed directly across the lake.

This is the Covington Gap area that is about 20 miles across. The safe (but slow) way across is to drop back one section of ridge, ridge soar past Covington on the high ridges, then climb high enough so that you can penetrate forward to the main ridge again south of Covington. This gap does have small sections of continuous ridge in the middle but they are very low and it's generally not wise to try to ridge soar them.

Today after climbing a couple of thousand feet, I decided to go straight across the gap and reached the larger ridge in the middle at ridge top height and then soared south past Covington and gained altitude on the highest section of ridge. This section of ridge is actually the wrong one and when you get to the end of it you have to jump one ridge

downwind to reach the main ridge to continue south. I did the downwind crossing at 09:46 and once back on the main ridge pushed the cruising speed up to 120 to 140 knots, depending on how high the ridge was.

South of Covington the sky was fully overcast and cloud-base was lowering all the time. Ten miles south of Covington the ridge was in the clouds and it was necessary to duck under patches of low cloud that was part way down the ridge and then climb back up to ridge top as clouds cleared. There was no rain but the continuous cloud layer was getting lower and lower. By the time I approached Narrows the top of the ridge was solidly embedded in cloud and when I got to the gap there, I still had about three miles to penetrate downwind to make the turnpoint, which I made at 10:05. I slowed down and flew as slowly as possible and headed back towards the main ridge, reaching it about 300 feet below the top and it was still working well for me at this height.

It was just as well that I had cancelled the original long out-and-return task, as it would've been impossible to fly much further south of here. Even though cloudbase was expected to go up later in the day, it would not have been possible to get safely down to Knoxville and thermal the rest of the way.

As I started back north from Narrows I checked the time to finish the task on the *ClearNav*, and it said that I would get back to Mifflin at about eight o'clock that evening. The thought that I still had 1500 kilometres to go was quite daunting and quite frankly I didn't think I had a chance in hell of finishing the task.

Going back north I was cruising at 140 to 150 and as I reached Covington, I flew too far up the main ridge and missed the jump point to get past the gap. Now I had to backtrack and do S-turns to try and gain some altitude and then jumped forward onto the front ridge. I made it and snaked around the end of the ridge about 500 feet below the top. I headed north, climbing slowly and reached the top of this ridge and rather than heading straight out across the gap, climbed about 500 feet in a weak thermal, and then headed towards the lake at Mountain Grove.

I just made the low ridge south of Mountain Grove, right by the lake, and climbed up the top of the ridge and continued north for a few miles and then I realized that I was on the *wrong* ridge and now needed to penetrate quite a way upwind. I had to backtrack a few miles, then gain altitude, headed into wind and managed to get across to the main ridge with not much problem.

From Mountain Grove to Snowy I was running quite fast in growing turbulence. This was good news since the turbulence indicated that there would be thermals to help me back across the Knobblies.

I passed the Petersburg Gap and started down the hill onto the Knobblies and was able to cruise easily through this area by just bumping a few thermals now and again and ridge soaring between them. Again at Cumberland I went too far up the ridge and ended up backtracking



Maria Szemplinska

about three miles and then penetrated forwards toward Haystack Mountain south of the hospital. This ridge was working quite well and seemed very consistent.

I flew the round section from Cumberland to Hyndman as fast as I could and at Hyndman stayed high and managed to bump right over the top of the ridge, turned right and followed the high ridge towards Bedford.

Just before Bedford we perform what Karl Striedieck calls "yank and bank". What actually happens is that just before Bedford you pull up in some lift, then make a hard right and fly downwind to the next ridge and you usually arrive at the ridge top.

While it looks very intimidating, in fact it is quite an easy transition.

This ridge leads right into the back of the ridge at Bedford and, as you reach the end of this section, a ridge runs due west towards the main Bedford front ridge. The procedure here, if conditions are right, is to literally fly right over the ridge ahead of you, turn slightly right and drop back to Tussey Mountain.

As I flew north on Tussey I could see rain showers building off to the west and hoped I would be able to avoid them. However as I got closer to State College I realized I was going to get wet. As I got to the area of Tussey downwind of State College there were very heavy rain showers there. I took a chance and flew right into the rain, penetrating upwind to Nittany Mountain. Luck was with me and I reached Nittany only a couple hundred feet below the top of the ridge.

I ran out of the rain just north of the gap and there were clear skies ahead of me. I flew north on Nittany ridge and reached the area downwind of Lock Haven. At this point the Nittany ridge ends and joins the main ridge but there is a jumble of ridges that you have to jump to get onto the main ridge at Lock Haven. I flew around the end of the jumble and bumped some thermals and then flew through the gap at Lock Haven and made the front ridge with no problem.

I climbed up to the top of the ridge, flew out over the airport and made the turn at Lock Haven at 13:12 and

1740 feet and turned back to the ridge top, cruised north along the ridge, picked up a small thermal and then flew right back over to Nittany Mountain again to begin the third leg of the task.

I flew down the front section of Nittany and reached the south end at State College at 13:33. I didn't even try to thermal this time, I just left the end of the ridge and flew downwind to Tussey Mountain, got there at 2130 feet and then started cruising quickly south.

Behind Altoona two ridges join together and it's necessary to penetrate forward about two miles to get on to a very low section of ridge that will take you around the corner and back on to Jacks Mountain. As you follow Jacks Mountain south you get to the location we call "The Wall", which is where we try to jump forward and get on the ridge behind Bedford. To do this, experience taught me that you have to be able to gain about 500 feet to make the into-wind penetration. There was no lift obvious when I reached this point and I didn't want to waste time looking for a thermal, so continued south on Jacks Mountain.

At the end of the mountain there is a very difficult point to pass as you have to penetrate into wind and climb up over a ridge while suffering some downwash from it. Again, gaining 500 feet in a thermal is usually required at this point to make the safe crossing. I managed to make this crossing using patches of ridge lift and weak broken thermals and squeaked around the end of the high ridge and started heading south again.

This ridge ends about ten miles short of Cumberland and there is no way to get to Cumberland other than by soaring. As I reached the end of the ridge I realized the turbulence had stopped and it was quite smooth and I was going up 2 kts. I had run into a bit of wave. Turning back and making some S-turns in weak wave gained me enough altitude to get past Cumberland airfield and make the ridge behind Cumberland at 14:38.

I used the same techniques as earlier to cross Kaiser and stayed on the back ridges and flew conservatively to gain as much altitude as possible and then transitioned forward to the low ridge and flew slowly south until the ridge started to climb again. I reached the Petersburg Gap at 15:03 and continued south to the section by Snowy Mountain and again managed to gain enough altitude to fly right over the bit that headed into wind. I reached Snowy Mountain at 15:24 and 4420 feet so was moving along extremely well.

I continued south flying as fast as I possibly could in the turbulence that was now becoming extreme and everything in the cockpit was flying around. I had both hands on the stick and my legs had cramps and spasms and my right arm was aching fiercely from hanging on to the stick. Earlier I had opened a bag of trail mix and the turbulence whipped it out of my hand and it landed behind me somewhere. From then on every time I hit a large negative "g" bump it snowed nuts, raisins and bits of chocolate up both sides of the cockpit, crossing over and disappearing down both sides of my legs. Every so

often a raisin or nut would land on my belly and I could have a snack. I take granola bars with me as my main staple while flying. I have two gallons of water in bags and each bag has one bottle of Gatorade added to help replenish electrolytes.

I reached the lake at Mountain Grove (the north end of Covington) and dropped back one ridge, climbed a little and then headed for the hills in the middle of the Covington and reached the high one at 15:31. I followed the ridge southbound climbing slowly until I got to the transition point where I needed to drop downwind to get onto the main ridge. I made the transition at 16:01 and got to the ridge at 3300 feet. Continuing south, I reached Narrows at 16:10 but had to go further to get to the last turnpoint at Bluefield.

Just south of Narrows the ridge jumps forward (Buckhorn Knob) and again I was lucky enough to gain a few hundred feet in a thermal before making the transition into wind to get around the knob. Once past the knob you can see the town of Bluefield down in the valley. You pass the town until you reach the country club and the golf course turnpoint. I reached it at 16:35 and 4100 feet.

While flying along I occasionally checked the *ClearNav* to see what my potential finish time would be. It was quite consistent given that I was flying a huge distance, and it pretty much told me that I was going to finish between 8 and 8:15 that evening; sunset was 8:15.

Northbound on the home leg I reached the Covington transit points again, and *again* I missed it and flew to the end of the ridge and had to backtrack about five miles to make the transition into wind. When I got to the transition point at 17:10 I did find a thermal and climbed about 500 feet then penetrated forward to the front ridge. I continued flying north and went straight across the gap, just slowing down in thermals, and reached the north end of the gap by the lake at 17:27.

I flew about two miles up this ridge, remembering this time that it dead-ended a few miles ahead, turned left and penetrated towards the main ridge. Knowing how far I still had to fly and the obstacles I had to cross, I still couldn't believe that I was going to make it back, never mind before dark.

Continuing north toward Snowy, I was running as fast as I could but could see cloudstreets and rain showers building ahead of me. I reached the Petersburg Gap at 18:14 but there was heavy rain completely blocking passage along the ridges ahead. As I was rapidly running out of time, I decided to try to penetrate the rain shower and hope that I could see enough to stay on the ridge and get through the rain.

Visibility dropped dramatically in the rain, mainly because of mist on the ground from the high humidity and the rain splashing on the canopy. I managed to maneuver along the ridges for about five miles until I came out of the rain and found that I was still on course to get through the Knobblies as planned. I crossed them as before by slowing down and taking what lift there was,

not circling, and moved to the back ridge as soon as I possibly could, and then started speeding up.

Behind the hospital at Cumberland I transitioned forward to Haystack Mountain with no problems, continued north past the Cumberland gap, past Hyndman, lower this time and had to ridge soar around the end of the Hyndman bulge (as I could not jump over the top this time). I worked my way back to the high Bedford ridge and flew along again at high speed and very high "g" bumps. Just before Bedford I pulled up in a thermal, and did the "yank and bank" maneuver and flew back to the secondary ridge that would take me to the back of the Bedford Gap.

When I reached The Wall at Bedford I just flew right over it to the next ridge downwind and, as this ridge climbed, I slowed down to gain height. My plan was to climb as high as possible and drift downwind until I could pick up the ridge that went to Raystown Dam. The ridge at this point was only about 800 feet high but was very well-defined and I thought that with the winds I had seen all day it would probably work well.

I climbed to just over 3100 feet and turned downwind towards the Raystown Dam ridge and slowed right down to minimize the altitude loss on this transition. Though very few, there were fields to land in. I reached the Raystown Dam ridge level with the top, turned left and started following it north. This ridge makes a number of jogs to the east, but each transition is fairly easy to make and as you fly north towards the actual dam, the ridge gets higher and higher.

I reached the dam at 19:20 and 2600 feet and decided I would take another gamble and just fly downwind at minimum sink towards Jacks Mountain. This worked and I reached it (which is the ridge that leads home to Mifflin) just below ridgetop height.

At this point I was within radio range of Mifflin and called my crew and told them I was approximately ten minutes out.

Jacks Mountain worked well and I could fly close to red-line on the way up to Mifflin, I left the ridge about three miles before Mifflin, turned left and made a low finish along the taxiway. My right arm was so tired that I could not get the gear down! I tried three or four times but my arm was too weak and sore. I pushed over into negative "g" a couple of times and that helped and I finally got it down and locked.

I landed at Mifflin at 19:40, jubilant at having completed the first 2000 kilometre flight in the eastern USA, the first for Canada – and 20 minutes ahead of schedule.

Cheri and my crew Phil were both waiting with open arms to greet me as I stopped. Cheri gave me a great big hug and a great big kiss, and a big hug from Phil was enough. Now the sky was clear, there were few clouds, and not many visible signs of lift remained. 2070 km in 14:07 hours, just seven minutes total in thermals, and an average speed of 102 mi/h (164 km/h)! ❖

Waiting for a window

Nick Bonnière, GGC

EVERY SPRING, I dust off my 750 km triangle task declaration and wait for the perfect day. Cloudbase needs to be quite high as the second turnpoint lies in an unlandable area. Lift conditions must also be quite good to average a speed of 100 km/h for a 7.5 hour flight.

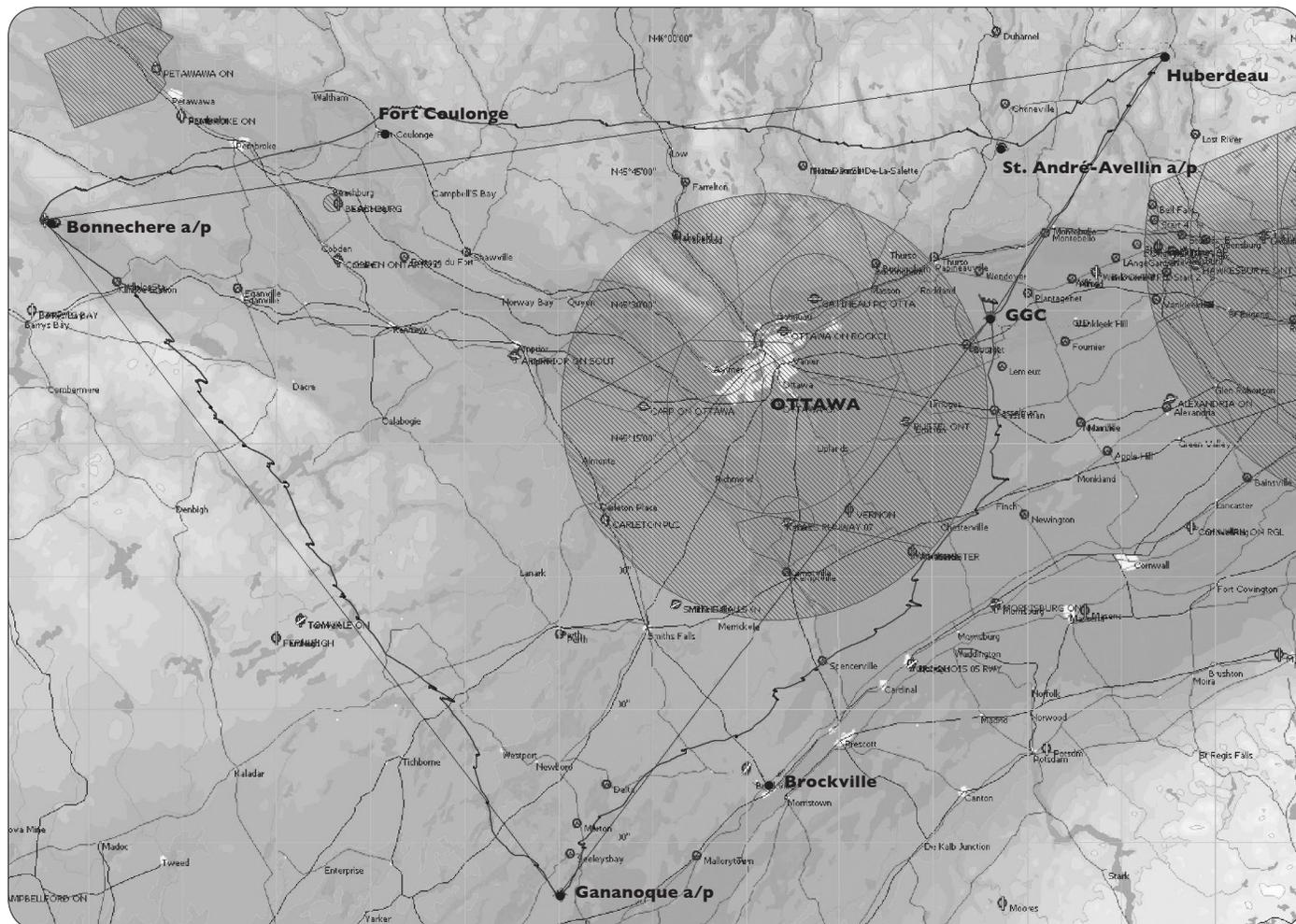
On 16 May, Dr. Jack's forecast for the next day was quite promising, with a 5–6000 foot cloudbase and cu over a wide area, but not quite a perfect day, as it may turn blue at the second turnpoint as it usually does. Reviewing the current record list, I picked two possibilities: a 500 km speed triangle and a free triangle distance. If I can average a speed of 110 km/h, I can probably extend the flight turnpoints and try for both at the same time. Using my turnpoint database, I selected a 627 km FAI triangle. I had a look at the task using Google-Earth to assess landout options on the second leg. Google-Earth is a great tool as the resolution is good enough to identify regions with potential outlanding possibilities.

Preparation is key to success and the next morning I get

a free triangle distance record

ready early with water ballast, food, drink, flight recorder and a task declaration. I'll fly my LAK in its 15m configuration as further practice for the upcoming Worlds. Roger Hildesheim is also getting ready for a 500 km attempt today. By 11:00, there are some cu in the sky – they look a bit low but it's time to try. Roger and I take off and we are able to reach 5000 feet, so we do a start together at 11:20, at 4600 which means I need to finish above 1400 feet to not exceed the 1000 metre maximum height loss.

The first leg goes through the Ottawa control zone which is just to the west so we have to go around to the south with a resulting increase of 10 km of flying distance. For the first 60 km, the lift is barely 3 knots and I get down to release altitude. Not a great start, but then we start finding lift at 3.5 to 4.5 knots. By 12:30 we can reach 6000 in 5 kt thermals, but it's been slow so far, 90 km on course at 72 km/h. I lose track of Roger near Brockville. By the time I reach the first turnpoint at Ganoquo, 150 km on course, it's been two hours, and 77 km/h, and the cu are thinning out. It doesn't look like a record day. ➔ p23



a US Nationals win

Jerzy Szemplinski, SOSA

THIS IS THE YEAR of the World Championships and it is very important which contest to fly in to be in top shape for the Worlds. I always try to fly at least one extra national contest outside Canada in a Worlds year. After winning the 18m class Regionals in Perry, the 15m US Nationals was a big challenge because of the participation of US current and former World Team members.

The 15 metre class is very competitive as some 18m and Standard class pilots are flying in it. In addition, I fly 15m configuration only in contests, which limits my practice. My first training flight in the 15m configuration in Ontario was an unplanned dash to Toronto Soaring where I landed out. Changing class is not so easy a task as there are some differences of flying style in each class. Mifflin, Pennsylvania is a contest site where knowledge of local conditions and efficient ridge running is very important.

Because of the warm winter and early spring all the trees on the hills were covered by fresh green leaves that made the area unfriendly for triggering thermals and only flying over the high ground was giving a chance to finish tasks. I decided to arrive a day earlier before the official practice day to fly the ridge and get used to short wings. Thanks to excellent weather, I was able to fly a declared 1072 km out-and-return flight from Tussey to Tazewell and back at a speed of 155 km/h. However, because of my mistake in the FR declaration (wrong glider registration input), a new Canadian speed record was lost. On the same day Brian Milner flew over 2000 km, possibly claiming a new Canadian distance record.

The first official practice day was a great ridge day and I finished second which gave me some confidence that I'm back in shape with short wings. On the second practice day I abandoned the last turn area to avoid a potential landout and to be well rested for the official contest day.

Day 1 The first day is very important from a tactical point of view as it decides contest strategy. We only had a short 1.5 hour area task due to fast-approaching cirrus from the west. After the start gate opened there was no time to play start roulette as the first potential lift was 25 km from the start line under a single cu on the horizon. Problem was that we had to cross three ridges, and if we don't cross the third, it means a land out.

I was one of the first gliders to start in addition to KS (Karl Striedieck) and XC (Shawn Murphy); others started 2 to 5 minutes later. Three of us were working together to find the best line of low sink to extend our glide. Thanks to the *ClearNav* map display with its final glide "amoeba", I was able to make sure I would clear the last ridge and that I should be able to connect with clouds. We arrived under

the falling apart cu, KS with XC went 1 km further and I stayed under a wisp which gave me a little better lift. From here we parted our ways as I continued alone to the next turn area with just a 50/50 chance reaching it. I met A8 (John Seaborn, a 15m US Team member for 2012) in the last thermal 48 km from the finish. A small group of gliders joined us as we were trying to use the last breath of lift as we knew that this is the last thermal of the day and overcast was above us with no option of any lift on the way home.

John and I left at the same time, but with different strategies. I decided to aim for the ridge gap just before Mifflin while he decided to jump ridges up to Jacks Mountain and then follow the ridge, counting on some ridge lift. In the end I arrived two minutes earlier than A8, crossing the gap below ridge crest and I won by 37 points. Only seven pilots finished, all of whom were strong contenders for winning the contest.

Day 2 After three days waiting for good weather, we had a 3-hour Turn Area Task where I took fourth place and gained another 31 points on A8 who was in second position overall. Only eleven pilots finished the very demanding task as thunderstorms from the northwest were blowing high cloud over the task area, cutting off lift. It was a survival day and speed wasn't important. I kept my first place and now the strategy moved to holding the spot with the possibility of gaining a few more points to have a cushion against any future mistakes.

Day 3 A Modified Assigned Task was set, although in reality it was an assigned task with the possibility of claiming one extra point for the fastest pilot. The weather was blue with very weak thermals and start gate games were played as no one was willing to leave first to be a marker for others. In addition, leaders started watching each other to gain precise altitude and start after each other. The whole group started in a span of 15 minutes, with me one minute ahead of my close competitors.

I joined a group of Arcus and Duo Discus teams from the Region 2 Sports class, and we were trying to escape from the whole group of followers. In such weak lift it was almost impossible to escape. But after 1.5 hours the group split into several smaller groups which used different tracks to the next turnpoint. I stayed with the Arcus Team (Richard Walters, 2008 US Team member and Pete Alexander) for almost the whole task. We were able to find stronger lift in the Woodward area which gave us a little lead, and we were able to claim an extra turnpoint after the mandatory one. I won the day and was now 90 points ahead of A8 and 110 of BB (John Cochrane) overall.



Jerzy, the unofficial 15m winner, on the podium with the US champions.

Day 4 It was blue again. A task was set that potentially meant we could fly 80% of the task on the ridge given good tactical planning. Before takeoff, pilots split into groups, strategizing on how to plan the flight and use the ridge. The pilot who connected with the ridge first had a winning position. But the weather didn't cooperate with not much lift and blue sky. The start gate game was against any logic as over time we got lower and lower with no possibility to climb.

A8, BB and I started within two minutes of each other, behind a larger group, and we were trying to cross Stone Valley where, as the name suggests, there are lots of stones and not many fields to choose from. After a long struggle we were able to jump to the next ridge where we split up and each tried to survive on his own. Turning in the first area, I followed the Tussey ridge but using thermals as there was no sign of ridge lift. The turn area was close to Mifflin and per my calculation it was too early to turn. After following the ridge I met three gliders that were trying to use a very weak thermal which gave us just 700 feet above ridge crest. I decided to turn back to finish undertime and barely got home using some kind of ridge-generated lift by the sun and very weak wind.

I arrived below the minimum finish altitude and received a penalty in addition to losing some speed due to the early arrival. A8 had trouble as well so he didn't gain on me. BB played very hard, he went for broke trying to use the ridge which forced him to land out. It was a great day for Chip Garner (CG) flying the new 15m American-built Duck Hawk as he won the day and set his track to the podium. After my poor day I was able to increase my lead to 116 points on the second pilot and 200 on the third.

Day 5 This was a very strange day as we had only one thermal on Seven Mountain which is 1000 feet above field elevation. We were released 8 km from the lift, which forced us to arrive at the thermal just above the mountain with very weak lift and plenty of gliders. I didn't connect and had to start in the blue with not much lift a good ten minutes after the whole group left. Due to the very low chance of finding thermals I decided to do a 49 km glide to a small cu on the edge of the Allegheny Plateau. It was a very risky decision as *ClearNav* showed my arrival just 1000 feet above ground

with the only option to land in the valley in the Tyrone area. For 49 km I didn't have any trace of lift – it was just a smooth glide. DL (Dennis Linnenkin, the 2012 US Team manager) joined me in this very risky challenge to reach the clouds.

When we arrived under the first clouds at just 1000 agl, we had to go a little deeper onto the plateau and there was no option to return to the valley with very small fields ahead of us in case the lift didn't appear. Luckily we found a 3 to 6 knot climb to cloudbase, flew an extra 10 km, then took the same route back to the Mifflin area. My plan was to connect with a single thermal, claim the next turn area, go back to the plateau, then finish.

That plan didn't work. When we arrived at the thermal on Seven Mountain, it wasn't there and I spent 20 minutes just above ground level waiting for a new cycle. In the meantime, the group which started 10 minutes earlier arrived high and kept going to the next turn area. DL landed in Mifflin unable to connect with anything. After my lost time, I claimed the last turn area and arrived home with a big loss, but to my surprise I was still in first position with CG 70 points behind me.

Day 6 The forecast was showing that Day 6 will be the last day of the contest and no chance for any improvements after that. A 70 point lead is a lot but it could be lost in no time. The only option for me was to stay alert and use any opportunity to gain and not to lose to CG. I started twelve minutes ahead of CG and kept going with a small group of other gliders to the first turn area in the vicinity of Lock Haven. Then I decided to go and do my own race without any distraction from other gliders. I had to make a long glide to the edge of the plateau and climb from 1000 feet, then go 30 km deep on the plateau to a cloud street over a very limited number of landing fields. I was alone most of the time then; on the return, I met a couple of gliders which I passed going to the last turn area. I made sure to use all the possible distance and not arrive early.

I was second for the day just behind BB and increased my lead on CG to 134 points, securing my first place position that I held since Day One. With the current US rules, foreign pilots are forced to fly as guests – they can't influence the contest results of American pilots. In reality, foreign pilots are not flying as true guests, because they can't "win", and it just adds a lot of confusion on how to treat foreign pilots when they do. In all other countries where I flew Nationals, there is full recognition of "the Winner", and a "National Champion" is declared from the best national pilots.

In most Mifflin contests we expect to have at least one or two days of ridge. We didn't have any except during the practice days so, no advantage for local pilots, just patience and avoiding landout was the best strategy of all – only three pilots didn't land out and they claimed the first 3 spots. The Worlds in Uvalde are just weeks ahead of us and it will be a very demanding contest for all pilots. Very hot days, but excellent soaring conditions will put a lot of pressure on pilots and crews as we expect to fly 10 to 12 contest days.

Why compete ?

the rationale for the beginner

Tim Martin, from *Towline*

I WAS ASKED TO PREPARE THESE COMMENTS some time ago for new contest pilots after I had competed in my second Region 8 Sports class contest in Ephrata. The purpose was to encourage new contestants by making competition less intimidating for first-time entrants. This is my take on things you should consider to get the most out of your first contest experience. Strategy and tactics are other subjects entirely.

Why compete? The obvious way to begin is to ask the question, “why compete”? First, everything you’ve heard about it making you a better pilot is true. Trust me, you will learn more about efficient soaring in one contest than you can in many, many days if not years, of non-contest flight. Just take this on faith. That said, some of the finest pilots I know do not and have never competed – it’s not everyone’s cup of tea. But you owe it to yourself to at least give it a try. It is much easier now than in the days of turnpoint cameras.

A common mistake is thinking you can’t be competitive in your first contest. If you apply yourself before and during the contest, you can be. Set a goal: say to finish in the top half of the field or to learn as much as possible, then pursue it. The goal itself doesn’t matter. It just needs to be your goal. Another mistake is thinking you need a crew. There will be other pilots without crew and you can get together with them and agree to help each other in case of retrieves. Or find a local or extra body at the airport who will hitch up your trailer and come get you. Consider allowing for the expense of an aero-retrieve if you land out at an airport. It sounds pricey, but I can just about guarantee you that it will be cheaper in the long run and it turns what could be a real hassle into not a big deal. Really. Or just accept a possible landout as part of the adventure and do whatever it takes to get back and get your own trailer and self-retrieve.

The final answer to why compete, is the most important. It’s fun. Enjoy it. There will be times when it’s not fun, but that’s part of the fun. Okay, so you’ve decided to enter a Regionals, now what?

First, get yourself a copy of George Moffat’s *Winning on the Wind* and study it, especially the short section on “low loss flying”. In a few pages it will open your eyes to the essence of efficient cross-country flight. It sure did for me – just absorb how shaved seconds with each decision can add up to incredible speed gains. Make a study guide from the book and read it often. Mine is four pages and I read it a few times before and during every contest, especially after a tough day. Other books are helpful, but Moffat gets a lot into little space. Start there.

The rules I don’t really pay much attention to the scoring rules as such but you need to know about start, finish, and turnpoint cylinders. Start and finish rules are constantly evolving so you might as well understand them. Really. Triple check your turnpoint database. Make sure it’s in the correct format. Being wrong can cost you serious points. Don’t ask me how I know. Read the rules through two or three times and at least try to understand the gist of what they are trying to do.

Gaggles Don’t be afraid of them. I personally enjoy flying in gaggles. It’s beautiful and it’s a challenge trying to outclimb the other ships. Just be very cautious. Know how to enter and exit. There is a huge level of trust involved between pilots in gaggles. You are all trusting each other to fly in a cautious and predictable manner. If something is going on in a gaggle you’re in that you don’t like, get out, in a cautious and predictable manner.

Leeching is okay Don’t worry about it. Try to follow someone and see how they fly. How else are you supposed to learn? It’s not like you can watch this stuff on TV and pick up pointers from the play-by-play. I’m sure I’ve learned more from watching other pilots who were better than me. In fact it’s one of the main reasons to enter a competition in my opinion. Ignore any leeching comments or complaints. If someone wants to follow me fine, it’s a challenge to try to lose them. The pilots I have heard in the past complaining about leeching were generally not the ones worth following. We all use observation of others when we race if we can. However, I find my fastest days are days when I just do my own thing regardless of others.

Don’t be tentative Be (or act) decisive. The best pilots are decisive and you can see it in their flying. If you watch another pilot fly and make decisions, don’t focus on his decision, try and figure out why he made it. Have I mentioned decisions enough in this paragraph? Decisions are the essence of cross-country flight. One of the best phrases I’ve heard about the mindset of doing well in a race is “maintain a constant sense of urgency”. This requires constant evaluation, adaptation, and decisions.

Don’t land out The penalty is severe. However, it is better to come back and land early if conditions are deteriorating than take a real low percentage chance of staying out the minimum time by continuing into weakening or collapsing conditions. This is where judgement really comes into play. Sometimes you do have to take chances, but make them thoughtfully. The other advantage is that you will be back at the field relaxing while the guys that pushed on are trying to figure out how to get retrieved, doing the retrieve, and reassembly of their

glider, and getting back in the game. You are fresher the next day. I've been on both ends of this and believe me, getting back is better.

Don't worry about the weather It's pretty much the same for everyone so there is not much to be gained by thinking about it too much before the flight, except to try to derive some strategic picture for the day. There is a fair chance it will be different by the time you start anyway. After launch is the time to start paying attention.

Don't be undisciplined Find a routine that works for you in the mornings. It may take a few days to settle into one. And make sure it includes some time alone and relaxing. I learned this watching Baer Selen in the Nationals. Every morning before grid time he would be in his car reading the newspaper. He never varied. Maybe not my thing but it worked for him. Find your happy place and visit as often as needed. I love my *iPod*.

Control your emotions Especially negative ones, but also positive emotions. I often find I am mentally talking to myself when I am getting low and looking for a thermal (or a place to land), controlling my anxiety, saying "you've done this dozens of times and this is no different, look around, look for clues, have faith." It sounds hokey but it works. Don't get caught up in feelings of elation or superiority when you do well. Channel those feelings when things are going well in the flight, into confidence, relaxation, (during a nice glide), observation of conditions and thermal sources, and gratitude that things are working out well *right now*. They could change quickly. Be humble always, because you *will be* humbled, and when it happens it's better to have a head start.

Find something in your non-flying life to hang onto emotionally. We are all pretty good at doing something else, or we wouldn't be able to engage in this sport. Maybe your job involves lots of decision-making. Maybe you have to be very observant. Maybe it involves a high degree of multi-tasking. Whatever. Convince yourself that your other talents contribute to your talent in soaring. I owned and skippered a commercial fishing boat in Alaska for almost thirty years. What things about that business could possibly help me fly sailplanes in competition? I'm not going to tell you, but I've got myself convinced that it was the perfect training. You can too.

Ask If you have a question about something, don't be shy about approaching a more experienced pilot for an answer or opinion. I believe most pilots are willing to be quite helpful to a new contestant. New pilots may mistake the detachment of more experienced guys as aloofness or worse. Often it's just that the competitor is engaged in something that requires his full attention and he can't talk right then. I'm pretty busy from about 8 am on a race day. There can be a lot to do. But I'll say right here that I'll do my best to make time for a new contestant who has a question or wants to talk about some aspect of the contest. If you're a first-time contestant and would like a mentor for the entire contest, just ask me. I'll make a point of helping you.

Pay attention to the score sheet Don't just look at it at the end of the day and walk away. This is the time to do a little thinking. Be skeptical. Check the turnpoints you were credited with. You may not have made all the ones you thought, which kills your score, but you may have come close and with a missed turnpoint penalty you may be better off. You may have missed the start cylinder by a few hundred feet and hence did not start the task. Oops, goose egg! There are penalty formulas for this that will hurt your score but still give you most of your points for the day.

Pilots have been known to neglect to inform the scorer that they were flying with their long wingtips, etc, etc. If you notice that two gliders of clearly different performance have similar handicapped speeds and similar raw speeds, maybe someone's handicap is in error. Maybe someone forgot to mention their extended tips, maybe the scorer made an incorrect assumption? Take a calculator and go over a score sheet with some grade school math and you'll see what I mean. Scorers will kill me for this, but in most contests I have found errors just by looking at the score sheets. There are many ways for the scores to be inadvertently in error and it is up to you to bring it to the attention of the proper officials. All that said, I find errors much less common recently.

Don't quit Don't quit the contest early; it's understandable to get discouraged if you have a bad day or two, or you are way down on the score sheet. Never quit trying to do your best. You will thank yourself later no matter how tough it seems at the time. Maybe your best is just trying to make it around the course the last day. That's okay. There are many cases of last day upsets. A few people land out and it's a whole new contest. I can't stress this enough – this is a mental game we play. The glider is just the vehicle that allows us to play, like the ball in a basketball game. Cool vehicles yes, beautiful and fun to play with, but as I'm finding more as I get older, the real game is always inside your head.

Be appreciative of your fellow competitors, and also of those volunteers who have given of themselves to make this possible. Wish the other pilots good luck, and mean it. It is their willingness to compete and to volunteer that is allowing you to have this adventure, and to become a better pilot. Never will your mother's advice to say "thank you" pay a greater dividend. Enjoy the competitiveness but don't take it too seriously. It's easy to get caught up in rivalry and you will have the opportunity to do so. Resist. Be gracious and grateful. I often walk the line after dark, look at all the lovely flying machines, especially mine, and am nearly overcome by the fantastic adventure I've had earlier that day. But even then I am mindful that it's the people, my flying brothers and sisters, much more than the machines, which make it so special. You won't win, or even place, but I can promise that you will develop a special camaraderie with the finest people you could hope to meet.

Finally, remember that all this is meant to be fun. Make sure that it is.

Simulator in a box

Dan Cook, Flight Training & Safety committee

SOME CLUBS INDICATED that they didn't have room for a version of the large tandem SAC simulator (foot print 20' x 20'), so I built a prototype designed to be self-contained inside a cabinet. The cabinet is on locking dolly wheels and the foot print is only 2 x 4 feet. When the doors are opened to 90°, a hood can be fitted on top of them to block out distractions. FAA studies have shown that full motion is not a requirement if you can fill the field of vision with the horizon. In addition, the panning feature in *Condor* allows the operator to use joy stick buttons to look left/right and up/down. Test subjects claim they feel the cabinet roll when they bank. The three 20" LED Acer monitors are mounted on a tray that can be brought forward out of the cabinet to get one's peripheral vision fully covered.

The computer using the *Condor* simulator is a new HP Pavilion model with an economical NVidia G540 graphics card driving an external digital version of the *Matrox TripleHead2go*, which divides the image for the three screens. I used a *Logitech Attack 3* control stick and *Saitek* rudder pedals. I had to set the Windows screen resolution to 2400 x 600 and the *Condor* resolution settings to 1920 x 480 on full screen emulation to get it all to work. Resolution is not as high quality as some video games but it works well enough to get a realistic visual effect of really flying. To see the instruments more clearly you need to push the "Y" key to get a close-up of the panel. About \$1500 was spent on electronics and \$300 on cabinet hardware and finishing.

To teach on the simulator, I pull up a chair behind the student to one side and coach them through. The demos are already recorded in the SAC Ground School package

so there is little actual flying the instructor/coach must do. This system is more elaborate than that required by pilots at home practising patten and control manipulation for an instructor course, for example. But I find that the motion sensation is good for teaching procedures and techniques to those who have not flown before or to keep a pilot refreshed and take the minimum time to get the rust removed for spring.

When you think about it, in ab-initio training the most wasted flying time for the student is to learn the procedures and coordination which can be done on a three-screen simulator. The student still needs to learn the "feel" of a real glider, but this will be greatly accelerated and take fewer lessons in the air after the simulator.

I would like to point out that for instructor training, *Skype* (a free download) has a screen-sharing feature that will allow an instructor candidate to share their screen with a mentor in another part of the country while practising their patten and demos in preparation for flights in the actual aircraft. This can be done on a laptop computer with joystick and rudder controls from a computer store. The FT&SC has mentors on standby to assist candidates with their lessons on *Skype* in preparation for the instructor evaluations in the actual aircraft.

Both these uses for simulation can help the training of new pilots all year round, give refresher training for pilots in the off season, and train instructor candidates during the ground school preparation.

Plans for the cabinet version of the simulator are available on the SAC website. ❖



how Horizontal gusts deceive TE variometers

Mike Borgelt, Borgelt Instruments

I KNOW YOU HAVE FLOWN ON DAYS when your vario tells you that there are 5 knot thermals but when you turn into them you find 7 knot sink. You probably put it down to turning the wrong way.

Considerable effort and thought has been expended on gadgets to tell you which way to turn, from thermistors and/or humidity sensors on the wingtips to wing bending sensors. All of these devices have problems which have prevented them from working at all or being widely adopted. The fundamental flaw in the concept of thermal detection is that there may be no thermal (vertical air motion) at all when the vario indicates climb.

Here's what is going on. Most variometers in modern sailplanes are total energy (TE) compensated in order to remove the effects of the pilot pulling and pushing on the stick. This would otherwise cause vario indications due to the glider rising and sinking as it is slowing and speeding up. These will mask the effects of changes in the air in the thermal you are trying to use.

*A fundamental flaw in the concept of thermal detection is that there may be **no** thermal (vertical air motion) at all when the vario indicates a climb.*

The TE compensation device is usually a pressure source which acts like a venturi even though it doesn't look like one nowadays. It can be shown that this probe must produce a pressure below the static pressure by the same amount that a pitot will be above static pressure at the same airspeed. In flight, the pressure at the TE probe is the sum of the static pressure and the suction produced due to airspeed. At constant airspeed the TE probe acts like a static source and the variometer indicates the rate of change of static pressure converted to equivalent rate of climb or sink. Note that the pressure seen by the vario changes with airspeed.

When we fly in a convective atmosphere there is turbulence at all scales from the very small (sound waves, basically) to thousands of kilometers in extent (synoptic meteorology) and all in between. Given that we know air goes up and down in the convective layer at typically 5–10 knots, and that there is mixing at the edges of thermals and general turbulence in a convective atmosphere, it is not surprising that as you fly through a given piece of air the air may not be moving horizontally at constant velocity everywhere.

The glider has very low drag in the direction of flight so it takes a long time to actually slow or speed up due to these horizontal gusts and may fly from one parcel mov-

ing in one direction to another moving in another direction before it has done so. This causes airspeed fluctuations which are relatively small most of the time (a few knots at most) and are unimportant to the pilot as far as airspeed control is concerned. A moment's thought will reveal that airspeed changes will cause suction changes at the TE probe and hence a reading on the variometer. What is surprising is the magnitude of the effect.

Suppose that over a distance of a couple hundred metres the wind changes +1 m/s per 100m, then a glider flying at 50 kts (25 m/s) will cover the 100m in 4 seconds and see its airspeed increase by 1 m/s or about 2 knots.

The 1-m/s-in-four-second change in airspeed is the same as that seen when you push the stick forward and change the flight path gradient by 1 in 40 or about 1.5 degrees (point the glider straight down and the airspeed will increase at nearly 10 m/s per second or 20 knots/sec – the rest is simple trigonometry). This is a small change but results in an additional sink rate of 0.625 m/s or about 1.25 knots.

Now in the horizontal gust case the glider isn't actually sinking but continuing on its original flight path, and the vario will show (at 50 knots TAS) a climb of 1.25 knots when encountering this gust.

So far so good. Hopefully we are looking for lift better than 1.25 knots when the glider encounters such gusts. On very poor days when 1.25 knots is acceptable the air is usually less gusty. In a 1-26 or K8 you don't have much of a problem as you wouldn't fly much faster than this.

Now look at the case of flying through the *same air* at 100 knots or 50 m/s. The airspeed change is now 2 knots in 2 seconds or 0.5 m/s per second. To get this acceleration in a pushover we would need to change the flight path gradient by 1 in 20. This causes an additional sink of 2.5 m/s or 5 knots which isn't there in the gust so the vario reads a 5 knot climb.

Now we have a problem – the reading is comparable to the lift we might like to turn in and if we only look at the vario there is a great temptation to turn. What we will find is that after 180 degrees of turn we are going through the gust the other way and it causes the vario to read sink. Note that there has been *no* vertical air motion here and you have wasted 30 seconds or so doing the turn and are lower than you started in the same ⇒ p29

When dehydration isn't

all about isotonic volume loss

Dr. Daniel Johnson, from *SOARING*

A COLD FRONT HAD SWEEPED THROUGH yesterday evening and, though cool, the early-April day promised 6000 foot bases and strong lift; perfect soaring. The high was to be about 16C and the sun was shining. Oscar zipped through breakfast and assembled his gear, a snack, and warm clothes because the temperature at cloudbase would be in the mid-thirties. He was on the ramp at 9:30 to start rigging. It was pleasantly cool; the trees along the airport border were still thinking about whether to put out buds.

After he finished assembling, and ready to tow out to the runway, Oscar was a little surprised that he needed to pee. It had only been a little more than an hour, and because it was so cool, he hadn't been sweating and hadn't been thirsty. He put one bottle of water in the cockpit and made a pit stop.

It was indeed a glorious day. The only drawback was that it was pretty cold under the clouds. He used his relief system several times and had his snack. He took a few swigs from his bottle but really wasn't thirsty. After four hours his feet were cold, and while he made his last climb to cloudbase he started shivering a little. This soon stopped when he flew out from under the clouds; the sun warmed him up and he sped home on final glide.

He warmed up more during the physical activity of de-rigging his glider. He was glad that the inconvenience of all that frequent peeing in the glider had stopped and happily drove home.

An hour later, a nagging headache began. He took a couple of ibuprofen with a glass of water, and a short time later realized that it seemed to have made him nauseated. He really didn't feel like eating much at supper. He felt a little dizzy when he walked around the house, so he sat in front of the TV and quieted his stomach with a couple of beers, then got ready for bed. He noticed that it was the first time he'd peed since he'd landed. His urine was dark.

The next morning, he felt sluggish and headachy. He wished he could have called in sick, but there was an important all-day meeting. At least he wasn't sick to his stomach. He had an extra glass of orange juice with

breakfast, and drove to work. All morning, his head felt thick. He had coffee three times and still it wasn't quite clear. After lunch, he felt quite thirsty for some reason and had three glasses of water in the first part of the afternoon's session. Finally, about 3 pm, his brain started feeling normal, and energy returned.

What happened to Oscar? This did:

- "Cold exposure can cause substantial fluid loss causing individuals to dehydrate by 2-5% of body mass." *European Journal of Applied Physiology*, Volume 92, Numbers 4-5, 565.
- "Exposure to an environmental temperature of 15C is sufficient to trigger diuresis in an individual." *Forensic Pathology*, Di Maio & Di Maio, CRC Press, 2001

In case you don't want to do the arithmetic, let me point out that 15C is not "cold" – in fact most people feel it's an ideal temperature for physically vigorous activity. And, for our average male, this 2–5% weight loss is 2–5 kilograms!

Cold diuresis Here's the deal: when we begin to cool down – without ever feeling chilled – our bodies protect our core temperature by constricting the superficial veins under the skin, then the deeper veins and arteries. This reduces the total volume within our blood vessels (intravascular volume). As we had enough blood to fill them before, now we have too much blood for the available space.

Where does this go? Out the kidneys, into the emissions-control device, to be voided at intervals. ("Die-u-RE-sis: increased excretion of urine.") If we're cooling down quickly, those intervals get pretty frequent. By the time we've been in the coolth for a few hours, we may be up into that 2–5% range. There are two implications here:

The first is that we are losing the liquid of our blood: this is not merely water, it is salt-and-water! Yes, we are getting dehydrated, but it's not purely water we are losing, we are losing both salt and water because blood is a balanced solution of salt and water and miscellaneous particulate matter, so it gets more concentrated.

The second is that when we warm up again, we need to replace this lost volume. "Volume" is a technical medical

term meaning “water plus other stuff.” It’s not enough to merely drink, we must also eat salt, which we prefer to take in the form of bratwurst, chips, or cheese rather than keeping a salt block at the clubhouse (the other reason being that this would attract wild animals, who are smarter about salt than people, but which we’d not prefer to see on our runways).

So Oscar had experienced cold diuresis and this made him volume depleted when he warmed up again and his blood vessels re-expanded. There isn’t any fluid-storage area in our bodies!

He failed to replace his volume: partly because volume loss does not cause thirst until it’s rather severe (4–5%), and partly because one of the consequences of volume depletion is nausea – which sort of gets in the way of solving the problem.

He also suffered the other consequences of volume depletion: headache, lassitude, and mental dulling. (Honestly, part of a hangover is probably volume depletion from the diuretic effect of alcohol, not that this has anything whatever to do with gliding.) Of course, Oscar’s beers didn’t really contribute as much to net volume repletion as V8 juice would have, even though they were more fun.

If Oscar were a Finn, he might have taken a sauna in the false hope of revivification. Such an act might actually lead to loss of consciousness without preparation – enthusiastically eating salty food and drinking water. (Fainting in the sauna might lead to a 911 call and a lot of wildly misdirected medical tests and interventions by physicians lacking the basic knowledge about Oscar getting mildly cold and failing to replenish blood volume.)

But I digress. This isn’t a purely northern problem. Think about it; what’s the temperature at cloudbase? In the desert West it’s usually pretty low, certainly below 15C. Besides, it’s often really hot on the ground, and pretty cool up high.

So, we sweat like pigs until we’ve climbed significantly, and hydrate aggressively all the while. Then we cool down as we soar about, and the magic of cold diuresis gets rid of all that and more. In fact, if we forget to hydrate aggressively preflight, going high and getting cool will save us from our foolishness, for our vasculature conveniently shrinks around our smaller blood supply.

Regardless, we must rehydrate as we warm up, and with an electrolyte solution. If it’s hot or we work hard, we sweat, and in our sweat lose some salt as well as water. If it’s cool, we have cold diuresis and we lose water and lots of salt. Either way, when we get warm again, we need to rehydrate with salt as well as water.

Sport drinks are ideal after sweating but they don’t have enough salt to restore the volume lost through cold diuresis. The two drinks with a salt content closest to blood are, interestingly, tomato juice and V8. Otherwise, here’s the permission you wanted to have salty food along with your beverage. You were going to do that anyway, but now you don’t need to feel medically guilty.

Duration Lastly, it’s important to note that the after-effects of volume depletion are long-lasting. In my own experience, the symptoms have lasted about 24 hours even when I realize within 3–4 hours that I’ve failed to hydrate. In patients depleted from diarrhea or vomiting, I’ve seen the nausea and lassitude last for 3–5 days. So hydration does matter, and it needs to be done while we’re getting warm (or hot, depending on one’s home location).

It’s impossible to “hydrate” while our body is cooling: we are not in any sense camels, and all this might do is create some edema (tissue swelling) if the kidneys can’t excrete the excess blood volume.

Clues you can use How can you recognize when this is happening to you? It’s hard; isotonic volume depletion *does not* produce thirst. Only a water deficiency produces thirst. Even that takes a 1–2% water deficit. This leaves you with only two things but they’re reliable, the circumstances and the results.

Circumstances:

- ambient temperature below 15C;
- a sense of feeling cool (or rarely, cold – if you’ve got cool enough to shiver, count on being significantly volume depleted, and take your pint of tomato juice into the sauna if you go);
- urinating more often than usual, despite drinking little or nothing and not being thirsty.

Results:

- headache,
- nausea,
- light-headedness on standing,
- lethargy & fatigue,
- slow thinking.

If you’re going where it’s pretty cool, or especially where it’s cold, you can’t avoid body adaptation and cold diuresis. You can’t get ahead of it by eating salt or drinking water. You can only respond to its circumstances by aggressively *restoring* volume (salt plus water) while you warm up. If you’re nauseated by the time you realize this, the key thing is to sip rehydration fluid. A 4-ounce juice glass every 20–30 minutes, in sips, is hardly more than the spit we continually secrete, and will bring gradual rehydration, and relieve the nausea. ❖

UVALDE – Canadian team update

Dave Springford, SOSA

WITH THE 2012 WORLDS ONLY WEEKS AWAY, the team members have been busy with administrative tasks and did much contest flying to prepare for the event.

Many of the admin tasks were completed during the winter months, including arranging for accommodation and crews for August. FAI sporting licences have been purchased and all aircraft documentation has been vetted and submitted to the organizers. The FAA is being quite strict on licensing and aircraft documents compared to our past experiences in Europe where we were able to fly German gliders with our Canadian licences and medical. The FAA is requiring all pilots to have a licence for the nationality of the glider they are flying. For us, this is not a problem but for many of those from overseas who are renting US gliders, it will be.

After the entry deadline in March, the contest had not filled to its maximum number of pilots, so Team Canada will have four pilots for the contest as we had hoped. At the time of writing, there were 107 pilots from 23 countries registered.

The team has also been busy with fund-raising activities and held a cross-country seminar in Montreal in March. We have also been selling raffle tickets for *WestJet* passes that were donated to the team via John Mulder. Many thanks to all who have contributed to our fund-raising activities. We also had an Aeroplan Miles donation month where enough points were donated to cover the airfare for some of the volunteer crew who will be assisting in Uvalde.

On the flying side, all the pilots have made up a training schedule and have been practising at every opportunity. Nick recently made a record attempt and was able to claim a Canadian free triangle distance record of 630.8 km.

Our contest schedule is also quite busy with each of us attending three contests (below) this season before the Worlds in Uvalde.

So far the results have been very good with Jerzy and Dave taking first and second place in the 18m class in Perry (Team Captain Ed Hollestelle placed fifth) and Nick placing sixth and Derek ninth in the 15m class. Jerzy won the US 15 m Nationals in Mifflin. The only other Canadian to win a US 15m Nationals in the past was Peter Masak, at the time a US resident.

Ed has been busy looking after many of the administrative tasks, including the hotel bookings and ensuring that our entry forms and entry fees were submitted and paid on time.

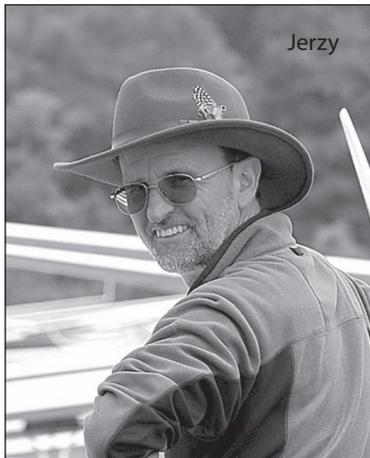
For most of us, our wife will be our crew, but we also have a large contingent of other volunteer crew who will take a lot of the load. Bill Cole (TSC), Dan Daly (GGC), Sean Fung (TSC), Sonia Hildesheim (GGC), Joe Laposnyik (SOSA), Luke Szczepaniak (SOSA) will be our cadre of volunteers. With this large group of team members, we have the critical mass to properly support the pilots during the contest.

The daily routine will involve watering, weighing and gridding the gliders, all before 9. After the launch, crew will be manning the radios to report start times from the pilots to the organizers, and while the pilots are on course, the crew will be able to monitor radar and satellite as well as our *Spot* tracks to provide current weather information. This will be particularly useful on days when the sea breeze thunderstorms roll into the task area. If the pilots know in advance that the last turn area has thunderstorms, they can plan to go long in the first areas and short in the last.

The unofficial practice days start on 21 July and the official practice starts on 28 July. All the pilots arrive in Uvalde sometime between the 21st and 28th.

The blog is available on the Team website at www.sac.ca/team. We will be posting to it from all of our practice contests and will post reports several times a day from Uvalde once we arrive. Stay tuned. ❖

Nick Bonnière (15m)		
Perry – Reg 5 North,	Ionia – Reg 6 North,	York – Canadian Nats
Derek Mackie (15m)		
Perry – Reg 5 North,	Ionia – Reg 6 North,	York – Canadian Nats
Dave Springford (18m)		
Perry – Reg 5 North,	Cordele – Reg 5 South,	York – Canadian Nats
Jerzy Szemplinski (18m)		
Perry – Reg 5 North,	Mifflin – 15m Nationals,	York – Canadian Nats



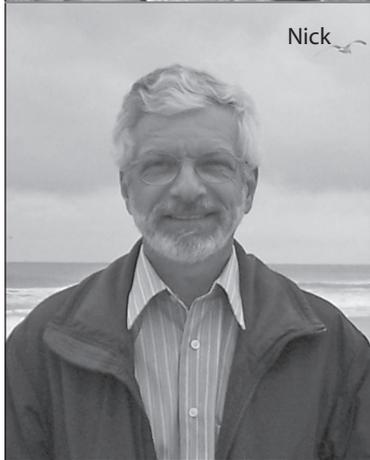
Jerzy



Dave



Derek



Nick

Art Grant oversees contest conduct

UVALDE WILL BE THE EIGHTH world championship in succession that I have attended in one organizational capacity or another. I began in South Africa in 2001 with the 27th World Gliding Championships. There I was introduced to scrutineering by the members of what became the A-Team, the name many who were there still remember us by.

After having such a great time at Mafikeng, I volunteered and worked on the inspection team in Leszno, Poland, in 2003 and in Eskilstuna, Sweden, in 2006, each time learning more about the need for and the process of pre-contest scrutineering and daily weight inspection.

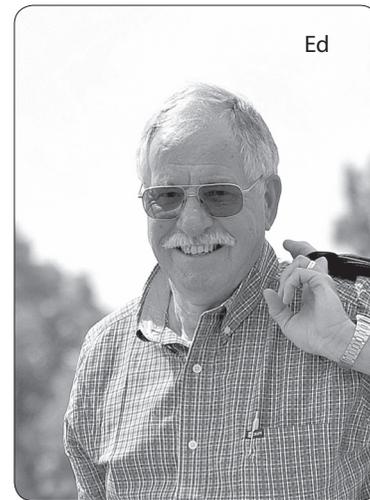
In 2008, the world gliding contests were separated into two contests – Club, Standard and World classes at one contest in Rieti, Italy; 15m, 18m, and Open classes in Luesse, Germany. For the first time, I was placed in charge of the scrutineering team in Rieti under Contest Director Brian Spreckley. The learning curve increased! And I attended Luesse as part of their inspection team.

In 2010 the contests were held in Prievidza, Slovakia, and Szeged, Hungary. I attended both as head of the scrutineering. During the contest in Szeged I met Ken Sorenson who was visiting in preparation for his job as Contest Director for the 2012 WGC at Uvalde. Subsequent to discussions with CD Spreckley, Ken inquired if I would be interested in attending Uvalde as a steward.

To bring this about, I first had to be nominated to the Stewards list of the International Gliding Commission by my national association. This was accomplished late last year and my appointment confirmed in the first contest bulletin in April of this year. I will be working under Chief Steward Dick Bradley of South Africa, the same gentleman who gave me my first job in Mafikeng where he was Contest Director!

The Chief Steward is the independent representative of the IGC attending a championship to observe the conduct of the event. Our role is one of providing advice and/or support to the Contest Director, the International Jury, the Team Captains, and the competitors. We are to ensure that the rules for world soaring championships as set out in Annex A of the Sporting Code and in the local procedures adopted by the Championship committee at Uvalde are followed.

Dick attended the pre-Worlds held in Uvalde last summer and has provided feedback to the Contest



Ed

committee. He gave me advice on how to prepare myself for this job and I have been diligently studying Annex A (the competition part of the Sporting Code). This is going to be a great experience!

Uvalde won't be my last contest this year. I've been corresponding with the CD of the other 2012 World Championships which will be held this winter in Argentina and I will attend as head of scrutineering, once again working under Brian Spreckley.

A whole new adventure awaits! ❖



CANADIAN TEAM 2012



Art

Avoiding airsickness

Ken Armstrong, VSA

“AIR SICK”, a term we use to capture the myriad of symptoms that flyers feel, is not always well understood by those who suffer from it. It is often and accurately compared to other forms of motion sickness such as can be experienced by some car passengers. The nausea may finally result in reverse peristalsis, or “tossing one’s cookies.” An alert pilot who spots the onset of airsickness in his passengers can avert the need to clean up the cockpit by following several procedures that will settle the passenger into a more comfortable state of mind.

The onset of nausea occurs in the semicircular canals of the inner ear. Called vertigo, it can evolve from many factors while soaring – or any flying in general. Perhaps an example would help explain. After flying thousands of passengers and never having a passenger suffer from airsickness, I ran into my only instance of a customer getting to review his previous meal.

This one occurrence that spoiled my record happened decades ago in a large helicopter where this passenger did everything wrong. He disregarded my advice and sat where I couldn’t see him in the rear, middle of the helicopter – far from a window. He buried his head in his lap due to his great fear of flying – and his hangover didn’t help.

His choices were similar to a queasy passenger sitting in the middle of an airliner and cannot see out the window. When the aircraft banks or pitches, he cannot see the horizon from his seat and his inner ear tells him his body is tilting. Meanwhile, his eyes tell him nothing has changed in the cabin as nothing has tilted within his view. As a result, the inner ear tells the brain that the body is tilting and the eyes confuse the issue by indicating everything is level. The brain cannot resolve which is correct and enters into a state of vertigo which leads to nausea and potentially the need for a little white bag.

As I am writing this, I am the day’s tow pilot at VSA in Hope. One of our students and an individual who arrived for a familiarization flight suffered from nausea today – in varying degrees after flying. The advanced student was subjected to steep turns with slight “g” increase and that person recovered very quickly after landing. On the other hand, the passenger flight involved soaring in thermals with tight turns. His brain’s gyros (inner ear canals) were well toppled and he underwent some confusion and discomfort for several hours. He was not at all used to the cranking and banking associated with centering a thermal.

It should be noted that many individuals during flight training undergo varying degrees of vertigo for a period of time that lasts for days, weeks or even a few months. However, it

is rather rare for an individual not to get over the “illness.” I know several pilots who I trained with in the RCAF/CAF who overcame the issue and went on to full flying careers – many of whom became airline pilots.

Potential solutions to pending airsickness

For the passenger who anticipates they may have an issue with flight, *Gravol*, a common over-the-counter medication, can be very settling. The generic (and cheaper) chemical name is dimenhydrinate. Below is some pharmacological information on the drug and the drowsiness issue that can preclude pilots from using the medicine. Dimenhydrinate belongs to a group of medications called anti-emetics. This medication is used to prevent and treat motion sickness as well as nausea and vomiting. It is also useful in treating nausea and the spinning sensations commonly called vertigo.

During a flight, if the pilot-in-command senses his passenger is having discomfort, in my experience the need to clean up messy, smelly emesis can be readily avoided. We had a discussion amongst some senior VSA glider drivers and have the following suggestions:

Normally, I see passenger discomfort before they are aware of any impending issue. So I say to them casually, “So, how are you enjoying the flight?” This is a positive question. Asking a passenger if they are feeling okay is essentially a negative question, implying that they maybe shouldn’t feel okay. Those who show signs of potential discomfort or illness almost always respond with observations such as: “I’m feeling a little dizzy” or “I could use a little fresh air,” or “My stomach feels uneasy.” Often a passenger will begin burping and you may even smell the impending vomit. These are cues for the pilot to take several actions such as:

- Always carry and know where you can reach an air sickness bag. But do not bring it out yet as the passenger/student might be induced to be sick prematurely. It is best to avoid vomiting in the aircraft if possible since the smell can often induce others to do the same, ie. *you*.
- Talk softly and gently with the occupant(s) to keep their mind off how they are feeling.
- Stop any steep turns and excessive maneuvering and plan a gentle approach to landing with the minimum of turns and pitch changes enroute.
- Open vents, windows and any other ventilation outlets if fresh air is needed.
- Tell the passenger you are going to go back and land because you want them to be comfortable.
- Keep the passenger looking out of the cockpit while

- pointing out things towards the horizon – a head-down attitude will speed getting sick.
- With students or passengers that you have checked out on the use of controls, let them fly (if practical) as that will keep their minds busy and occupied away from thinking about being ill. Several VSA members use this technique.
 - If they need more fresh air, suggest that they put their hand by the air vent and deflect the flow onto their face.
 - Because my plane has side-by-side seating, it is easy to diagnose imminent illness. Others flying tandem gliders from the back seat may observe the first signs of vertigo onset as the passenger hunching their shoulders forward and often seeing sweat beads on the back of their neck.
 - Without being obvious, peripherally watch your “patient” for signs that reverse peristalsis is beginning – there are usually several seconds of gagging before the flow begins. That’s the time to get out the barf bag, open it quickly and present it to the individual (and take control of the aircraft if applicable).

Very often an airsick individual will be very concerned that they have “spoiled your flight”. Rather than add insult to injury, you should tell your passenger that the flight was for them specifically and that their comfort is the most important aspect. Furthermore, you might mention that you will land so they will be more comfortable. On that note, you might anticipate that the recovery time from vertigo can range from a few minutes to a day or so – with potentially recurring periods of vertigo that can last for years!

Most of us have seen cases where a person who has had their gyros toppled on a carnival ride or some other activity will suffer some of the symptoms again whenever they are tossed about. So, it really pays to land someone who begins

to show discomfort well before they produce positive proof they are sick. Remember, there is one very special passenger you never want to induce air sickness on – and that is your marital partner – especially if you want their support for your soaring weekends. Airsickness is an event that is best avoided because one doesn’t want to have to deal with the long term effects.

Wishing you lots of lift – smooth lift ...

Pharmacology The effects of dimenhydrinate are very similar to those of diphenhydramine. The main differences are a lower potency, and a longer latency. 50 mg dimenhydrinate contains 27.2 mg of diphenhydramine, so it is less potent at equal doses. Also, dimenhydrinate must dissociate into diphenhydramine in the body before it is active, so it produces effects more slowly than diphenhydramine. The drug typically takes a minimum of 4 hours to fully take effect.

Theophylline was added in order to counteract drowsiness. Theophylline is very closely related to caffeine and theobromine, mild central nervous system stimulants. It was thought by scientists that by combining the antiemetic effects of diphenhydramine with a stimulant, the extreme drowsiness induced by the former could be mitigated somewhat by the latter. However, the sedation caused by diphenhydramine is substantially stronger than the stimulation caused by chlorotheophylline, so the overall effect is still mostly sedating.

While dimenhydrinate is still used to prevent nausea and emesis, the development of the chemical meclizine has overtaken its usage (marketed as *Dramamine II*) because meclizine is less likely to cause drowsiness. ❖

As I head to the northwest, the landout possibilities reduce, farmland replaced by trees and lakes. At 50 km along the second leg of 180 km, I find myself at 3000 but manage to find 4 kts in very broken lift; I’m having second thoughts about continuing. From here on I need to be at 5000 feet minimum to be able to reach fields to the east if I need to. On climbing to 6000, I decide to continue for a while and see how it goes. A 4.7 kt thermal takes me to 7000 feet – there’s hope after all. As I fly, I look way out on course for landable areas, and manage to stay above my comfort height of 5000 feet.

On the edge of the Ottawa River valley I climb to 8000 in 3 kts, giving me height for the second turn at Bonnechere, which is now mostly in the blue. After 330 km, the speed is only 77 km/h. No speed triangle record today. Because of the blue conditions I decide not to extend the leg, and there won’t be any point to extending the next leg, which is already 240 km long, for the free triangle distance attempt.

I find 2–3 kts lift, and looking on course it looks like there are cu at Fort Coulonge about 80 km ahead. I finally reach the clouds and only find 2 kts, but with a tailwind now I am making progress. As I reach St. André-Avellin, chasing small cu south of course line, I’ve only averaged 2 kt lift for 150 km, dumped half ballast, and have 50 km to go to the third turn,

Huberdeau. I start thinking about aborting the task as conditions turn blue here too, with weak lift, but decide to go on after finding 3 kts to 6500 feet.

At the turn at 18:00, I now have 65 km to go, in the blue, with a slight headwind. With slight deviations to reach small wisps, I slowly get the needed height to finish, and climb a little more to make sure. As I reach final glide with height in hand, I radio Christine to report that all is well and will be home soon. (Roger had marginal conditions on the third leg on his 500 km attempt and decided to cut it short, but had a great flight nonetheless.)

I was surprised to have been able to complete the task with only 3 knot average thermals. In June, when you can fly an extra hour, and with only slightly better conditions, a 750 km is definitely possible, such as the ground-breaking flight by John Firth in 1977. A large declared triangle can be quite a challenge – there can be times on task where it doesn’t seem do-able. Pushing yourself to keep going within your comfort zone can be hard, but well worth it when you complete the task.

To follow the flight on Google-Earth, go to http://varicalc.dyndns.org/EO_630K.kml

Soaring Association of Canada

what? & why?

John Toles

WHAT DOES SAC DO FOR ME? Why should I be a member? What do I get for my membership fee?

These are questions that have been asked – and answered – many times since our association was formed in 1944. It seems to repeat about once a SAC-member generation. A search of the *free flight* archives reveals many articles and comments on the topic. I have directed many *Priorities* columns and articles to these areas during my past years as board director and former SAC president. A search through the Round Table discussion forum likewise reveals many comments on the topics, some based on facts, some not so much!

Similar questions recently surfaced at the recent AGM in Hamilton. Although I was not able to attend, I understand there was some pretty animated discussion. Much of it stemmed from a motion to reduce the SAC fees, a motion which was defeated.

My initial reaction when asked to write this article was why? There is really nothing new, and it has all been discussed before. However, considering the turnover of membership and the recently generated interest, I hope it will be of benefit.

First, I'd like to address the question of fees. This was the content of the recent motion. All national soaring organizations have a membership fee. Some are lower than those of SAC. Most have a larger membership base, many have paid employees, but all provide the same basic services to members. One major difference, as SAC is incorporated as a non-profit, volunteer sports organization, is that all fees are considered a donation to the organization, and as a result a tax receipt can be issued. Thus, a fee of \$120 is, for most members, much less than that depending on one's individual tax bracket. I speculate that for most members it brings it below the \$89 proposed in the motion to the AGM!

A second important consideration is that SAC is an organization of member clubs, not of individual members. That is, to be a member of SAC requires a membership in a SAC club. Thus the structure has never been "top down". Clubs in each of the five SAC zones elect a member to the SAC Board of Directors. While providing regional representation, the focus is primarily on national issues. So, what is SAC? It is your club...and your club...and your club. Understand the concept? SAC is only as strong as the individual clubs it represents.

Although the Board of Directors oversees all aspects of SAC business, it is the individual committees that are the strength of the organization, so a review of the commit-

tees, their tasks, and some of their accomplishments may best shed some light on the question of what services SAC provides to the membership. A member of the Board of Directors works with each committee, forwards recommendations to the Board, and helps prepare or revise policy.

Flight Training and Safety (Dan Cook, flight training, Dan Daly, safety officer) drafts training manuals and other materials for pilots and instructors, conducts safety seminars, provides recommendations to clubs and Transport Canada on safety and related matters, provides recommendations to Transport Canada on the glider pilot written examination and helps with courses for instructors. The committee also works closely with OSTIV on international training and soaring safety issues. A recent initiative involves the development of the SAC Safety Management Program. Here again, SAC provides the framework and encouragement, but it is up to the clubs to implement a safety program that best meets their needs.

Technical (Paul Fortier, chairman) deals with Transport Canada on various aircraft technical issues, as well as to provide advice to the Board and members as the occasion warrants. This would include the transponder-exempt provision for gliders, and type certification for importing gliders.

Insurance (Keith Hay) negotiates and administers the SAC group insurance program. The major challenges that the committee has had to face are a tightening insurance market and the poor accident/claims record of the Canadian soaring community (one of the worst in the world). Another issue, at least in the past, was that competing insurance products typically did not provide the same level of risk reduction as the SAC program. This needs to be balanced with finding the lowest possible premiums. As well, the selected company must be licensed to operate in all provinces so that all members can be served. The insurance work is most challenging and demanding, especially around renewal time, and a lot of volunteer time is required.

Medical (Dr. Guy Thériault) deals with questions and concerns relating to pilot medical issues and how the Transport Canada medical requirements may be interpreted in individual cases.

Sporting (Jörg Stieber, chairman) is mainly concerned with issues relating to national contest flying. The committee also works with the Canadian Advanced Soaring group (CAS) to promote soaring competition. The Sporting committee oversees the seeding and selection process for the national teams that represent Canada at world

competitions. The committee works with the host clubs in hosting national events.

Airspace (Scott McMaster, chairman) represents SAC in issues involving use of airspace for glider pilots. It involves meetings and discussions with Transport Canada and Nav-Canada, most recently on airspace issues in southern Ontario. The committee has been very effective in maintaining air-space use for soaring.

Membership and Marketing This committee was put in place a few years ago to investigate issues involving declining membership. Recently, Jay Allardyce, Prairie Zone Director, has been working to reactivate the committee. Hopefully, the committee can work with individual clubs to promote soaring in their areas.

Historical This committee is currently not active, as it has been difficult to find someone with the interest and time to organize volumes of archive data. Ursula Wiese has worked very hard to keep much of the SAC historical information up to date, in particular with her *Book of the Best*, available on the SAC website documents section. Back issues of *free flight /vol libre* also contain lots of history thanks to the efforts of Tony Burton.

FAI Badges have been administered by Walter Weir for longer than I can recall! Earn a badge? Submit it to Walter. He also keeps the Official Observer record current.

FAI Records are handled by Roger Hildesheim. New records are submitted and published as they are verified.

SAC Trophies are coordinated each year by Phil Stade and presented at the luncheon at the SAC Annual General Meeting. The trophies were housed in the SAC office, but are now being stored at the Gatineau club until another location is available.

An under-utilized resource is the **Video Library** maintained by Ted Froelich. The challenge is to keep the data in a current

format. Anyone still have a VCR? Even CDs are becoming rare. Challenge – can anyone help in getting this material on-line and available through the website?

Free Flight / Vol Libre – not really a committee, but our national magazine is available through the efforts of editor Tony Burton for 31 years now.

Summarizing a few of the accomplishments of these SAC committees, often with the guidance and assistance of former Executive Director Jim McCollum, may help us realize how much has been achieved. And how much more expensive your flying would be if any two or three of them (you choose) were not in place today:

- Establishment of a National Safety Program.
- Establishment and maintenance of a national group insurance program for hull and liability.
- Removal of the annual radio licence fee for ground and aircraft radios.
- Reduction of pilot medical fees.
- Reduction of the fees for type certification for gliders.
- Exemption of the NavCanada fee for gliders.
- Removal of the insurance administration fee.
- Reduction in the Aero Club of Canada membership fee for FAI affiliation.
- Eligibility of Class 4 medicals for glider pilots.
- Reversal of the proposal to require a Private Pilot licence in order to operate a motorglider.
- Exemption of the transponder requirement for gliders.
- Rollback of controlled airspace extensions that would have seriously affected soaring.
- Removal or reduction of SAC fee for youth and junior members.
- Establishment of the Youth Bursaries.
- Financial support for World and Junior World teams.
- Establishment and maintenance of a national member and soaring related database.
- Establishment and support for a national website.
- One of the finest and most highly respected soaring publications in the world. ❖

And now – things you didn't know about free flight

Given John's discussion above on the structure of SAC, this is probably a good time to dig into some details about this magazine. At the AGM on 17 March, the subject of *free flight* as publicity came up. As I mentioned then, the primary difference between the COPA publication (*Flight*) and ours is that COPA's is a newsprint edition of general news whereas ours is also a journal of record and a resource that is archived. (I wonder how many COPA members keep back issues of *Flight* on their shelf.) A suggestion that selected soaring articles be reprinted in *Flight* that might have interest to the power community was a good one – that's easily done if COPA will entertain this.

I have been the editor for quite a while now. The subject of a replacement editor when I go – as I eventually will – is an important one because *free flight* is probably the main glue

that hold SAC members together (besides being the second largest SAC expense). That will be a good time for considering how the magazine format might evolve.

Whoever the next editor is, he or she will have to:

- Know the scene,
- Understand the technical side of soaring,
- Respect the English language,
- Have or quickly learn some layout artistry,
- Know how to mine for and invent copy, and
- Ruthlessly edit (words are like gold dust to the writer, an editor treats words as low-grade ore).

Oh – one more – know someone who can REALLY proof read. Spotting typos is only a small part of that demanding work. Every word of *free flight* is examined almost character by character a minimum of three times. This is such an important job that, for example, it has been the only paid position of *GlidingNZ*. ⇒ p29

How do you say “glider” in Hungarian?

from **Costas Pikros**,
a glider pilot in Greece

German Gliding as a sport began in Germany, so let's start there. A *Flugzeug* (air plane) is literally a “flying/machine”. In German there are two words for a motorless flying machine. A *Gleitflugzeug* is a flying machine that glides from the top of a hill to the flatland below. A *Segelflugzeug* is a motorless flying machine that is able to sail in thermals (Segel is the sail). The German term for the sport is *Segelflug* (flying with sails). It's as simple as that.

English The British followed the German tradition and also use two different terms. Glider is a general term for the low performance motorless aircraft during the early evolution of the sport. Sailplane is the term mostly used for contemporary higher performance “motorless” flying machines, although now there is an engine often hiding inside somewhere. In most English-speaking countries, the term for the sport is gliding. In the USA the sport is best known as soaring.

French In France, the German *Gleitflugzeug* was translated to *planeur*, and the term prevailed for used gliders and sailplanes. Although “sail” has not appeared in the French name of the machines, it does appear in the name of the sport. The sport is named *vol à voile* which means flying with sails. As for the pilot, he is called a *vélivole*.

Italian *Aliante* is used for gliders. The term *velivolo* is used for “aircraft”. It has nothing to do with the French term for the glider pilot. The word *aliante* is derived from *ala*, which means a wing.

Spanish The term *planeador* is used in most Spanish-speaking countries for both the flying machine and the pilot (though the pilot can also be called, of course, the *piloto de planeador*). Many years ago, photos of a gliding camp appeared in the US magazine, SOARING. A big sign in the entrance of the camp stated: “*Los planeadores son amigos de tristesa*”. We may be lonely flyers but, quite the contrary, we think that we are “*amigos de la alegria*”.

After the western European languages, here is a brief look at the eastern European group.

Russian Russia and France have always had close intellectual relations, even though Napoleon reached Moscow. The Russian word in Cyrillic, планер, or *planer*, must be coming from the French *planeur*. There is no connection with *samaliot*, which is used for the airplane, or *vertaliot*, the helicopter.

Polish The Poles use the word *szybowiec* for the gliders. It was the first word of the Polish glider factory SZD (Szybowcowym Zakładzie Doświadczalnym). I have not tried to pronounce it, even after being in the factory at Bielsko Biała for a whole week.

Czech In the Czech language there are two words for a glider. As in German, *kluzák* is the *Gleitflugzeug* coming from the word *klouzání* that denotes a glide. As for the *Segelflugzeug*, it is called *větroň* coming from the word *vítr* that denotes the wind. The glider pilot is *plachtař* and the word for gliding is *plachtařství*. Both words share the root *plachta*, meaning fabric or plastic.

Southern Slavs Serbians and Croatians have a common language, the main difference is in the characters they use when writing. Serbians use the Cyrillic alphabet, Croatians use the Latin alphabet. The common word for glider is *jedriliča*, but *klizač* is used for a primary glider. Bulgarian? – sailplane is *bezmotorni samoleti*, and *planeri* is also used, both denoting a Russian origin.

Hungarian Hungarian belongs to the Ural group of languages together with Finnish and Estonian. Many decades ago a glider pilot sent me a Hungarian book, so that I could see its very nice drawings. It was called *Vitorlázó repülőgépek*. Breaking this title down, *Vitorlázó* means sailing, *repülő* means flying, and *gép* means machine, or to Hungarians – sailplane.

I was always puzzled about how this term was pronounced. Recently a Greek team went to fly in Hungary for the international gliding contest. I demanded that they learn how to pronounce this word, just for my pleasure. When they came back a month later, nobody had acquired the ability. Fortunately there are now internet sites that can vocalize the words you are writing in any language. That solved my problem.

Greek At last let's come to Greek. When gliding arrived in Greece from Germany in the '30s, the first gliders were ΟΛΙΣΘΗΤΡΕΣ

(gliders). Later on, the term *Segelflugzeug* had to be translated. But in our maritime country, sails were not to be mixed with flying. The term for the sailplane is today ANEMOPTERO (anemoptero). ANEMO is the wind and ΠΤΕΡΟ (ptero) is the wing (as in the common words pterodactyl and archaeopteryx). The first sailplanes were using the wind that produced lift along the slopes of the hills, and that justifies ANEMO. As for the ΠΤΕΡΟ it is nearer to the Italian *ala-aliante*.

There is another possibility, ΠΤΕΡΟ means wing, but also “feather”. ΠΤΕΡΟ ΣΤΟΝ ANEMO means “a feather in the wind”, a common expression in the '30s. A glider, as people were seeing it on a hillside, really was a “feather in the wind”. Now we go to the term for “glider pilot”. He is called an ANEMΟΠΟΡΟΣ (*anemoporos*) the meaning being “somebody who travels with the wind”. So “gliding” becomes *anemoporia* that means “traveling with the wind”. The “sail” of most other languages gave its place to the word “wind” in Greek. As a consequence we are frequently asked: “how do you fly when there is no wind?” Today, neither the sail nor the wind are essential to the sport of soaring as we all know.

Wrestling with units

Gliding takes place in airspace that may be defined by the length of a Roman centurion's boot, Napoleon's *mesure usuelle* or, on a medieval ship, the number of knots on a rope that unspools from a reel, in units of time measured with a sandglass. The foot, metre and nautical mile are used alongside each other, often in inconsistent and illogical ways.

While each unit has a respectable scientific pedigree and a body of adherents to which it is sacrosanct – using three different units of measure in combination, please?! A review leading to a rationalization would be helpful in the interests of simplicity and flight safety.

Miles, metres, maps ... I am at the launch point, preparing to do battle with the elements and the units. For the Silver distance flight, I hope to be winched to 1500 feet, record a height gain of 1000 metres, and fly somewhere not less than 50 kilometres away. Cross-country speed will be measured in knots so, after half an hour averaging 50 kts, I will have travelled 25 nms, or 28.78 sms or 46.30 km. There will be strict adherence to maintaining a minimum height of 1000 feet above congested areas.

Navigation will be aided by that paragon of cartographical clarity, the 1:500,000 aeronautical chart. Heights are shown in feet, it is scaled for distances to be read in metres.

I could measure in inches and mark off my course in increments of 6.85 nautical miles, but I am not sure that would be helpful. Bizarrely, the size of aerodrome traffic zones is specified in nautical miles depending on the runway length measured in metres. Is this to assist the pilots of French flying boats? Trying to wrestle with these different measures, I feel under pressure – my blood pressure surges above 140/80: in mmHg!

The measure of safety Significant implications for safety follow from using a multiplicity of units, and using them inconsistently. Simplicity and logic aid safety. There are more important things to do in a crowded thermal, on the edge of prohibited airspace and at the limits of gliding range from base, than to try to convert km into nm. Excessive workload clouds thinking – by several octas. Aircraft have run out of fuel when metric and imperial units of capacity are confused. This is not an issue in my club's K-18, but out of consideration to the villagers enroute, I must remember to take a litre rather than a pint pee-bag when I next fly cross-country!

Surely the nautical mile is past its sell-by date in an age of GPS and the atomic clock. Some fliers may wish to compare their progress with that of the Golden Hind, but here, in the Midlands, our concern is with relationships that are territorial rather than nautical. Some of the older members of my club are happier with rods, poles, and perches; my preference is for furlongs and chains. The latter, being the length of a cricket pitch, is a unit of distance with which any Englishman worthy of the name has an innate understanding.

One distance measure Simplifying the measurement systems used in gliding could be the next task for the Eurocrats at EASA. Indeed, after glider registration and pilot licensing, there is little else for them to meddle with. The most obvious solution is to ditch the mile, both statute and nautical, in favour of the metre, which is the SI base unit of length. But this would infuriate admirals, meteorologists, cartographers, antediluvian aviators and 'little Englanders'. And we certainly would not want to hand the French a victory so soon after Waterloo.

The fairest solution is to annoy everyone and introduce a completely new unit of length – I suggest calling it the merkel.

David Clark, from *SAILPLANE&GLIDING*

My personal favourite British unit for rate of climb is furlongs per fortnight. Let's see, that would be not quite 0.4 in/min – perfect for wimpy thermals. Tony

Saskatoon Soaring marketing a small club

SSC has been around in one form or another since the 1950s. I have archival records listing as many as thirty members and one glider, and others with as few as nine members and multiple aircraft. The current version of the club has been active since the mid-70s with 21 members on the roster so far this season.

Saskatoon is one of the fastest growing cities in Canada with a market of 300,000. Club growth should be able to at least keep pace with this population. The common denominator over the years has been a changing core of six to ten members that form the executive, fly regularly, and support our club activities. This is often the same for most clubs. A challenge has always been to match club size with available equipment, instructors, etc.

I suspect this is one key to member retention. Students quickly lose interest if they have to hang around the field all day for a short flight or two. Another challenge is to provide instruction to students but not interfere with the instructors' individual soaring time. Many instructors are also owners.

Members lose interest if they can only hang around the same area near the airport day after day. A club goal is to provide soaring instruction, including Bronze Badge assistance, and dual cross-country training for licensed members. Two members who had a dual cross-country flight are now owners and have earned the Silver C.

What have we done to promote the club that has proven successful? The only paid ad is one in a local publication, the *Leisure Services Activity Guide*. Available all season, it publicizes intro flights, membership opportunities, and our annual ground school. Spring ground school is timed to follow the distribution of the *Guide*. A variety of people register for the ground school out of general interest, most do an intro flight, and some even become members.

We try to keep the profile of the club visible through free promotion based on soaring interest. This includes local newspaper articles, profiles of pilots, local TV interviews, and media flights. They remain eager to get local material of interest. We also try to keep the regional airline pilots and employees who serve northern Saskatchewan aware of our club opportunities. We maintain a current club website and have it as a link available from to other aviation groups such as the local COPA Flight. Members also visit other aviation groups and Air Cadet Squadrons

with suitable Powerpoint presentations featuring the club and soaring opportunities.

A small airport just north of the city has been inviting and accommodating to us for use as a secondary base for gliding. With the winch and a second training glider (K7) we can do circuits with students, and are visible and available for many introductory flights.

One of our marketing plans requires the support of members, each of whom are encouraged to promote soaring through their workplace, circle of friends, etc. This includes actually bringing someone who may be interested out to the field for an intro flight. A person is more likely to get involved if they know a club member. As well, we attempt to have a student get to know and work mainly with one instructor for continuity. The on-line schedule also helps team up students with instructors. The student will fly with more than one instructor, but one may serve as a mentor and become more involved.

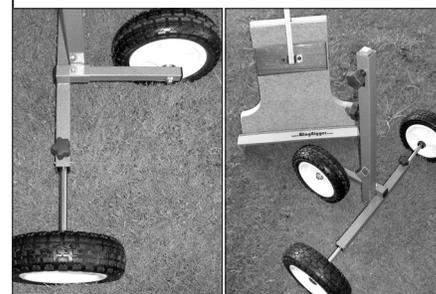
Maintaining and flying appealing equipment is important to attracting and retaining members. The club recently acquired a Blanik L-23, has a Solo L-33, and has completely overhauled the towplane. Not the newest most advanced aircraft, but they look good, fly great, and are affordable.

We still experience a "revolving door" of members, but less than the national average, and as members leave, we attempt to attract others in their place as we plan for modest club growth.

John Toles

Wing Rigger™ Solo Assembly System

- Now with sliding axle for lateral adjustment
- Gas spring lifting assist for easy height adjust
- All-terrain 3 wheel stability + quick breakdown
- Versions for all gliders including 2-place ships
- Robust construction: TIG welds, powder coat
- Most preferred design for use and storage



Video, Pricing, Details: www.WingRigger.com

† Oscar Boesch

A LEGEND PASSED AWAY ON 3 JUNE. We will miss you Oscar, and are thankful you spent some time with us. Younger glider pilots may wonder what made this man a legend. There were three factors: he was born in the right place at the right time, there were his eventful and “charmed” war years, and finally his awe-inspiring airshow days.

Right place, right time Oscar was born in Austria in 1924. By the time he was 15 he had learned how to fly gliders. He always joked about having learned to fly before having his driver’s licence. In those days gliding was affordable because it was government sponsored. Also, gliders were not as sophisticated as today; many clubs built their own simple primaries. The launch system was simple too, with one being slingshot off a hillside by lots of volunteers stretching out a bungee cord. That’s how his career started. By the time he was 18 he had over 300 hours, making him an excellent candidate for a military pilot as the war was now well on.

The war years Oscar was accepted in the Luftwaffe. He transitioned through various airplanes including the famous Messerschmitt 109, finally being assigned to the Focke-Wulf 190. He flew the last year of the war between April 1944 and April 1945, downing 18 aircraft. This time did not go by easily – he himself was shot down eight times (!), bailing out of four and crash-landing on four. In one incident he decided to stay in the midst of a bomber flight, making it difficult for them to shoot at him without shooting each other, but he still got shot down by the ground flak.

In the closing days of the war he saw a Russian Yak 9 coming at him head-on. Both opened fire and both pulled up at the same time. Oscar’s plane was slightly above the Russian and his bottom disintegrated the top of his opponent’s – both planes were destroyed. Oscar recalled how he saw almost in slow motion the parts of his FW-190 go by him. After this collision he was captured by the Russians, but on the third day he managed to escape. He walked on an injured leg over 800 km, saw Berlin surrender, and then took any means he could to get back to Austria, sometimes riding on the bumpers of American trucks unsuspecting of whom they carried.

In those years he met the love of his life Frau Editha whom he married and emigrated to Canada with in the 1950s.

The airshow years Oscar could not stop flying, and his passion was passed on to his whole family. In the 1960s he helped create the Air Sailing Club in Belwood, ON and had purchased a Ka6 in which he started doing some aerobatics. He was seen by the organizer of the CNE show and asked if he was interested in performing. He gladly accepted. In 1971 he purchased an ASW-15, which was very advanced for its time. With it he began a career that lasted for thirty years doing an average of twenty shows annually. This took him from Toronto to many states in USA including the famous Oshkosh Airshow.

IMAX approached him in 1977 and asked if he would take the main role in “*Silent Sky*”. He did. This venture took him around the coastal cities of the USA where after ninety-five flights the movie was completed. When edited, it was two hours long. However, during its preview, so many people got motion sick that the theater version was cut down to only eighteen minutes. This film has been seen by over a million viewers around the world.

He was the CFI at Air Sailing when I joined the club in 1988. In those

days we had the Ka6 for solo club trainer, two K-13 as trainers, a Jan-tar for cross-country, and a very modern Grob Acro II which was used to practise advanced soaring. Our club produced many good pilots; one of them continued flying commercially and now is an Airbus 340 captain for Lufthansa. We all owe our skills to Oscar who taught us many of his acquired skills in his long flying career of experience in more than seventy types of aircraft.

On one occasion in 1990 he was spotted flying the Grob early in the morning in a very gentle manner. We all thought that his airshow days were over. As he landed we came to retrieve the glider to find out that he had taken a very fragile lady for a flight who, when the canopy was opened, stated: “you know young man, since I was a child I have dreamed of flying and you just fulfilled it – very good considering that I was born before the Wright Brothers flew.” She was 93.

Oscar had a way with words which made him well understood without hurting the student. When I started to transition from power to gliders, I couldn’t get used to the rudder pedals, so one day he said to me, “stop flying like a butterfly and start flying like an eagle” (picture the two and you get the point).

In 2007 Oscar was forced to stop flying due to macular degeneration of his eyes. He flew his last flight at the age of 83 and he went about it graciously with some aerobatics! After he landed he said to me, “During the war I was shot down eight times, this is my last and worst because I know I won’t fly again”, and handed the glider to me. He had one request; “be gentle with this lady”. He said, “you know, flying a glider is like dancing a waltz with a fine lady. She will let you lead her, but if you step on her toes she will step back on yours with her high heels!” “Got it!”, I replied with a grin. Since then, I have taken his “lady” to Winnipeg where she has returned to aerobatic flight and done some demonstrations for our club.

Marin Bolkovic, present owner of ZUZ



Oscar’s famous airshow sailplane, *Wings of Man*, the day before he passed away, was at the Winnipeg International Airport at a static display at the Stevenson School of Aviation. Hundreds of kids had a chance to sit in the glider and dream they were flying, thus continuing Oscar’s goal of promoting flight.

Horizontal gusts

from page 17

place horizontally – maybe 100 feet or so lower in energy terms, which if the average rate of climb in the next thermal is 3 knots, costs you another 20 seconds.

The effect of a gust depends on the horizontal gradient in the air and any given gradient causes a vario reading proportional to the square of the true airspeed. Now in a modern glider 85 knots indicated or so isn't a very high cruising speed and at around 10,000 feet this is close to 100 kt TAS. You can calculate what happens at higher TAS.

What to do then? With current technology the only way to tell is to feel the acceleration due to vertical air motion and mentally correlate this with the vario reading. If you get a vario reading with no vertical acceleration then it's a horizontal gust. It's much easier to learn this with a properly compensated TE vario having a reasonably fast response so that the vario doesn't have instrument or

installation induced errors and both the vario and "seat of your pants" tell the same story.

How bad is this problem in reality? We did a test flight in a Nimbus 3DM on a day that wasn't particularly gusty. Over sample periods of 2 minutes while flying at about 80 knots we found that TE variometer excursions lasting from 0.5 to 2 seconds or more would occur at least every 10 to 15 seconds. The shorter-lasting gusts caused large excursions of 6 to 8 knots but these were damped by the slowed variometer response. Even the longer lasting gusts caused significant excursions of 2 to 4 knots. The damped TE vario response showed a significant lag over the undamped vario that introduced a delay into detection of real vertical air motion while still showing the effects of the horizontal gusts.

I believe this is why some people find initial cross-country flights difficult. You learn to fly floating around the airfield at 50 knots. Catching thermals on the run from 70 or 80 knots is more difficult even if the vario

system is working properly. The ability to distinguish between real thermals and vario readings caused by horizontal gust encounters is essential for modern soaring pilots. It is a problem that has crept up on us as gliders of better performance have begun to be able to cruise at higher speeds and variometers of fast response connected to accurate TE probes have come into use.

It is also a good reason for using the "constant attitude" method of inter-thermal cruise through "thermals" you aren't going to circle in. If you are enthusiastically dolphining, the changing G loads will mask the G loads due to real vertical air motion.

There are other effects in TE vario systems due to changing G loads that cause them to work much better when you make smooth and gradual attitude changes. You might also not make yourself sick and you have more time to look around and actually see that steeply banked circling glider going up through your horizon. ❖

... about free flight

from page 25

An editor has a big job if the magazine is to retain the quality you have seen in it – very rewarding though. When the day finally comes, I would be happy to ease the transition for my replacement, and I'll give SAC lots of warning.

Another suggestion at the AGM was that *free flight* become an electronic magazine, or that members have a choice of getting a hard copy or on-line, and that this would reduce a major expense to SAC. What would

that mean in terms of the workload and skills required of a new editor, and what costs are actually involved?

A good on-line magazine is quite different from paper. See www.glidermagazine.com as an example. The format is different because the content is not constrained to 8-1/2" x 11", it is heavily linked internally and externally, and it is continually updated (or should be to take advantage of the medium). This is the primary design reason why such a magazine should be in one format or the other. Of course, *free flight* is currently being

archived as pdf files but it is not interactive. Would there be enough regular input to sustain such a format? An on-line publication would also be a team effort as the editor may not also have all the important web skills required.

The total cost of *free flight* is divided between preparation, printing, and second class mailing. Here are the rough annual costs in the most recent two years for these three items:

Preparation \$7,350
layout \$5450, proofing \$1900
Printing \$10,700
set-up \$2300, press \$7000, labelling \$1400
Postage \$3,900 (2nd class & some 1st class)
minor variation with volume

Note that the only costs associated with quantity (the press run and some large portion of the postage) is about the same as the fixed production costs, preparation and set-up.

Potential cost savings of partial or full web publication over printing-only are *not* obvious. In a magazine having a modest distribution (1500 are printed, fewer mailed), the quantity printed has only a second order effect on cost as the quantity is lowered, and fewer could actually increase the bill (mainly because it would threaten 2nd class mailing privileges).

This would become a major point of discussion in SAC when the time comes to find the next editor. ❖

Come and soar with the bald eagles!

PEMBERTON SOARING CENTRE



Operating daily April to October in Pemberton, BC

- excellent mountain scenery with thermals to 12,500 ft
- camp at the airport, B&B, or stay in Whistler
- area offers a wide variety of summer activities

Glider rentals: Super Blanik

Instruction: glider pilot courses or book a number of lessons,
X-C training/off-field landing practice

phone: (604) 894-5727, 1-800-831-2611
e-mail: info@pembertonsoaring.com
web: www.pembertonsoaring.com

FAI badges

Walter Weir

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

These badges & badge legs were recorded in the Canadian Soaring Register during the period 25 Nov 2011 to 16 June 2012.

SILVER BADGE (50 km flight)

1063 Patrick Pelletier Winnipeg

DIAMOND GOAL & DISTANCE (300 km goal and distance flight)

Andrzej Konarzewski Winnipeg

SILVER DISTANCE (50 km flight)

Brad Wood	Great Lakes	51.6	SZD-48	Colgan, ON
Patrick Pelletier	Winnipeg	79.5	DG-300	Starbuck, MB

SILVER DURATION (5 hour flight)

Patrick Pelletier	Winnipeg	5:12	Astir CS	Starbuck, MB
Timothy Fulcher	Winnipeg	5:27	PW-5	Starbuck, MB

SILVER ALTITUDE (1000 m height gain)

Patrick Pelletier	Winnipeg	1155	Astir CS	Starbuck, MB
Timothy Fulcher	Winnipeg	1440	PW-5	Starbuck, MB
Guy Lapierre	Quebec	1450	LS-4a	St. Raymond, QC

C BADGE (1 hour flight)

2972	Brad Wood	Great Lakes	3:56	SZD-48	Colgan, ON
2973	Patrick Pelletier	Winnipeg	5:12	Astir CS	Starbuck, MB
2974	Timothy Fulcher	Winnipeg	5:27	PW-5	Starbuck, MB

FAI BADGE SUPPLIES

Order through FAI badge chairman – Walter Weir

Note: item 5 not stocked – external purchase approval is given

1	FAI 'C' badge, silver plate pin	\$ 6.00
2	FAI 'C' badge, cloth	\$ 6.00
3	FAI SILVER badge, pin	\$50.00
4	FAI GOLD badge, gold plate pin	\$60.00
5	FAI badge 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 through the SAC office (and should be available from your club)

33	FAI 'A' badge, silver plate pin	\$ 3.00
34	FAI 'B' badge, silver plate pin	\$ 3.00
35	SAC BRONZE badge pin	\$ 3.00

Please enclose payment with order; price includes postage.
GST not required. Ontario residents, add 13% HST.

the Free Flight CD – \$6

245 issues of *free flight* – 1970 to now, and two article anthologies. 102 great soaring photos – for computer wallpaper & club events. Order from editor, payment by check or PayPal. 1970 to 1973 have recently been added to the archive.

FAI records

Roger Hildesheim

49 Maitland Street, Box 1351, Richmond, ON K0A 2Z0
(613) 838-4470, <rogerh@ca.inter.net>

The following record claim has been approved:

Pilot	Nick Bonnière
Date/place	17 May 2012, Pendleton, ON
Record type	Free Triangle Distance, Territorial, Open and 15m
FAI category	3.1.4d
Sailplane type	LAK-17A C-GKST
Distance	630.8 km
Task	Start/Finish at Pendleton, ON, with free TPs near Gananoque, Bonnechere, and Huberdeau
Previous record	Bruce Friesen 512.2 km (2011 Open) Jerzy Szemplinski 539.6 km (2009 15m)

magazines

GLIDING AUSTRALIA – Bi-monthly journal of the Gliding Federation of Australia. <www.soaring.org.au>. International rates for on-line access.

GLIDING INTERNATIONAL – the monthly world gliding publication by John Roake. Read worldwide, with a great reputation for being the first with the latest news. US\$64/120, 1/2 yrs airmail. Personal cheque or credit cards accepted. <office@glidinginternational.com>. Register on line: <www.glidinginternational.com>.

SAILPLANE & GLIDING – the bimonthly journal of the BGA. £39/yr airmail, £22.75 surface. <www.gliding.co.uk/sailplaneandgliding/subscriptions.htm>.

SOARING – the monthly journal of the Soaring Society of America. Subscriptions, US\$46. Credit cards accepted. Box 2100, Hobbs, NM 88241-2100. <feedback@ssa.org>. (505) 392-1177.

SOARING NZ – Editor, Jill McCaw. Personal cheque or credit cards accepted, NZ\$122. McCaw Media Ltd., 430 Halswell Rd, Christchurch, NZ <j.mccaw@xtra.co.nz>.

soaring services

Fox One Ed Hollestelle of Solaire Canada has retired from distributing glider instrumentation to enjoy the perks of semi-retirement. Dave Springfield of Fox One Corp has taken on the Canadian distribution for instruments and software for LX Nav, LX Navigation, SeeYou, Becker and Dittel radios, and will continue to support Ed's former customers. For more product details see the Fox One Corp website at <www.foxonecorp.com>.

MZ Supplies Canadian dealer for Schleicher sailplanes, and Cambridge and Borgelt instruments. Ulli Werneburg <www.mzsupplies.com>, <wernembz@magma.ca>, (613) 826-6606.

Sportine Aviacija Canadian dealer for LAK sailplanes. LAK-17a – 15/18m flapped; LAK-19 – 15/18m Standard; LAK-20 2-seat 23/26m Open. <nick.bonniere@withonestone.com>, <www.lak.lt>.

Windpath SZD, a long tradition, built to last and outperform. Authorized North American dealer for SZD-54-2 Perkoz, SZD 51-1 Junior, SZD-59 Acro, and SZD55-1. Also MDM-1 Fox, PW-6, PW-5, and Avionic trailers. Jerzy Szemplinski, <www.windpath.ca>, info@windpath.ca, (905) 848-1250.

SAC Clubs SAC Clubs

Eastern Zone

AIR CURRENCY ENHANCEMENT SOC.
Debert, NS
robfrancis@tru.eastlink.ca

AÉRO CLUB DES CANTONS DE L'EST
Bromont Airport, QC
Marc Arsenault (514) 862-1216
marcarsenault@sympatico.ca

AVV CHAMPLAIN
St. Dominique A/P, QC
www.avvc.qc.ca

CVV QUEBEC
St. Raymond A/P, QC
www.cvvq.net
club phone (418) 337-4905

MONTREAL SOARING COUNCIL
CLUB DE VOL À VOILE DE MONTRÉAL
Hawkesbury, ON
club phone (613) 632-5438
www.flymsc.org

Ontario Zone

BONNECHERE SOARING
Dave Beeching (613) 584-9336
beechingd@sympatico.ca

ERIN SOARING SOCIETY
7 km east of Arthur, ON
www.erinsoaring.com
info@erinsoaring.com

GATINEAU GLIDING CLUB
Pendleton, ON
www.gatineauglidingclub.ca

GREAT LAKES GLIDING
NW of Tottenham, ON
www.greatlakesgliding.com

LONDON SOARING CLUB
between Kintore & Embro, ON
www.londonsoaringclub.ca

RIDEAU VALLEY SOARING
35 km S of Ottawa at Kars, ON
club phone (613) 489-2691
www.rvss.ca/

SOSA GLIDING CLUB
NW of Rockton, ON
(519) 740-9328
www.sosaglidingclub.com

TORONTO SOARING CLUB
airfield: 24 km W of Shelburne, ON
www.torontosozaring.ca

YORK SOARING ASSOCIATION
7 km east of Arthur, ON
club phone (519) 848-3621
info (416) 250-6871
www.YorkSoaring.com

Prairie Zone

PRINCE ALBERT GLIDING & SOARING
Birch Hills A/P, SK
www.soar.sk.ca/pagsc/

REGINA GLIDING & SOARING CLUB
Strawberry Lakes, SK
www.soar.regina.sk.ca

SASKATOON SOARING CLUB
Cudworth, SK
www.soar.sk.ca/ssc

WINNIPEG GLIDING CLUB
Starbuck, MB
www.wgc.mb.ca

Alberta Zone

ALBERTA SOARING COUNCIL
asc@stade.ca
Clubs/Cowley info:
www.soaring.ab.ca

CENTRAL ALBERTA GLIDING CLUB
Innisfail A/P, AB
www.cagcsoaring.ca

CU NIM GLIDING CLUB
Black Diamond, AB
club phone (403) 938-2796
www.cunim.org

EDMONTON SOARING CLUB
N of Chipman, AB
www.edmontonsoaringclub.com

GRANDE PRAIRIE SOARING SOCIETY
Beaverlodge A/P, AB
www.soaring.ab.ca/gpss/

SOUTHERN ALBERTA GLIDING ASSN.
Warner A/P, AB
www.southernalbertaglidingassociation.com/index

Pacific Zone

ALBERNI VALLEY SOARING ASSN
Port Alberni A/P, BC
http://avsa.ca

CANADIAN ROCKIES SOARING CLUB
Invermere A/P, BC
www.canadianrockiessoaring.com

PEMBERTON SOARING
Pemberton A/P, BC
www.pembertonsoaring.com

SILVER STAR SOARING ASSN
Vernon A/P, BC
www.silverstarsoaring.org/

VANCOUVER SOARING ASSOCIATION
Hope A/P, BC
club phone: (604) 869-7211
hope.gliding@yahoo.com

Directors

President & Eastern

Sylvain Bourque
cell (514) 592-0283
bourques@videotron.ca

Ontario

Eric Gillespie
(416) 703-6362
ekg@cunningham-gillespie.com

Prairie

Jay Allardyce
(204) 688-7627
jay.allardyce@standardaero.com

Alberta & Secretary/VP

John Mulder
(403) 945-8072 (H)
johnmulder@shaw.ca

Pacific & Treasurer

David Collard
1-866-745-1440
dacollard@tekus.net

Air Cadets

National Office

Committees

Airspace

Scott McMaster
(519) 884-2303 & 620-0447 (H)
scott@mcmaster.ca

Roger Harris
rharris@petrillobojold.ca
Tom Fudakowski cynthia.
fudakowski010@sympatico.com
Bram Tilroe btilroe@gmail.com

Flight Training & Safety

Dan Cook, (250) 938-1300
cookdaniel@shaw.ca
Gabriel Duford
gabriel.duford@videotron.ca
Joe Gegenbauer gegb@shaw.ca
Richard Sawyer
cfzsw@sympatico.ca
John Toles
j.toles@shaw.ca
Safety Officer: Dan Daly
dgdaly@hotmail.com

Insurance

Keith Hay (403) 949-2509
insurance@sac.ca

Marketing

Jay Allardyce (204) 688-7627
jay.allardyce@standardaero.com
and 7 club reps

Medical

Dr. Guy Thériault
theriaultguy@hotmail.com

Sporting

Jörg Stieber
(519) 662-3218 (H), 662-4000 (B)
joerg@odg.com

Chris Gough christophergough@gmail.com

Derek Mackie itshdwrk@gmail.com

Walter Weir 2waltweir@gmail.com

Contest Letters: Chris Gough
FAI Badges: Walter Weir
2waltweir@gmail.com

Technical

Paul Fortier (613) 258-4297 (H)
paulfortier1@juno.com
Chris Eaves mail@xu-aviation.com
Wolfgang Weichert
wkweichert@gmail.com

Trophies

Phil Stade (403) 813-6658 (H)
asc@stade.ca

Video Library

Ted Froelich (613) 824-6503 (H&F)
2552 Cleroux Crescent
Gloucester, ON K1W 1B5
tedfroelich@gmail.com



Tony



CANADA		POSTES
POST		CANADA
Publications mail agreement no. 40013347		