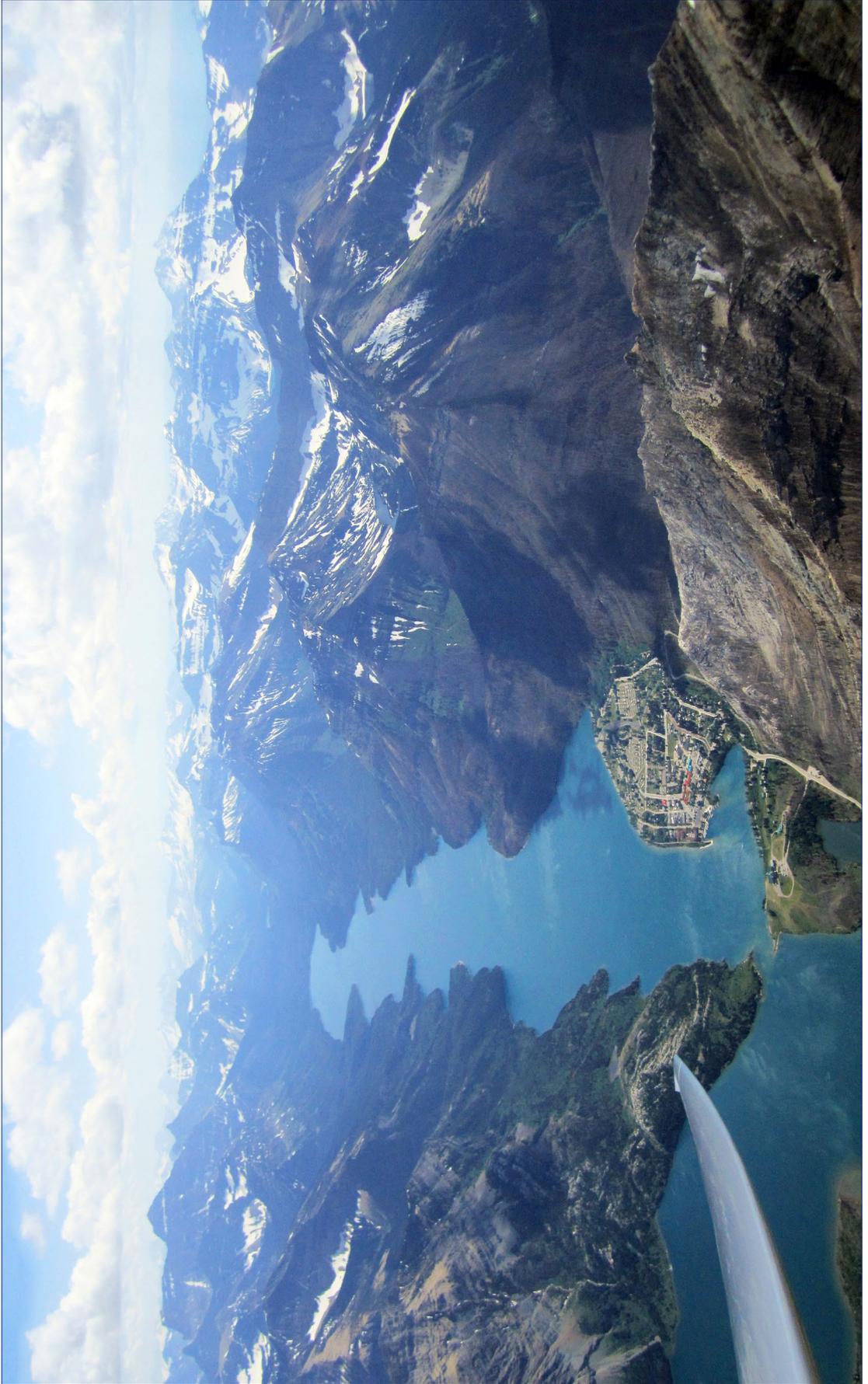
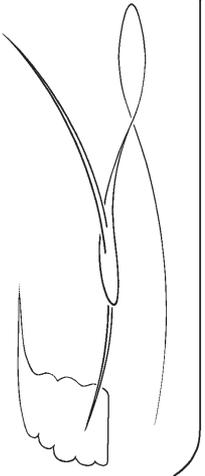


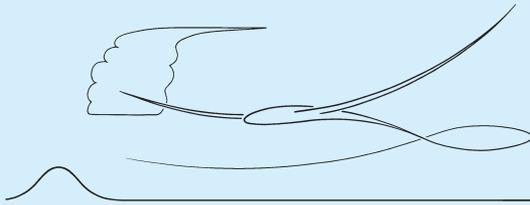
AScent

the journal of the Alberta Soaring Council



2018 Season

ASCent *the 2018 season*



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Cover

Waterton village, on one of Chris' long flights this summer.

photo: Chris Gough



Geoff Minors

THE DAY LOOKED PROMISING. I had set myself two goals to achieve during the Cowley Summer camp, a 5-hour flight to finish my Silver badge and a 300+ km for my Gold badge. I hoped I could do both together.

At the morning's pilot meeting, weather conditions were discussed and it should be a good soaring day. I prepared myself and my Ka6 *Maple Leaf* for a 350 km task. I was first on the grid as I wanted an early start for a long day ahead of me. Taking off at noon, the tow took me into a nice thermal and I released. This thermal took me to 11,000 feet in no time so I headed out. My first turnpoint was going to be Carmangay to the east. As I got near Fort Macleod I needed to find lift, which I did and went back to 11,000 feet. Looking towards Carmangay it did not look good – all blue, so I headed north where the cu was and found lots of lift.

I tried to go towards Carmangay again but as soon as I got to Highway 2 it went silky smooth. I decided to abandon the task and I saw a nice set of cu streeting across the Porkies and decided to head for them and use them to get me on the west side of the Porkies. I only found marginal lift on the way and it dawned on me I could be landing out.

Maple Leaf is very good at climbing in small lift but nothing was working, so the landout was going to happen. Between the Porkies and Stavely there weren't a lot of fields to choose from, but I found a small one and stayed in range of it. I made the decision to land – my first – so I was nervous and did all my pre-landout checks well in advance. *Maple Leaf* can land in a very short distance and this field was large enough. It wasn't the smoothest or that flat but I did a close circuit looking for any obstacles. There was a herd of cows in the field but well away from my landing area.

Geoff Minors
Lethbridge SC

I landed exactly where I wanted to touch down and rolled up a slight incline and stopped in a very short distance. Listening to stories of other pilots landing out and letting the glider roll closer to a gate and then getting damaged due to something not seen is a good lesson to "Keep the roll short". Breathing a sigh of relief that all was safe I jumped out, looked around, checked *Maple Leaf* for any damage (all was very good), then called my retrieve crew George Haeh to let him know where I was.

Then the cows came to say hello and with them a big, black, fierce looking bull! Not sure how friendly this bull was, I stayed away from him but herded the cows from getting too close and after a few minutes, managed to get them moving away and, like a good bull, he followed the girls. They were moving towards a paddock so I followed them, shouting to keep them moving and they all went into the paddock which had a gate, so I shut them in. There was a house close by and I went to say hello, but nobody was home except a very friendly dog. I waited in the shade as long as I could but did need to find a gate for the retrieve.

George arrived and we started to de-rig. After getting the first wing into the trailer I began to feel nausea and very weak and had to lie down and rest for a few moments and drink water. I realized I was very dehydrated, but I had felt no symptoms prior to this. I have never experienced dehydration before – it took me totally by surprise. Lesson learned: don't underestimate dehydration, be prepared and drink lots of water before and during your flights.

On a good note – on the last day of the camp I did achieve my 5-hour flight to complete my Silver badge (I took lots of water and snacks) ... still trying for that 300 km flight. ❖

the provincials

Patrick McMahon, Cu Nim



Day 4, north of Chipman near the North Saskatchewan River.

Patrick McMahon

THIS ALBERTA PROVINCIAL SOARING CHAMPIONSHIP was held on the May long weekend at Chipman and was well attended with ten pilots from four clubs eager for a great flying event. Chris Gough was the contest manager and favoured to win, while I was just excited to participate flying Cu Nim's ASW-28 (28). This would be my fifth race and I've come to value contests for the intense learning that takes place – in every previous one my ability has increased demonstrably.

The usual ESC cross-country flying area was reduced considerably to the southeast by a much expanded military exclusion zone around Wainright due to a joint Army & Air Force exercise taking place, and this restricted the task committee's choices in that direction.

Day 1 – Friday, 18 May

Bruce Friesen and Tony Burton consulted on the weather and tasked the grid with a 3-1/2 hour Turn Area Task (TAT) triangle, turnpoints at Waskatena, St. Paul and Holden. The conditions were expected to be strong, and they were! As the sniffer, I promptly climbed through 3000 agl, starting the launch. In no time I was at cloud base and flew away from the start cylinder to wait for the gate to open. I thought the day would be stronger later on and was prepared to wait, but I heard Chris (99) start a minute after the course opened, so off I chased.

This ended up not being the case, I just made a clean start, while 99 got a 'no start' because he misread the Chipman advisory zone as the start cylinder and actually started early! I flew well, with strong climbs, straight cruises and an adequate job of letting the airplane run for clouds ahead even through less-than-promising skies. Bands of overdevelopment started to complicate things about an hour into the task which created some tactical challenges. I was able to go about two-thirds into the first cylinder before I ran out of clouds, over halfway into the second and all the way to the end of the third where there was a beautiful cumulus cloud building right there for me.

From this cloud I had final glide to Chipman, either through a sky that was dominated by the remnant mid-level stratus of the overdevelopment, or by deviating to blue. I deviated a bit and found the climb I needed to put myself, John Mulder (2J), and Stevenson/Bruns (ZH) on a congested final, right on time. ZH learned the lesson about low finishes by getting a 114 point penalty for that misjudgement.

When the scores came in it was a shock – I had won my very first contest day with a 350 km at 98 km/h (320 & 90 handicapped) flight, and had a 58 point lead on John Mulder (2J). Unfortunately, Chris got zero points for the bad start. There were three landouts and a few Cu Nim members took the road trip to rescue ESC member Ray about 40



Contest Task Turnpoints / Area radius (km)

DAY 1
Waskatena - 20 / St. Paul - 30 / Holden - 20

DAY 2
Vegreville - 0.5 / any TP after that

DAY 3
Two Hills - 0.5 / Vegreville - 0.5 / any TP after that

DAY 4
Mundare - 10 / Smokey Lake - 20 / Westlock - 20

minutes south of the field while Carol Mulder (JJ) was retrieved by husband (2J), a few kilometres short of Chipman.

Day 2 - Saturday *Once more into the blue, dear friends ...*
My read on the day's weather was that we would have high winds, relatively low tops of useable lift, and no cloud. We put the contest grid together for noon with a 2-hour Modified Assigned Task (MAT) with only one mandatory TP at Vegreville – nothing says 'probably not going to fly' more than that. However, 99 went up to sniff, and connected, so we launched the grid. I fully expected to land out. I had done airport to airport cross-countries in Ontario with only 3500 agl but those were days with clouds; this was all blue, and there are far fewer airports. As it turned out, lift went higher and when found was strong to 5000 agl. I made Vegreville then added turnpoints north. I opted to get pushed by the wind to my second turnpoint and have a quartering tailwind on a leg home. It was a tough day, and only once did I have a really great climb marked by ZH. I flew well, but conservatively, and finished fourth. 99 won the day, and Bruce (LL) came second. Carol (JJ) came third, proving once again how awesome Jantars are! My lead was trimmed to 16 points, and the pilot on my tail was LL. From my perspective, to be in the chase was a thrill, to be leading was, well... crazy awesome!

That night I had dinner with my friend from the air cadet gliding school in Trenton, Ontario, 20 years ago when we were bunkmates; today he's a tactical rotor-wing CF pilot. In another life, he was the 'glider bum' that introduced me to this world of soaring in the early 2000s at York Soaring. It was a great meal, with interesting reflections. Meanwhile, the contest was enjoying a buffet at the quintessential small town Alberta watering hole – the Chipman Pub. I arrived late for open mic night and was thoroughly entertained by duets featuring couple Chris and Denise, the all-star crooners of ESC, CTP Bob and Cu Nim President Kerry, and an ensemble featuring Allendria on the banjo! The music went on late into the night.

Day 3 - Sunday *Less wind, still blue*
The forecast for Sunday was similar to yesterday but slightly more optimistic. A 2-1/2 hour Modified Assigned Task (MAT) with TPs of Two Hills, then south to Vegreville. As we were waiting to launch we could tell that the day would be better than forecast as cu and haze domes started to show themselves. I started with 2J who had become like a shadow – always around, occasionally seen, but never in front to mark for me. By the time we were on course, we had cu plain and simple. The cloud street I took south to Vegreville to

| Pilot | glider | ID | hdcp | Day 1 (3.5 hr TAT) | | | Day 2 (2.0 hr MAT) | | | Day 3 (2.5 hr MAT) | | | Day 4 (3.0 hr TAT) | | | total pts | | | | | | | | |
|-----------------|-----------|-----|------|--------------------|-----------|-------|--------------------|-----------|-------|--------------------|-----------|-------|--------------------|-----------|-------|-----------|---|-----|------|-------|-------|----|-----|------|
| | | | | speed hdcp true | dist hdcp | # pts | speed hdcp true | dist hdcp | # pts | speed hdcp true | dist hdcp | # pts | speed hdcp true | dist hdcp | # pts | | | | | | | | | |
| 1 Bruce Friesen | Discus b | KLL | 0.92 | 79.8 | 86.6 | 287.3 | 3 | 812 | 62.3 | 67.7 | 124.9 | 2 | 544 | 80.0 | 86.9 | 199.9 | 1 | 832 | 90.2 | 97.9 | 269.9 | 2 | 903 | 3091 |
| 2 Pat McMahon | ASW-28 | | 0.92 | 89.7 | 98.0 | 320.3 | 1 | 913 | 59.6 | 65.1 | 123.0 | 4 | 520 | 73.8 | 80.7 | 203.4 | 2 | 768 | 88.2 | 96.4 | 264.5 | 3 | 884 | 3085 |
| 3 John Mulder | Genesis 2 | | 0.96 | *84.0 | 87.5 | 293.6 | 2 | 855 | 57.7 | 60.1 | 124.4 | 5 | 454 | 73.8 | 86.9 | 190.7 | 2 | 768 | 82.7 | 86.1 | 251.2 | 5 | 828 | 2905 |
| 4 Chris Gough | Ventus b | | 0.89 | @0 | 0 | 0 | 9 | 0 | 78.9 | 88.6 | 163.0 | 1 | 689 | 72.7 | 81.7 | 182.0 | 4 | 757 | 94.8 | 106.5 | 282.8 | 1 | 949 | 2395 |
| 5 Tony Burton | Russia | E2 | 1.17 | 75.9 | 64.9 | 281.9 | 4 | 772 | #0 | 0 | 0 | 7 | 0 | 67.8 | 58.0 | 176.1 | 6 | 706 | 87.1 | 74.5 | 288.9 | 4 | 873 | 2351 |
| 6 Team ZH | Duo Disc. | ZH | 0.89 | &*79.8 | 89.7 | 279.2 | 5 | 698 | ^0 | 0 | 107.9 | 6 | 85 | 69.7 | 78.3 | 252.5 | 5 | 725 | 78.7 | 88.4 | 243.8 | 6 | 788 | 2296 |
| 7 Gary Hill | ASW-20F | RD | 0.91 | 0 | 0 | 211.3 | 8 | 406 | dnc | 0 | 0 | 7 | 0 | 53.7 | 58.8 | 157.5 | 7 | 558 | 78.1 | 85.5 | 232.9 | 7 | 782 | 1746 |
| 8 Carol Mulder | Jantar | JJ | 1.00 | 0 | 0 | 251.1 | 7 | 483 | 61.0 | 61.0 | 125.8 | 3 | 532 | dnc | 0 | 0 | 9 | 0 | 61.9 | 61.9 | 256.6 | 9 | 620 | 1635 |
| 9 George Haeh | ASW-27 | GH | 0.88 | dnc | 0 | 0 | 9 | 0 | dnc | 0 | 0 | 7 | 0 | 570 | #0 | 1.0 | 8 | 2 | 66.8 | 76.0 | 194.6 | 8 | 669 | 671 |
| 10 Ray Troppman | ASW-15 | RXQ | 1.00 | *0 | 0 | 0 | 6 | 498 | dnc | 0 | 0 | 7 | 0 | dnc | 0 | 0 | 9 | 0 | dnc | 0 | 0 | 10 | 0 | 498 |

* flight under min. task time
dnc not a contest flight

flight under min. dist. & low finish
@ start error ^ airspace

% invalid start



The 2018 competitors. Standing (l to r) are Chris Gough, Gary Hill, Bruce Friesen, George Haeh, John Mulder, and Patrick McMahon. Kneeling are Tony Burton, Zhoulin Li (flew with Kerry), Carol Mulder, and Kerry Stevenson. Missing are Jeremy Bruns (who flew with Kerry) and Ray Troppman.

complete the mandatory requirement, then I turned back to NW turnpoints as I began trying to add miles. I stayed north to check out the energy terminal around Bruderheim and some of the processing sites around Fort Saskatchewan. I turned back to the field, hoping to add the close-in turnpoint at Astotin Lake, but I would be early. Thinking I had enough altitude for a quick out and return to Hilliard via Chipman I decided that would be how I would finish, right on time. I didn't fly final glide well and I ended up needing to stop more than I would have liked trying to grab a low, broken thermal along a short out and back distance at low altitude.

I made some mistakes on this day – I should have prioritized flying where the strong clouds were, not going into bluer conditions as a tourist, and I was plain and simply sloppy near the end when I thought I had final glide. 2J and I tied for second, LL won the day and my lead was down to 13 going into the final day of racing.

In spite of the forecast, and that the contest dinner was this evening, we had no contest landouts! Contestants and three visiting hang glider jockeys (having their own provin-

cial) convened for a patio dinner with smokies, pirogies, chilli, and a few beers! It was a lovely evening at the airfield and a great example of why ESC is such a great place to fly!

Day 4 - Monday *This is it!*

I woke up on the final day of the contest still in first. No one was more surprised than myself. We had a 3.5 hour TAT, with turnpoints at Mundare, Smokey Lake, and Westlock. Strong conditions were forecast. The pilots near the top knew they would have to fly every kilometre into the TP circles to have a chance, something I've never done. I had found *Skysight* to be very accurate through previous days, and it forecast a storm cell going through the task area between 1230 and 1500. I left shortly after the gate opened – there were clouds, they were working, stop only for the good ones. I was above 3500 agl for most of the flight and if I found myself backing off I'd say aloud, "Green light, green light, GO!" I pretty much hit the max on first cylinder chased by a handful of gliders. The cu to my 10 o'clock on the second leg looked like the making of the cell *Skysight* predicted so I followed a cloud street to the NNE and flew through a magically stable blue hole to connect to another line of clouds. When I crossed the blue, I was at



Tony Burcon

Towpilot Bob Hagen was one of the ESC members who entertained everyone at the Chipman Pub buffet one evening, overseen by a critical Frank Zappa.

the east side of the second cylinder, but didn't want to turn because I would be facing an oblique angle through the blue that didn't have a bump the last time through, so I went deeper into this band of clouds and hit the top limit of the cylinder again – two far points in the same cylinder – nothing makes me more upset looking at the trace in retrospect than this decision.

I scratched some clouds heading west to the final turnpoint of Westlock and crossed through the blue again (at an angle), then had trouble reconnecting to clouds on the other side – taking weak climbs, probably too far north. I had flown around the cell and it tracked exactly as forecast. When I ran out of cloud in the final cylinder, I made the turn to home and with a MacCready of 1.4, I had final glide that would have me finish just under time.

The sky looked promising ahead, also threatening. More and more clouds were raining, and soon some virga from nearby clouds started dotting my canopy. I flew in rain at the end of a contest day at Gatineau years ago and it was pretty scary getting pushed toward the ground by downdrafts. I was 20 km out and not more than 2200 agl and a tail wind,

worsening weather, and poor landout options. “What-if” thoughts about strong sink made for a precarious and stressful final glide right to the closest point on the finish cylinder, and I finished under time.

I finished with a task average speed of 96.4 km/h and at about the same time as LL who had stated a few minutes later, we knew it would be close, but LL thought my flight was strong enough to hold up – I couldn't believe it. By this time I felt as though I really belonged in the heart of this competition. No matter the outcome, the growth from competing I had hoped for had been greatly exceeded – for the first time I felt like a competitor, not just a participant.

The rest of my night was defined by a lot more kms: returning a rental travel trailer and getting back to ESC (250 km), getting 28 home to Cu Nim (430 km) and getting back to downtown Calgary (80 km) which made for a 1000 km day including the 325 km in the glider of about 900 km in the air over the 4-day contest! During the first leg of my night driving I learned that LL had won the day and the contest. His final score was 3091 vs my 3085 (a 0.19% difference). While many will remember the contest as the one that 99 didn't win, Bruce and I might have a different perspective of a very close race, with lots of laughs but serious flying! My focus was very much on the pilot right behind me, but 2J had a great contest finishing third and articulated some of the same lessons on pushing hard that were reinforced through this contest for me, especially the last day.

For too long through the contest I thought that I shouldn't be in the lead and I flew like I shouldn't have been there. I learned a lot about Cu Nim's new airplane, FLARM, start/finish strategy and how to keep myself pushing, uncomfortable, and flying in straight lines. I had so much fun at a well run event with great social activities, the friendly and supportive members of ESC, and four days of good flying weather. I expect to put into practice some of the lessons learned on my next XC day and declare bigger tasks with more pressure to move throughout the whole day. I'll be more ready for next year's Provincials if there's an airplane available for me to fly and then make the most of the right 'gear', and get every fast kilometre possible from start of the contest to the finish of every day.

Thanks to Chris and his team for putting on a great event, and thanks for giving the rest of us the chance to feel the pressure that comes with living at the top of the leader board. I'm disappointed in myself that I didn't seize the opportunity to win a contest that was there for me to win, that I didn't push a little harder, run a little longer on any of my flights, but am satisfied that I did much better than my best expectations, and continue to benefit tremendously by participating in contest flying!

What are the chances 99 misses the start ring next year? Because I really enjoy when the race for second in Alberta is the race for first!



Live, from the Nationals!

an interview by Allendria Brunjes, ESC
editor-in-chief, *Bruce Friesen Fan Club*

Time flies quickly here at the Bruce Friesen Fan Club. While the best of the soaring season at ESC seems to have come to an end, things are just heating up in Rockton, Ontario, where SOSA is hosting the 2018 Canadian Nationals. So what better time to catch up with the man and ESC representative Bruce Friesen himself? But wait! There's more: A bonus interview with Chris Gough. On a rest day, we caught up with Bruce and special guest Chris, both competing in the Sports Class.

Chris Gough – the next Bruce Friesen?

First off, thanks Chris, for joining us today as a special guest of the Bruce Friesen Fan Club. I understand today is a rest day at the Nationals, hosted at SOSA, your original home airfield. Many of our members have never flown outside of Alberta. What do you find different about soaring in Southern Ontario?

Well, the differences might not sound that positive but they definitely improve your flying. The thermals are weaker, the cloud bases lower and the humidity higher. All of the days we have flown so far have been challenging. We have yet to see a 'sea breeze' off Lake Erie that can result in a fantastic convergence line but hopefully we will before the end of the contest.

What's been your stand-out flying day so far for you?

I would have said the first day that I won, but it was cancelled because none of us made minimum distance. It was not a great day but I still could have not done much better.

You're currently in first place in the Sports Class. How are you feeling going into the second half, and how's the competition?

I feel very lucky to be in the spot I am in. After two days, the first-place pilot Rafael had a lead of over 300 points. Yesterday, he outlanded before the start which gave him a zero score and me the opportunity to move ahead. I outlanded as well, but had enough points to make it ahead. Now I have to stay there.

More specifically, everyone at the BFFC would love to hear how Bruce is doing. He is currently on the podium too. What is Bruce bringing to the competition?

I tried to give Bruce as much info about Southern Ontario as I can. It must be helping as he beat me yesterday. These conditions are difficult for us western pilots who would not even rig our glider on most of these days.

Anything more you'd like to share about Bruce?

We have flown three contests together this year and it has

been great having a friend at all of them. I wish I could have worn a BFFC T-shirt during the Nationals to show my support. Where can I get one? (Ed. These very well may be in production as we speak.)

And now, Bruce Friesen

Thank you again Bruce for joining us at the Bruce Friesen Fan Club, live this time from SOSA at the Canadian Nationals. Today is a rest day in the contest. You're resting on the podium not far behind Chris. How do you feel the contest is going so far?

The contest is going very badly! Actually, there was a huge shake-up yesterday in the standings in the Sports Class, in which both Chris and I are flying. Things are again very interesting. The top four places are really up for grabs, which will make the anticipation of each remaining day intense. The weather has been less than stellar. A couple of times I have come back from a tough flight and listened to experienced locals expound on the difficult day. In many ways, that is perfect. Maximum learning. Maximum differentiation between the average pilot and the truly good.

What's been the stand-out flying day so far for you?

I'm thinking yesterday, Sunday (5 August). I have been slow, painfully slow, every day here. The same yesterday. But yesterday, only one person in my class finished; for the rest of us it was a distance day and the slow part was not fatal. Except, if I had not fallen in that first hole, and had not needed to dig my way out, I would have been further along when the lake effect arrived, and I would have finished. So being slow was definitive after all.

So why do I call it a good day? Because, in strange conditions, and over unfamiliar country, I got lots of practice finding and working thermals down low. I had the gear down twice, once beside a farmer's field and once at an airport. The thermals were burbly and hard to work (again, confirmed by a local in the evening, who said he cored about three or four thermals all day). More practice. There was a strong inversion, with the thermal strength dropping off well below cloud base – one needed the discipline to leave the thermals when they petered out, and one needed



to find the thermals without much help from the clouds. More useful learning.

At the end of the day, at the last cloud, I could have turned right and gained more distance toward the final turnpoint, or turn left and reach the soaring site. I chose the latter, sacrificing a few points, but avoiding a landout in 38C humidex weather. A serious contestant would have done otherwise! I am a disgrace, unworthy of a fan club. I grovel in shame. Chris, on the other hand, has persevered, and done his best, and has clawed his way into first place in our class.

What have you found different flying in Southern Ontario?

Oh wow, this could be a long list. Perhaps most challenging, they don't know how to do a proper job of laying out farms around here. The roads just go higgledy-piggledy all over the place and everything is a patchwork mess. How can a guy know where north is? Combine that with the fact that, to this newcomer, everything looks the same. I have had very little success noting landmarks prominent enough to help with navigation.

In Alberta, I can match a lake to my course line, and from then on roll out of a thermal on the correct course. I am sure a local pilot reading this would be laughing, saying "we have tonnes of excellent references" – but it has been a challenge for me. And on the micro-scale as well. Going in to a turnpoint, I found a great thermal in the blue and wanted to note the location to use again on the way back out. So there I was, "the road intersection southwest of the pig barns. The three pig barns. The three pig barns oriented north-south. The three pig barns oriented north-south with a house at the end of the westerly one. Because there are pig barns everywhere. And oddly shaped fields, and copses of trees, and towns."

And towns, and cities – everywhere. On the prairies, we pay attention to the terrain ahead of us, checking for pot-hole country or wet areas or hillocks limiting landing options over the next while. Here, there are small cities that sprawl out over the countryside, covering large areas. Flying 2-3000 feet above ground, I find significant patches are no-go or at least uncomfortable due to urban areas.

The thermal height has been low during the contest. Locals say it's normal. I don't know how frequent these conditions are, but don't really care, because it is flyable and I fly. The contest director wants 3000 feet agl before a start. With a bit of flexibility, that is about what we have had each day. I keep expecting the cloud base to rise during the day, but, not so much.

Lake effect – that is some kind of mantra people keep chanting. Perhaps I will be admitted to the inner sanctum by the time the contest ends.

Airports – there are lots more airports available here (many of them just small farm strips) but I have found that

to be of little value. I find it harder here to fly 'airport to airport', to keep an airport alternate within glide, than when flying from Chipman or Ephrata. With experience it probably gets better, but I have found it very difficult to spot the airports when down low.

The fan mail has been pouring in since our last edition, so I've prepared a few questions from it: What do you bring with you on a contest flight, and does that differ from what you carry on a routine cross-country flight?

A laminated map given to me by Chris, uncluttered, showing only the turnpoints and airports overlying only the most important geographical information. For an area task, one can draw the turn areas on the map each day, and be able to visualize much better the options for flight paths, the choices of geometry, to fly the flight. My little flight computer shows that, but it is very helpful to have the larger, uncluttered view. For a task on which the pilot can choose a series of turnpoints – a Pilot Selected Task, or continuation of a Mandatory Area Task beyond the mandatory turnpoints – it is again incredibly helpful to be able to visualize the options. One can literally hold the map up to the cloud street, and imagine which turnpoints could be connected running that street.

A landout card, a sheet of paper with prompts to fill in all the information the landout desk will want when you phone in. Reduces the risk of blurring out on the phone, "help, I'm in a field somewhere!"

A list of crew-less pilots and their contact info, to go hunting for a retrieve crew, particularly if the retrieve desk is busy or has run out of bodies (but I have been incredibly lucky and well looked after here, as the Gough family has taken me under their wing – wonderful).

Any good luck charms?

My landout reading material. For years, I was convinced that I'd never land out on a day I carried my landout reading material. Seeing it in the plane still has talismanic value.

What's going through your mind when you're on the grid waiting for launch on a contest day?

Hope I find a thermal off tow! Sure, I look at the sky, trying to understand how it is evolving, but I always find I get far more information about the soaring conditions from the first few thermals off tow than I do from looking up from the ground. Yes, I do think about the task, and visualize as I can. However, here, I have so little understanding of what I am getting into, I have little to think about.

We often hear that you only turn one way. Why?

Yes, I always turn the same way – away from the lift! More seriously, left to my own devices, I turn right. Desperate to climb away from low down, I turn right. Approaching a cloud, I set myself up such that my guess of the lift location is to the right (I mean, it would be silly to fly to the centre of the thermal, right, so choose to put your best → 12

Summer Cowley diary

Patrick McMahon
Tony Burton
Casey Brown



David McIntyre

Saturday, 28 July AN ENTIRE FLEET of club gliders was towed down to Cowley and rigged. With cumulus in the valley, a handful of them got launched into strong conditions, accompanied by looming towering cu and the risk of a thunderstorm. Patrick McMahon took Jeff Murphy up at 4:30 to conduct a site check for him and very soon after launching, saw a few bursts of lightning over the Livingstone Range, then a lot of sink which put them down into a field about 1.5 km short of the airfield. Jeff ran back to get the trailer and, checking the weather radar, saw 'purple' heading our way quickly. Phil arrived for the retrieve and things were uneventful with a quick derig and return to Cowley as rain drops started. The decision was made to de-rig the fleet. By the time everything was put away – for the second time in two days – the rain relented, but only after leaving everyone soaked from scalp to sole. A restaurant dinner was in order for about ten campers at Boston Pizza.

Sunday Conditions were forecast to produce strong thermals to around 14,000 and little wind. Pilots from Texas, Manitoba, Saskatchewan, Alberta, and BC lined up, and in stifling heat with rare cloud cover over the field, launched into lift above the Porkies and transitioned for a spectacular day of thermal running in the mountains. There were 15 flights altogether. Pat Pelletier, up from Texas, flew for two hours without turning, and at one point was closer to Invermere than Cowley. Al Poldas gave Rafal Dzwonek a mentoring flight in NIM for almost three hours, and Patrick M instructed in LTY. And throughout the camp, the Lethbridge club was busy with winch launching.

Monday The kind of day we all look forward to arrived – strong lift, high cloud base, and light winds – perfect for big cross-countries, even though the haze from the forest fires in BC seriously degraded horizontal visibility. Derek Jones, Pablo Wainstein, and Patrick M were looking for FAI distances (Silver, Silver, and 500 km Diamond respectively). Tony Burton also had 500 km in mind.

Tony made quick (well, 6-1/2 hours) work of the prairie thermals in the Russia and secured the best Monday flight in North America at 467 km and 693 OLC points! Patrick abandoned his task when he ran into the stable air mass extending east of Fort Macleod. He then diverted down to Del Bonita on the US border which he followed west through Waterton and with a thermal climb, entered the mountains within final glide of Pincher Creek or Cowley. Eventually he exited the mountains at the Gap with a high speed run home, and handed the 28 over to Al Poldas for a float long into the evening. Phil Stade and Rafal made it to Sparwood, BC in NIM, Pablo flew GO past Fort Mcleod and landed at Pincher Creek along with Derek to complete their FAI Silver distance and altitude (Cu Nim has a policy of the Silver distance flight having a landing place other than back at home base). Conditions were still so good toward the end of the day that John Gruber and Casey Brown took the K-21 for a two hour cross-country at 4:30!

Casey writes: John and I pushed LTY onto the line, thinking to take a quick end-of-day flight. Hooked up, ready to go and John gives the towplane a radio check – no response. Tried again – no response. Okay, grab a handheld and go. John quickly found a thermal off tow and climbed past 10,000 feet. Okay, this might be better than we thought! John was giving me pointers as we edged cautiously towards the Livingstone Range. Thermals are feeling pretty solid. We go north from Centre Peak, and quickly we're having to be careful to keep below 12,500. John notices the FLARM has quit; the battery is dying. We alert traffic to the loss of FLARM and from then on John makes periodic position reports. But the conditions are solid! So we keep flying, we find a street heading into the mountains, then back to the ridge and south. John challenges me to get to Frank Slide without thermalling. I think we lost only a 1000 feet from the north end of the ridge to the slide.

As we head back to the airfield the audio vario starts to sound funny; okay, battery is *really* low, turn everything off. John turns this into an exercise: estimate how much height



we'll lose if we head to Pincher Creek, then home. Now let's climb 1000 feet to get an extra margin and try. At first flying without the vario was disconcerting, but with the day still strong it wasn't all that hard to work the thermals. Then it became surprisingly peaceful. For the last 30-40 minutes the only sound was the air going by as we flew to Pincher and back and played around the reservoir. What a surprisingly serene way to end the day and the flight.

Tony writes: My goal was 500 km to the southeast, given the great *SkySight* soaring forecast from Patrick M. Given the poor visibility and widely spaced cu, I didn't have any declared turnpoints in mind. I finally launched at 12:30 and got towed into a good thermal 10 km to the northwest. Then I was off to the southeast following the best lines of cu I could see. The run towards Del Bonita at the border was easy, averaging about 10,000 feet for the 115 km leg, flown at 78 km/h. From a new high point of 13,330 feet, there was a 55 km stretch with little lift from southwest of Cardston to just east of Del Bonita until contacting a fine line of cu at 7850 feet (the low enroute point of the task) and was able to do a lot of dolphining until I reached the northern edge of these clouds near Milk River. Heading northeast, the sky was mostly blue with just enough lift along the way to keep going but I steadily lost height until I reached one last fine cu that gave me an average 6.5 knot climb of 5100 feet to my highest point of the day at 13,570. It was about 12 km south of Foremost airport, my intended sort-of next turnpoint. This northeast leg was 120 km, flown at an average of almost 80 km/h.

Now to get home. Heading towards Lethbridge in a very hazy sky, the odd bumps kept me moving but I wasn't maintaining height. That line of good cu to the south seemed a long way away for a Russia. But it was that or a landout for sure, so when a small puff finally formed off in that direction, I turned 80 degrees off course towards it. The puff gave me 1500 feet, and this 20 kilometre diversion was then a worry-free hook-up to the good conditions at 9800 feet – it's amazing how one's sense of a safe height changes depending on what the cloud base is on a given day!

It was easy, mostly dolphin soaring the rest of the way home. That run under the field of cu from 20 km east of Raymond to Cowley was 130 km at 93 km/h. That's wonderful performance for E2! I made sure to get back over my release point in order to close the triangle, which earned me another 137 OLC points. I had planned to finish the flight with a leg north towards the compressor station at the Claesholm turnoff and back to get the 500+ completed but it looked like it was going to be somewhat difficult to do at that particular time and place so I turned for the airfield and landed at 6 pm. At 85.1 km/h, it was one of the fastest long flights I have completed in E2. Whoopie!

There were 20 tows today on what turned out to be the best day of the camp by far, with 13 cross-country flights totalling 3346 km and 3888 OLC points.

Tuesday Just eight flights in 30C conditions, with enough convection to keep three pilots airborne for a couple of hours. A very strong cell crossed to the north on the Highway 22 high ground and piled hail over the area. Phil reported cars in the ditch.

Wednesday 32.6C A dual launch operation with 18 winch launches including Patrick M's first solo on a winch since 1999 in a 2-33. Patrick drove down for the pilot meeting, and along Hwy 22 north of the Claesholm turnoff, there were still centre-bare road conditions with what appeared to be 6 inches of hail on the surface.

Thursday Ah, a "cool" 27C. Quite windy, strong but small thermals, mostly blue, a lot of turbulence. Seven pilots flew, staying in the valley, except for John Gruber.

John writes: I moved my glider to the fight line early, due to the large number of gliders at the camp. Takeoff was at noon and conditions were strong. After the first climb I headed east and the 20 knot tailwind made my Std. Cirrus feel like a modern supership, but I knew that party would come to an end sooner or later. I decided to head back west after arriving at Fort Macleod and the flight back to the west into the wind was relatively easy with strong blue thermals taking me to 12,500. There were a few clouds to the south of Pincher Creek so I decided to investigate, and climbed to around 13,000 under them. Heading further west I encountered more lift almost immediately and it became very smooth at around 14,500. I had the ground speed down to around 4 mi/h while I climbed to just over 17,000 feet. Visibility at this point was very poor due to the smoke, so I headed back to Cowley and landed shortly thereafter. Even though it was a small pocket of wave that didn't last long, it was a very nice unexpected treat!

Friday Even windier today, and at the morning meeting a lennie appeared above the Livingstones – and you could see it! That didn't last long, by noon the range completely disappeared in the fire haze, there was no lift, and only three up and down flights occurred.

Saturday Overcast with an east wind – little flying, and further slowed when a crack in the towplane release was found which necessitated a trip to Pincher Creek to get it repaired. Tows resumed in the late afternoon with a half dozen flights before a great BBQ hosted by ASC (Phil and helpers). Hamburgers, Taber corn, and lots of salad made for a great meal for picnic tables full of people. For dessert we celebrated Kostyantyn Dubovetskyi's birthday by eating his chocolate cake and singing Happy Birthday – too bad he didn't arrive to enjoy it.

Sunday Still overcast and cool in the morning with cloud base below the ridgeline, then it slowly cleared by noon. The forecast TCU started with an impressive buildup over Centre Peak. The latter part of the afternoon was somewhat soarable and there were six tows and winching.



Tony Burton

Congrats to Seth Thorson who made the transition to the ASW-28 and had his first solo flight. After supper the Lethbridge members ran the winch, leading to many launches into the evening, ending at dusk. It is really something to put down \$12 and be launched (quietly) into the evening sky for an absolutely smooth and beautiful flight down.

Monday 25C – last day of the camp and the forecast was pretty darn good. Everyone who went up stayed up as long as they wanted (or until they were called down). Launches began at noon when the cu appeared. With cloud base about 12,000, and some good lift if you could find it, but there were a lot of cirrus strands drifting over which depressed the lift and created areas of blue holes.

Geoff Minors in his Ka6 and Derek each flew their Silver duration. Roy Eichendorf flew a 244 km loop to the north-west, Phil went west and south for 3-1/2 hours and 179 km with Ben Manton in Lethbridge's Grob 103, and on another flight in the DG-1000 had a trip around Crowsnest Mt. with Wilf Plester. Tony went north to Longview then returned via Granum, flying 258 km as well as filling the last line in his seventh log book. He and John (with 317 km) had the first and second OLC flights in Canada for the day. In all, eight pilots logged 1919 OLC points and 1621 km for the second best day of the camp.

Wilf Plester writes Phil and George Haeh treated us to a few winch launches yesterday – a change of pace for most

of us (over the camp, 39 were made). This morning dawned crystal clear but around 9am a few promising wisps of wave cloud began to form close to the Livingstone Range. Phil and I volunteered to take on the task of scouting the area for lift. We ended up flying all the way to the west side of Crowsnest Mountain and had a great two hour flight. There was a mixture of strong but tight thermals as well as wave lift.

Patrick Thanks to Pavan for towing. People taking part in the day included John, Derek, Tony, Dave Morgan, and Roy in their own gliders, and Peter, Seth and Casey in the Cu Nim singles. When I left the field late in the afternoon there were still five or six gliders in the air. It did make for a late end to the day, and thanks to Wilf, Seth, John, Phil, and Al Poldas for derigging and towing gliders back to the club. The clubhouse was surprisingly busy at 11 pm as gliders and equipment started to roll in. I have no idea when the last one landed, but it sure was a great wind-up for the Summer camp. ❖

Live, from the Nationals !

from page 9

guess on one side or the other and be ready to turn to that side, having confidence in your guess). I believe I developed that tendency because we turn right off tow, and thus practise thermalling to the right on every flight. At a contest, one is not left to one's devices – one is told to turn left – within a radius of the start point, and every turnpoint, that is a rule. Approaching a cloud, there is a good chance someone beat you to it, and has already set the turn direction. Thus, much left turning.

Apart from becoming the 2018 Canadian National Champion later this week, do you have any other soaring plans for the season?

Highly unlikely I work my way to the top of the class, but thanks for the encouragement! My money is on Chris. I would be higher had I flown every possible kilometre, but on two days I abandoned the task and flew home. Still would not be at the top, but closer to the top, and having a more realistic shot at climbing higher. I am aiming for a podium finish, and would be delighted to achieve that.

Moving on ... I hope my schedule will see me at Chipman the weekend of August 18 and 19. It would be a goodness to see some Edmonton friends. It all hinges on progress on condo renos on my daughter's condo in Toronto. I have my eye on a couple of vintage sailplane association events around the middle of October. That would be fun, with or without the Scarlet Lady.

Well thanks for joining us again, can we reach out again some time?

Indeed! By the end of the contest, I may be less boggled, and more able to say something useful about my time here.

Note: Chris and Bruce did place 1st and 4th respectively in the Sports Class. ❖

Hypoxia, hyperventilation, & supplemental oxygen systems

how each can kill you ... or not

a shortened version of the article in the August 2018 SOARING, by Dr. Daniel Johnson

LET'S OUTLINE THE PITFALLS OF ALTITUDE by repeatedly asking the famous sardonic question about seemingly straightforward things, "What could possibly go wrong?"

- Many pilots don't understand how to use oxygen.
- Pilots fail to test the actual effectiveness of their system with an oximeter. Your body did not read the manual. The *designed* results are probably not *your* results.
- Oxygen use at *low altitude* will prevent fatigue and stupid mistakes (that is, mistakes that you'd not make when your brain is at peak performance).

We want to avoid impairment, not only incapacitation (that leads to funerals). The rapid ascent of aircraft may bring pilots quickly to altitudes where hypoxia occurs. Many pilots have observed that subtle hypoxia causes noticeable loss of acuity, motivation, or alertness. Several hours of high altitude thermal or wave flying may create mild persistent hypoxia, with troublesome impairing symptoms that may linger for many hours. Pilots may not immediately recover from inattention, fatigue, demotivation, headache, etc. after full oxygen supplementation in the air or back on the ground. We may have persistent symptoms like troubled sleep, fatigue, weakness, headache, or lassitude up to 24 hours. Hypoxia is not merely like a car without fuel, it's like a car with contaminated fuel.

We recommend a zero-hypoxia goal to maintain a comfortable flying experience and peak performance.

The pilot who wants peak performance, say yourself, will benefit from using supplemental oxygen at altitudes much lower than required by regulation. (Current O₂ use regulations are based on 70-year-old science and ancient US airline practice.) A good and safe practice is to turn the oxygen on prior to takeoff, regardless of altitude. Everyone past middle age, and anyone who's overweight (which is most of us now) should always use oxygen beginning at 5-7000 feet.

The Mountain High EDS oxygen system is discussed because it is very commonly used, it's attractive to glider pilots for its ingenious design, effectiveness, and great efficiency, saving up to 75% compared to a constant-flow device. Yet it is complex, and not difficult to misuse or mismanage. It must be used thoughtfully, after learning how

our bodies acquire oxygen, and how the EDS system is intended to work. It is not plug-and-play.

Jean-Marie Clément and Dr. Heini Schaffner began in 2008 to study the effectiveness of their own EDS system in use, which unveiled the actual oxygen output in their laboratory and in a hypobaric chamber. The results are detailed in the book, *Dancing with the Wind*. Such study is important, for it allows us to understand the *actual* performance of a device as well as the designed performance. They went from the laboratory to the glider, where they carefully studied peripheral oxygen saturation during actual wave flights up to 28,000 feet. They found several important limitations in EDS performance and use, recognizing that deviations from expected performance could be manufacturing variability, but usually are due to neglecting maintenance, free-lancing pressure reducers or tubing, or personal characteristics.

Why are we writing about high-altitude breathing?

It's not the *amount* of oxygen in air that matters – it's the *pressure*, specifically the pressure in the lungs' air exchange sacs, the alveoli, that drives gas flow. The atmosphere is 21% oxygen at all altitudes – oxygen pressure decreases with altitude and along with that, the ability of red blood cells to absorb it. Each gas exerts its own pressure in the alveoli in proportion to the content – so oxygen itself exerts a pressure equal to 21% of total atmospheric pressure (and nitrogen 78%). It's the "partial pressure" of oxygen in your lungs' alveoli – pO₂ – that keeps you alive.

Carbon dioxide partial pressure is just as important as that of oxygen, which few realize. Low pCO₂ cuts oxygen delivery to your brain in two ways: its drop causes the brain's blood vessels to constrict and decrease flow by up to half, and its drop hinders the release of oxygen from red blood cells to your tissues. A pCO₂ of less than 20 mm Hg in the lungs at 100% O₂ will make you feel hungry for air and mentally clouded, and wrongly worried about what's wrong with your oxygen system.

This CO₂ deficit in the flight levels that may cause air hunger and other symptoms can feel like hypoxia. The medical term for this state of CO₂ deficit is called "hyperventilation" – an unfortunate term – it's simply overventilation – breathing more deeply or rapidly than required for proper CO₂ pressure in the blood and tissues.

Ventilation (breathing) “blows off” carbon dioxide, which is necessary for proper acid-base balance and nerve/muscle function. Increased ventilation may also result from emotional response: delight, fear, anxiety; but the symptoms are themselves frightening and this worsens over-breathing.

Note that the blood oxygen saturation (%Sat O₂) of air drops rapidly with altitude – which needs to be above ~90%. The only way to increase the alveolar pressure of oxygen with altitude is to increase the proportion of oxygen, up to 100%.

Three steps in oxygen use

1 Ventilation! We exhale CO₂ produced through metabolism of glucose and oxygen, and we inhale oxygen (along with nitrogen). Both the depth and rate of breathing are important. Air hunger, and respiration, is regulated by the CO₂ content of the blood and the blood’s acidity. Only when hypoxia is severe does it influence breathing rate, and hypoxia does not cause air hunger.

What could possibly go wrong? Although breathing is automatic, we stop breathing for a time during any distracting event. (Attention and respiratory control share a spot in the midbrain.) Interrupted breathing can tip us into hypoxia if our supplementation is borderline.

Between 8-18,000 feet we subtly overbreathe in response to decreased oxygen pressure; this reduces CO₂, and the respiratory center, driven chiefly by CO₂, briefly shuts down breathing. This can tip us into an unconscious cycle of hypoxia with roughly half-minute intervals in which we alternate between over- and underbreathing, called *periodic respiration*. Above 18,000 feet, the low oxygen pressure stimulates ventilation more strongly, overcoming periodic respiration – but we still pause breathing when focusing attention and increase breathing when alarmed.

The EDS system will skip every other puff of oxygen if the respiratory rate is fast (ie. it does not give a puff if “requested” too soon). This skipping is a *clue* to the pilot that we are overventilating. Our response should be to consciously slow breathing, for example by counting between breaths to five or six, slowly, out loud, to cause slow exhalation. This will be quickly effective if done as soon as we notice mild hyperventilation.

Carbon dioxide partial pressure within the air sacs of the lungs is as important as that of oxygen. As the atmospheric pressure decreases in climb, there occurs a natural over-ventilation in response to the decreased partial pressure of oxygen, resulting in decreased CO₂ in the body. We may breathe either *more deeply or rapidly* than is necessary to maintain the blood’s proper acid-base balance. It is automatic and unconscious. Individuals are very different in the degree to which this occurs – and because this is unconscious, we can’t at first know whether it’s happening.

First there is increased depth of respiration and later increased rate. This overventilation of our lungs blows off carbon dioxide. A reduced CO₂ pressure causes the blood vessels of the brain to constrict and red cells to hold back oxygen – causing brain hypoxia even if your finger oximeter is happy.

Abrupt overventilation that brings blood pCO₂ from the normal 40 mm Hg down to 20 mm Hg (easy to do in a few minutes) will result in a **60% decrease** in cerebral blood flow, with a long recovery time. This also causes the blood pH to become alkaline, causing what amounts to “static” in our peripheral nervous system, with numbness and tingling, especially of the mouth and fingers. As this continues, severe cramping of feet and hands may occur.

Ironically, if we *feel* short of breath, we *are* overventilating. If we are tingly or getting cramps we are hyperventilating, so s-l-o-w d-o-w-n until you feel better. Count out loud to five or six between each breath, and you’ll feel better in just a couple of minutes; however, bear in mind that it may take twenty minutes of consciously slowing your breathing to fully correct the acid-base abnormality and recover brain blood flow.

Why so long? There are about 120 litres of CO₂ in the body, with complex dynamics. This is a lot to replace, and it must be produced by our own metabolism, so spontaneous recovery from hypocarbia of 10-20 mm Hg takes more time than for hypoxia, and it may take several hours to recover fully from severe hyperventilation. We recommend that you descend immediately and terminate the flight promptly if you experience significant symptoms of hyperventilation.

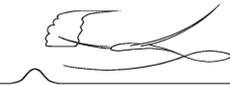
2 Red blood cell oxygen absorption and release

This straightforward process has many interesting complexities detailed in physiology textbooks.

What could go wrong? Various diseases of the lung hinder oxygen from diffusing across the membranes of the alveoli or capillaries. Anemia involves having too few wheelbarrows to carry the bricks, resulting in “tissue hypoxia” – oxygen-starved brain cells – even with normal oxygen inhalation. Also, acid-base disturbance of the blood (from severe exercise, infection, or hyperventilation, etc.) may hinder oxygen absorption in the lung or release in the tissues.

3 Circulation The red cells have to travel from lung to periphery and back.

What could go wrong? We soaring pilots are mostly old. (Military medical aviation research has historically classified ‘old’ as ‘over 40’.) The most common disease among us is atherosclerosis, cholesterol deposits in arteries that may retard blood flow. In the leg, this risks frostbite; in the brain, this risks stroke and poor oxygen delivery.



Dehydration reduces blood volume and thus g-tolerance, which reduces blood flow to the brain; cardiac and blood pressure medications also affect circulation and g-tolerance. In the worst case, pulling g's in steep turns or turbulence can cause unconsciousness.

The upshot of Clément and Schaffner's work is that you must test the effectiveness of any oxygen system you use by wearing an oximeter. Oxygen is not plug-and-play! Buy the book and read the chapter!

The EDS system is efficient and effective up to about 20,000 feet. If you expect to fly above that, you must have an independent backup system and have a sound understanding of high-altitude physiology. Great care is necessary. The EDS system is designed to do the right things – but it is not a stupidity antidote. It must be thoroughly understood in order to be used safely. All delivery systems are machines and must be respectfully used and maintained in order to be reliable. No machine adapts itself to your uniqueness.

Altitude is dangerous because our body does not have an oxygen detector: we don't hunger or thirst for oxygen, we just get stupid, and when we get stupid, our brain's stupid-detector breaks, so we must monitor our oxygen status.

Monitor supply Above 20,000, you must be able to easily see and read the pressure gauge of the oxygen cylinder. If you can't read the gauge, you must have a proxy, such as a perfectly reliable pressure warning with a safe margin.

Monitor function Oxygen flow gauges are readily available and can be mounted in sight. The EDS system nasal puff with each breath is reassuring, though the fact of a puff *is not* a guarantee that its duration or flow rate is sufficient, nor is a 600 psi gauge reading assurance that the flow is what you need.

Monitor effect There are two ways to monitor the effectiveness of our oxygen delivery: brain function and oximeters.

It is straightforward, when in stable undistracted flight, to repeatedly perform some mildly challenging mental task such as calculating reciprocal compass/runway headings, recalling radio frequencies or ICAO abbreviations or other memorized lists. You will not notice impairment unless you are consciously testing yourself. Harken to warnings about your function from others who are listening to your transmissions, and have brief repeated conversations with ground personnel who can then pick up abnormal thinking or speech.

Finger oximeters are available and widely used to measure peripheral oxygen saturation. Like any measuring device, they are not perfectly reliable. They are useful, but are prone to error: cold fingers, movement, sunlight, and more, are important. And just because a number is displayed does

not guarantee it's accurate – and just because your finger has a good oxygen supply does not mean your brain does because of the natural altitude-induced hyperventilation. Assume that your oximeter is reading at least 2 points high.

Every digital measuring device shows definite numbers. This display precision deceives us about accuracy. Cheap fingertip oximeters show a "standard" reading while waiting for a valid signal, without giving a clue that it's in waiting mode.

Oxygen delivery

The remainder of this essay is focused on some specific aspects of the Mountain High Electronic Delivery System, which will provide sufficient flows for healthy lean people. Yet it does not know your medical status, is not artificially intelligent, nor can it read your mind – you have to provide the intelligence!

A constant-flow system wastes most of the oxygen; EDS pulses what's needed when we inhale. EDS detects the small drop in pressure within the nostrils as a breath begins and gives a little puff of oxygen at 15 L/min for up to a half second, depending on pressure altitude.

What could go wrong here?

Oxygen supply If the cylinder is empty, nothing helps. (Who has put the aircraft away without closing the valve?) Beginning a flight with a cylinder other than full is suitable only to prevent low-altitude mild hypoxia. An EDS produces less than maximal flow when the cylinder is <600 psi.

Power EDS single-place units are battery powered with 2 AA alkaline batteries (3 AAs for two-place units) and will operate for ~100 hours with a fresh set of alkaline batteries under normal operation. Batteries should be replaced at least annually. The newer two-place EDS units have optional external power.

What could go wrong here? Obviously, dead batteries will yield no action. Weak batteries are worse, because they may die when they're most needed in flight.

- There are three low-battery levels specifically calibrated for alkaline cells. A timely warning is not given using lithium cells because of their final abrupt voltage drop.
- Wave flying. Alkaline batteries perform poorly below -20°C. Lithium batteries may still have some life at -40. But if you plan to fly in a cockpit that is below zero with EDS, buy the two-place O2D2-G2 system and plug it into the glider's power with its USB adapter.

Regulator The EDS must be used with its own regulator or an inline stepdown regulator-equalizer combination to provide the pressures for which the EDS delivery unit is designed. Note that in oxygen flow drops off significantly below 600 psi. This may be fine for low altitudes, but for flights above about 13,000 feet, the bottle really should be full at takeoff to ensure adequate reserve.

Tubing Mountain High supplies tubing of proper material, length, and diameter.

What could go wrong with tubing?! When two pilots each have an EDS unit (O2D1) supplied from one tank, the tubing to each EDS unit must be exactly the same length, or the pilot with the shorter tubing will steal flow if they inhale simultaneously, and only one EDS O2D1 can be serviced with the standard 4 mm tubing, no more than 1.5 m from the regulator. The best way to service two O2D1 units in a two-place aircraft is for each to have its own tube, of identical length and diameter, from the regulator, using MH 'Y' split-kits to attach them to the one regulator as close to the outlet fitting as possible. You should use 6 mm dia. tubing with the O2D2 at distances up to and over one metre.

How about borrowing an oxygen cannula from your uncle with lung disease who's on oxygen? No – EDS requires stiff tubing so that the subtle pressure drop of inspiration is accurately transmitted. The soft medical cannulas are made for use in clinical environments for a short period of time. Also, medical pulse-conserving oxygen dispensers are calibrated to a particular cannula, are flow-regulated, and are designed for a patient sitting upright. EDS units are built and calibrated for proper delivery while using MH tubing. If you change the tubing, you'll change the flow.

Cannula orientation The flat tab rests on your philtrum (that narrow vertical groove in the middle of the lip). The prongs should follow the curve of the nasal channels. If the tab points up, the prongs' opening may touch the inside of your nose and hinder detection of the inspiratory pressure drop and the EDS will miss many of your breathing events, increasing the chance for hypoxia, and it will become uncomfortable.

Preflight check Think about the effect of head movement on the tubing. After placing the prongs in your nostrils, put the selector switch on N, ensure that normal quiet inhalations trigger a puff (may occur with alternate breaths on the ground), then turn your head fully from side to side, and up and down, to ensure that this does not dislodge the nasal prongs.

YOU

What could possibly go wrong with me? Clément and Schaffner discovered that many typical pilot activities interrupt breathing and can cause transient severe hypoxia. First, any event that strongly focuses pilot attention may cause unconscious breath-holding for up to 30 or 45 seconds, which can quickly drop oxygen saturation into the 70% range. Stressful peaks in flying can also trigger shallow or chaotic breathing that will randomly trigger the EDS, causing hypoxia.

Episodic patterns of periodic breathing ("Cheyne-Stokes") have been observed in all their investigated pilots above

8000 feet. The usual, regular respirations are replaced with clusters of subconscious over-breathing (hyperventilation), followed either by absent or (less often) shallow breathing. This results in variations of blood O₂ saturation up to 12% in flight, discovered post-flight in review of continuous recording. (This is a reason to use a recording "wristwatch" oximeter, and download the record after flight, to see whether unrecognized hypoxia occurred.)

They observed one troublesome incident of slight but continuous coughing at 25,000 feet – the pilot could not inhale effectively to trigger the EDS and could not speak. He had turned the EDS down to 'N' when he meant to turn it up to 'F' to increase flow. Hypoxia then caused tunnel vision and stupor, though he could hear. Fortunately, the other pilot was alert to trouble and took control. The hypoxia may have impaired his cough reflex; at any event he stopped coughing and recovered.

Other "minor" activities were also seen to cause moderate hypoxia: eating, drinking, talking to each other or ATC, and pushing to urinate.

Conclusions

- Class A airspace, especially above 20,000 feet, is life-threatening territory for both hypoxia and hypothermia, and neither comes with an idiot light. Prepare intelligently, have backup oxygen up there with confirmed function, and take off with less than a full tank only if you don't really need O₂.
- Hyperventilation is *important* – it causes tissue hypoxia. Expect subconscious hyperventilation above 10,000 feet, increasing with altitude. If you feel air hunger, you're most likely hyperventilating; count out loud to six slowly between breaths until the air hunger diminishes.
- Use oxygen above 5000 feet for peak performance and minimum stupidity.
- Buy an excellent, proven oxygen system and read the manual, memorizing the bold print. Where the manual confuses you, e-mail a question to the manufacturer and follow up with an actual telephone call to ensure understanding. Review the manual when you take the equipment out of storage after a layoff.
- Test every aspect of your oxygen system on the ground – and use fresh batteries.
- Use an oximeter to measure the effectiveness of your system for yourself, but thoughtfully understanding its failure modes (cold fingers, motion, sunlight, etc.). If you buy a cheap one, also check your life and liability insurance coverage so your heirs won't be burdened financially. More info on oximeters is on page 19.
- Keep your oxygen pressure gauge in sight. If you feel foggy mentally, you're probably hypoxic.

Okay, now have safe thrills!



Non-union construction at Cu Nim

Tony Burton

Last year saw a lot being done on LSC's hangar at Cowley; this year at Cu Nim, it's the extension of the row of four private hangars by two new spaces. The rough lumber modified post and beam frame units were designed by our retired architect John Kopala, and are being built by the owners-to-be to house big two-seat "orchids".

The other large project was the reroofing of the clubhouse, replacing the old asphalt shingles with metal added on top of them. There was a great deal of design work to do this, and a lot of preparation over several weeks between bouts of bad weather, such as adding flashing and 2x4 nailers across the surface of the roof, and precutting the panels to length. Over a dozen members gathered on the weekend of 20 October to finish most of the job, and it finally got completed on the 27th. In the photo (l to r): returning old member and construction guru Lee Coates, with Seth Thorson, Al Hoar, John Gruber, and Patrick McMahon. ❖



Tony Burton



Tony Burton



THERE I WAS, at about 1000 feet above ground, on my way back home after making the last turnpoint. After that turn, I noticed there were no indications of lift between me and Chipman, but what do you do? Push on and trust that you will bump into something. Right? I didn't bump into anything. Sure I was over dark fields and landable stubble fields, and I was getting the odd bit of lift that took me up 2 or 300 hundred feet and then back down again. But nothing was sustaining. East of Daysland, Alberta, and below me was a high tension power line and over a ways a communication tower. A dust devil showed in a nearby field. I headed straight over there, found some lift that petered out fairly quickly. For some help here, I implored Krishna, Moses, Buddha, Jesus, Mohammed, and any others that may have some pull with the weather god. I could see an irrigation canal, and another landing area was picked. With the search ongoing, soon I was adjacent to Daysland, and wondering if anyone noticed me circling around searching for lift. The *Mighty Kestrel*, as Bruce Friesen calls it, has lots of float ability, but we need lift. This particular 44 year old Kestrel had been the first glider in North America to fly a 750 km triangle, so I knew it had the capability.

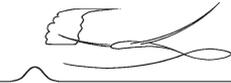
500 km had been a goal for several years, but weather and medical issues had got in the way. Finally the time had come. May 14, 2016, the weather looked promising. I don't know why Bruce wasn't there, but two other club members were also planning and preparing for distance flights, my glider was rigged and ready, all the supply and support

issues were looked after ... and we waited. Trevor Finney and Gary Hill launched first. I took a tow to what I thought was adequate lift, released, struggled, and then landed back at the field. Some deep thought, some time to recover, and I launched again to a more significant altitude. This time I gained lots of height, and moved to a position from which I could start. I heard the ding from the Colibri indicating that it had all begun.

Over the winter I had studied the complex workings of the Colibri and programmed in five different 500 km tasks. This day I wanted a specific task but couldn't get it into the declaration area of the computer, so just accepted the one that was already there, and decided it was good enough. I knew the PowerFLARM would record my flight. Someone had said I didn't need a declaration, so I wasn't concerned. I learned later that a declared task was indeed necessary for a recognized achievement if turnpoints are used.

Off to Radway, northwest of Chipman about 70 km. I was surprised and a bit concerned when I didn't get a ding from the Colibri. It was behind me so I couldn't see the display or check to see if it was doing its thing. The turtle deck holds the batteries, switches, first aid kit, a place for a radio, and now the Colibri.

I was comfortably flying at 6-9000 feet, with the ground at 2000. There was an obscuring layer above my flight level, but I could see cu in the distance sticking up above that



layer. I used those for lift markers, and it worked for most of the route. Some lift was encountered at unexpected locations, which helped me stay high.

The flight was wonderful, with a few decision points. One I remember, near St. Paul, between Radway and Elk Point. There was a body of water. The shortest way around was on the south side. But the ground was covered in bush with only a few open areas. I went to the north, where landout sites were plentiful. That worked well. To make a 500 km triangle I had planned to go past Elk Point to another town, that turned out to be so small I didn't know if I'd made it around or not. Again the Colibri didn't say anything. I like confirmations along any route, flying or driving, but today it wasn't happening. My handheld GPS was a bit helpful, but again not totally convincing. The leg to the last turnpoint was fabulous, but I don't remember any details. I just enjoyed the trip. Achievement is good, but my enjoyment comes mostly from being up there, by myself, enjoying the scenery, and the sheer magic of being able to fly.

Back to Daysland. I'd been looking, circling, going up a bit here and down again there for about 25 minutes. Why didn't I just pick a field and land? Well, I had done that before at the Canadian Nationals in North Battleford. Hank Hees and I had each given up and landed out in the same field after finding no lift right out of the starting gate. I later learned that Tony Burton had taken the same route as us, but he hung on in zero lift low down in sight of us for 40

minutes, waiting for lift to develop. It did and he finished the task. I remembered that, and developed some patience for this flight, in similar conditions. As long as I was flying safely, had a landing spot picked out, knew what direction the wind was coming from, I stayed up and waited. The search for lift had taken me west of Daysland. I was looking for anything, when I noticed a truck driving along a dusty road. Behind the truck the dust was drifting sideways. But a 1/2 mile back, it was going up. I scooted over, found the lift, circled, pleaded for the unseen assistance, held my breath, and slowly at first, climbed to above 9000. What a relief!

I'm an engineer, have worked with computers since 1967, have four of them on board, but when I want to know something I go back to a mental estimate. With this glider in a no, or low wind situation, I can fly 12 km for every 1000 feet of height. Checking my hand-held GPS for distance, I figured with another 1000 I'd have final glide to Chipman. Against conventional wisdom, on this leg I decided to fly the speed that would give me minimum sink, so when the sink increased I slowed down. Beaverhill Lake, somewhat dry again, was enroute, so I decided to go on the west side, over Tofield, for that bit of safety of an airport under me. I stumbled into the needed lift about halfway along and made Chipman easily. I was surprised when the Colibri announced that I had crossed the finish line, about six and a half hours after take-off.

What a day! I want to do it again.



Should you use an oximeter?

Yes, there is no other way to test your system's effectiveness. If your system works as designed, you may feel that you don't "need" one. If you become hypoxic, you may not function well enough to understand what it's saying. They are prone to particular errors. Yet we recommend that every pilot flying above 20,000 feet use a quality oximeter. Though imperfect, they are useful, especially for intermittent use, to determine if O₂ flow rates are correct for you in the conditions you are flying in, and if your system has been configured properly. A recording oximeter can allow you to discover incidents that might have caused unnoticed hypoxia while flying.

Pulse oximeters work by shining two colours of light into an area of tissue with known blood perfusion. They measure the ratio of the reflection over the absorption of the two colours by the tissue. They should constantly calibrate the ratio between the surge of reflected light caused by each pulse and the intervening quiescent flow, to produce a valid reading.

Inexpensive oximeters are neither as reliable nor as accurate. Manufacturers claim their readings are +/-2% or +/-3% in the range of 70-100% saturation. This means

that when the oximeter reads precisely 87%, your actual blood oxygen saturation is probably in the range of 84-90% for the less accurate, 85-89% for the more accurate – in the best laboratory conditions, which your cockpit is not! What can delude this instrument?

- Sunlight can "overpower" the unit's own spectrophotometric light source. Some models have better shielding than others.
- Pigmented skin yields lower saturation readings when actual values are in the 80% range.
- Fidgeting degrades their accuracy by 5-20% (that is, with a true O₂ saturation of 95%, the meter may read 75-90%). It's the pilot's job to continually fidget with the controls!
- The oximeter is measuring the oxygenation of the blood in the fingertip. What really matters is the oxygenation of the blood flowing through the brain. Hyperventilation constricts brain arteries but not finger arteries.
- Cold fingers have low blood flow, so readings will be low, a problem on wave flights! Only measure warm fingers. (Use a "claw" bicycle mitten to keep the fingers warm, to protect the finger probe from being dislodged, and allow pinch with thumb and first fingers.)
- Smoking? – carbon monoxide falsely elevates saturation readings due the color of carboxyhemoglobin.



the Galt Museum exhibition

Geoff Minors, Lethbridge Soaring Club

AS A CLUB, WE ARE ALWAYS LOOKING FOR WAYS to promote the club and the sport. I noticed that the Galt Museum in Lethbridge had some archived aviation material dating back to the 1930s. I found it fascinating reading, and the exploits of those early aviation pioneers reminded me of what we as a young soaring club are going through.

One of our members made a comment in a meeting that the museum had lots of space and maybe we could have a display there? I contacted the museum and got talking to the curator, Aimee Benoit. After several discussions the museum agreed to hold an exhibition on the history of soaring in southern Alberta and we started to gather gliding material that might be used.

During this time, I was also in contact with CFB Cold Lake about a glider there that was about to be disposed of. I

didn't know what it was or its age but I wanted it for the club. I was sent photos of the glider, and it was an Schweizer 1-26 in very good condition. It used to belong to the now gone Cold Lake Soaring Club, and had flown at Cowley when the club was active (sometimes using its open-air "sport" canopy). I was told we could have it for free if we could take it away. Dave Morgan and I went up to Cold Lake on a very cold day with a trailer only to find out the 1-26 wouldn't fit on it! We then arranged a second visit, this time taking our 2-22 trailer. Dave, George Haeh, Garry Hill (from ESC) loaded the 1-26 onto that trailer for another long drive that was another very cold winter day.

For the "Soar!" exhibit, I suggested that it would be very cool if we could have a glider on display, and we had an older single-seat glider that would be perfect for the job. That was agreeable, although just the fuselage would fit into the exhibit area. Several meetings later and gathering of materials and photographs past and present, we had enough items for the exhibit. The Galt Museum did all the work designing the exhibit. They had archived history from 1930s



We owe a lot to early aviation pioneers, Art Larson and Evelyn Fletcher, to name a few. The original name for the club was the Lethbridge Gliding Club, nicknamed the “Skid Busters” due to the number of times they had to make repairs.

As a new club, we are eager to get publicity – this one worked very well and had good reviews. We also go to local trade shows to promote our club and the sport. It’s a lot of work but is very satisfying. The Galt Museum loaned us all the posters and descriptions that were used for the exhibit and we can use these when we go to trade shows. I would like to have them on display in our new hangar in the near future for visitors to see. A big *Thank You* to the Galt Museum and its staff. ❖

and artifacts which had been donated to them to keep safe. We also loaned pieces for the displays. The museum made beautiful posters and photographs from past to present, with the I-26 as the centerpiece of the display. The exhibit ran from mid-February to the end of May, and I gave one Sunday afternoon presentation at the museum about soaring in this area.

A good article about Evelyn in those 1930s days of gliding in southern Alberta is in the 2/1982 issue of free flight, “The first Canadian glider pilot licence”. Tony

MISCELLANEOUS – Tony Burton

Turtle on runway

Cessna 182: “Tower, you might inform the Air Canada aircraft about to take off that the object near my runway position that looks like a rock is really a turtle.”

AC 140: “Tower, understand one turtle crossing runway.”

Tower: “Based on available pilot reports, the turtle’s course is oriented southeast, heading towards Gate 5.”

AC 140: “Tower, can you give us info on turtle’s speed and estimated time of runway clearance?”

Tower: “Turtle’s estimated speed around 200 feet per hour – maybe less in this quartering headwind. If present course and speed maintained, runway should be clear in eight minutes.”

AC 140: “Unable to wait due to fuel use. Will employ evasive action on take-off roll.”

Tower: “Roger. AC 140 cleared for take-off. Be alert for wake turbulence behind departing turtle.”

Did a Golden Age of Soaring ever exist?

In 2014, Mike Bird, writing under the pen name of “Platypus” in the BGA’s *Sailplane & Gliding* magazine, wrote an article bemoaning the loss of the “wow” factor in the sport, wondering if the Golden Age of Soaring has passed or if anything like it might return. He asked pilots to answer some questions about the supposed loss and I replied. How would *you* have responded?

If there was any ‘Golden Age of Soaring’, when was it?
Pre-glass, if forced to choose.

What did you especially like about it?
Cross-country was truly more adventurous for most club pilots given the glider performance of the day. An adventure: a trip in which the outcome is uncertain.

If the Golden Age of Soaring is over, what killed it?
Everything that took the adventure from that club pilot: advances in sailplane design and cockpit electronics, GPS, loss of airspace, and growth of regulation.

Could there be such a golden age again?
Perhaps, but I don’t know how it would appear – ‘Golden Ages’ are always a look back.

If so, what would it take to make that happen?
Some way to get cheap, no-hassle soaring thrills back again (hang/paragliding succeed in their own way, but not so good for those who love soaring but lack adrenalin and young legs). This may require brand new design and the technology which was poor for the past Golden Age.

Collision risk

A few years ago at an ASC Spring Safety Seminar, I was struck by the statement by John Mulder in his talk that he had no idea of all the other aircraft in the sky until he first turned FLARM on. This was interesting because, while his *perception* of risk had jumped, the *actual* risk (absent actually having any another aircraft nearby) had not.

Not taking anything away from the usefulness of FLARM in the collision risk with other gliders – they are the aircraft that are most likely to be [deliberately] the closest to you after all ...

... I’m reminded of the paper that the famous Phillip Wills wrote to the British airspace people back in the early days of the push to increase controlled airspace for the purpose of ‘increased safety’ – and that’s never-ending. It appeared in his excellent book, *Free as a Bird*, and it is all a VERY GOOD read if you can find a copy.

Wills presented an analysis of the probability of a collision between a glider and any other powered traffic in uncontrolled airspace in the whole of southern England. He used this airspace because that was where almost all gliders flew, and for the mathematical reason that aircraft movement in that space could be considered essentially random, hence amenable to statistical analysis. All the necessary variables were considered: total volume of airspace, the collision cross-section of two aircraft, average traffic density, time of day, etc, etc.

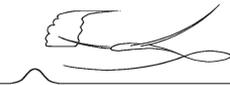
The result was that the chance of a [random] collision was microscopic compared to any other daily event that was likely to kill you. Wills’ challenge to the airspace people was that, since general/sport aviation aircraft tend to avoid controlled airspace, any increase in this airspace must then increase the traffic density in uncontrolled airspace – their ‘increased safety’ argument increased the collision risk where most private aircraft flew.

Actual collision hazard is most likely to increase where flight is *not* random: controlled airspace, airways, out-and-return task tracks in contests, the circuit area – anywhere your flight path is being funnelled. This is where the risk goes up and where FLARM helps the most.

Benign spiral

This description of the benign spiral by Einar Enevoldson in the Sept 2018 SOARING is the first time in the gliding literature that I have seen why this spiral is “benign”. Tony

I want to encourage pilots to play a little with the benign spiral. The concept seems to be vaguely recognized but



sometimes not well understood. First, its purpose is to descend safely and rapidly through a cloud without any gyroscopic instrument – either horizon or turn rate indicator. As has been repeatedly demonstrated, without the benign spiral the best end one can reasonably hope for is a safe completion of the descent by parachute.

Basic principle: in a medium bank turn the ratio of outer wing tip speed to inner wing tip speed is about 1.2. When level the angle of attack (AoA) of the outer and the inner wing tip is the same. In a descending spiral the inner wing is flying at a higher angle of attack than the outer wing. It must be because it descends the same distance while travelling a shorter distance forward. The steeper the spiral – the larger the pitch of the corkscrew flight path – the larger the difference in AoA. In a low pitch spiral like a thermaling turn, the greater speed of the outer wing results in a tendency to increase bank, so some out-turn aileron is needed. As the pitch of the corkscrew is increased the needed out-aileron decreases, and opposite for steeper spirals. So at some corkscrew pitch, equivalent to some angle of descent, an equilibrium bank angle is reached. This is why the benign spiral works, typically very well. If bank is greater than the equilibrium angle and the stick released, the glider will immediately return to the equilibrium bank angle. It is easy to adjust your bank angle to suit your needs by changing your angle of descent – with spoilers or by changing speed. For most gliders a comfortable descent can be maintained using full air brakes and flying 1.5 to 1.7 times the stall speed. A bank of 30-45° will be reached and stabilize automatically. Moving the trim lever forward should increase speed and reduce bank angle, trimming back should do the opposite.

Several caveats: do not touch the stick or rudder pedals while in the cloud. You will always make the glider do something worse. Caveat to caveat – some gliders will not stabilize in pitch properly. This is usually due to some spring or mass imbalance in the elevator control system, or perhaps some aeroelastic effect such as flaps driven from one end only, such that they will twist more or less due to speed variations. For these cases I do not have any suggestions. For the “stick moving” case you can try to restrain the stick – only keep it from moving fore and aft. This may be extremely hard to do as your instinct that some extreme pitch maneuver or attitude is occurring may be overpowering. It will feel like you are doing loops or tailslides when you are actually doing fairly mild pitch and speed excursions. That is why you need to play with the spiral on a fun day with nothing else pressing. The glider will usually, fairly gracefully, enter the Benign Spiral from even large initial upset conditions (steep pitch or bank angles). If you are not confident with allowing the glider to maneuver itself while unattended then you should fly with your buddy who is, or with your instructor. Another caveat: the first generation glass gliders having all-flying tails (no separate elevator surface) do one weird thing or another if you fly for very long without holding the stick. The stick will eventually move to full displacement, which is generally undesirable.

For these gliders the benign spiral will require that the stick be restrained to prevent fore/aft motion, but like all the other gliders, while in the Benign Spiral mode and in a cloud, must not be controlled laterally in any way (no matter how insistently your senses tell you that it should be).

Every glider may behave differently and should be checked to be sure that its benign spiral mode is benign, or can be managed to achieve a satisfactory benign spiral. Of course the best plan is to never get into the situation where a Benign Spiral descent is needed, but ...

On hypoxia

The August SOARING article on hypoxia was indeed an eye-opener. In my part of the world (southern Alberta in Canada), pilots regularly fly for extended periods of time at or around 10,000 feet without O₂ on our cross-country flights. We seem to do this without apparent ill effect, although we could just be too stupid to realize it according to the article. However, our bodies are adapted to life at a ground level of 3000-3500 feet. The article makes no mention about how living significantly above sea level affects the stated levels of hypoxia that can occur. **Tony Burton**

Dr. Johnson's response (in November's SOARING)

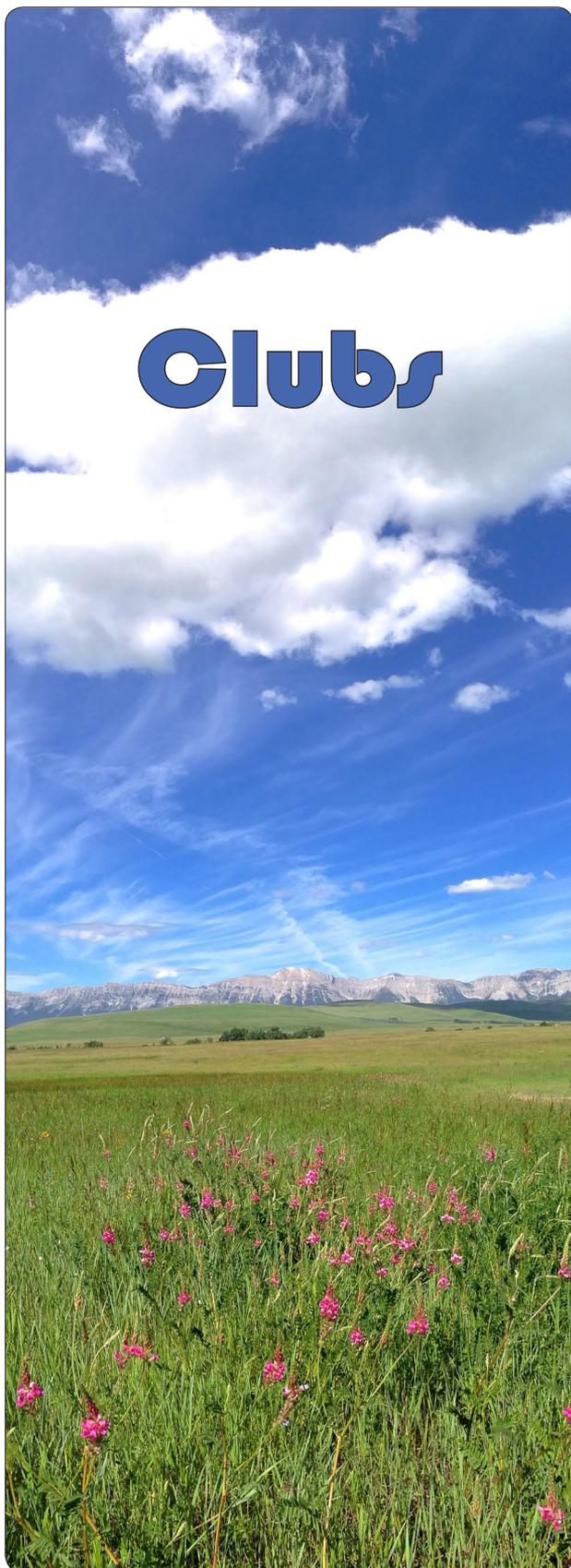
First, the article points out that at these relatively low altitudes, a fit, healthy person is not incapacitated – just not at peak cognitively, and as Tony infers, unaware of the loss. Second, I was unable to find any study examining the effect of rapid ascent on people who were already acclimated to any high elevation.

Common sense physiologic reasoning suggests that acclimatization must have an effect on both the onset of impairment and the occurrence of incapacitation. Anecdotally, it's known that there are large differences among individuals in hypoxia tolerance. This must be related to acclimatization, physiology, and disease. But the nuances have not been sorted out scientifically, as best I'm able to find.



David McIntyre

Here's a rotor at Cowley like a big kiss – it can also bite.



Phil Scade

Cu Nim

The “Year of the Big Smoke” was a very progressive year at the Cu Nim Gliding Club. Early in the season our club got some fresh new faces on the executive and their enthusiasm and skills were a terrific boost to an already terrific club! It’s amazing what we have accomplished in one year!

Many changes were made to enhance club communication, encourage and enable cross-country flying, streamline operations, improve flight safety, environmental compliance, and promote the great sport of gliding!

The club was off to a great start hosting the Western Canada Instructors Course. Jason Acker and Dan Cook conducted an engaging meeting of the minds with terrific exchange of knowledge and ideas. The long winter prevented any instructor flying training, however we utilized the simulators with great success. Lesson plans were practised and more concise patter was practised. Our new CFI Pablo Wainstein took on the new year with a refreshed group of instructors!

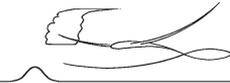
Our club fleet remained close to unchanged with one exception; Mark Bowman leased his ASW-19 to the club as our Jantar was out of service for the year while it was getting a total reconditioning.

The midsummer flying was greatly hampered by the wild fires in British Columbia. The smoke was extremely thick (often IFR at times), which seriously affected our flying for about six weeks. We certainly felt for our neighbours to the west and what they went through! We still managed 162 single seat flights, 430 dual flights and over 125 private owners flights for 2018. While these weren’t record flying numbers, our accomplishments on the ground were outstanding!

Visiting pilot policy The club voted to allow visiting pilots to access our club aircraft at reasonable rates. Already this year we had a few visitors enjoy our friendly skies!

Club communication Thanks to Patrick McMahon (our new VP), our club improved here in two key areas, a new app, *Slack*, was demo’d this year and proved very popular, allowing several channels to be created for online club discussion. The second was a dynamic new weekly online club newsletter, “*Turnpoints*”. I really love this weekly highlight of club activities and pilots’ new achievements – the name captures it all – kudos to the creator and editor Patrick.

Cross-country Several great flights were achieved this year, early and late in the season, but our big club accomplishment was the “Cu Nim Proving Grounds”, a set of three courses of increasing size. Thanks to Patrick and Chris, set cross-country courses were established to



encourage others to attempt modest cross-country flights, all having good landout options. A number of turnpoints can be selected in the proving grounds that will allow cross-country attempts of up to 200 km.

Club promotion This is a hot-button topic for gliding clubs across Canada, and Cu Nim did some great things here. Our website got a make over and update with some responsive technology and we are promoting on Instagram and Facebook a lot! Thanks to Patrick McMahon and Derek Jones! Our goals notice board was another addition to advertise cross-country and other gliding accomplishments! Pictures and goals are posted to a wall in the clubhouse for collaboration and encouragement.

Streamlining operations Financial operations and record keeping got a lot simpler thanks to the leadership of our new treasurer Casey Brown! Online payments became a reality. The use of the Google suite products cut costs and increased efficiencies. Simple e-mail addresses now make it easy to get a hold of the executive as well as keep the communication consistent. Want to say hi to members of our executive – they can be reached now at their <title@cunim.org> address.

Flight Safety Chris, our FSO, put in place a new system for incident reporting that seems to be working well. Chris is doing a great job here, he has put a lot of thought into improving the club safety culture.

Capital projects These were a new environmentally compliant fuel tank with an electric pump, and putting a new roof on the clubhouse to weather the Alberta climate. Soren Christiansen sourced a double-walled fuel tank for the club, transported it, and with the help of volunteers, coordinated the set up. The new clubhouse roof was pushed forward by Al Hoar and Casey Brown, who coordinated the project. Former member Lee Coates lent his knowledge and expertise to the construction! Thanks Lee, it's great to see you back! A lot of volunteers pitched in and we now have a shiny red metal roof for the clubhouse – it will make a great cross-country turnpoint. Also, more spaces were added to the private hangar line, further adding to the construction noise this year (see p17 photos on these builds).

Membership We are looking forward to building our membership in 2019. Our numbers were up about 10% from last year. We plan to hosting a ground school in January 2019 and plan some promotion to attract more people to attend.

After the heavy smoke affecting our year, many pilots are hungry for more cross-country flying and the groundwork we laid in 2018 is good preparation for the coming season! We are better organized and prepared to take on the new soaring season! Cu Nim will be discussing hosting the 2019 Alberta Provincial Soaring Championships at our next club meeting. Stay tuned for an announcement in 2019!

Merry Christmas and all the best in the New Year from us at Cu Nim.

Kerry Stevenson

Stop press news

Chester had an excellent late season flight in his Arcus. On 26 October, his wave flight was the best in the world for the day with a trip down to the US border twice for 736 km at 119 km/h, earning 651.8 OLC points. He beat out a pilot flying in South Africa by just 2.8 OLC points! See the flight data at <<https://www.onlinecontest.org/olc-3.0/gliding/flightinfo.html?dsId=6939173>>.

In other Arcus news, Cu Nim's second Arcus M arrived in Calgary on 24 October. Congratulations to Chris Dzwonek and son Rafal – just a small pile of paperwork and a long Alberta winter before truly beginning to “unpack” the glider and test its capabilities!

Central Alberta

Due to a prolonged winter, our flying season didn't get started until after the May long weekend. After that there wasn't much flying to be done at all because of weather and smoke and snow. However, we did have some accomplishments. We had 22+ familiarization flights, with a couple of days being “marathons” due to the number of people who wanted to fly the same day. Student training and private pilots in their own ships were interspersed those days, too.

Besides our 2 two-seat trainers, one of our pilots, Nico Marais, used his K7 to take passengers – those folks had the longest flights but Nico knows where to sniff out the lift! Thank you, Nico, for sharing your impressive glider with us! We've had to reschedule a few people who want flights for the spring due to the mixed-up season; I always thought fall came before winter!

One day the Innisfail Flying Club had a couple of Harvards doing familiarization flights with some aerobatic maneuvers. We tried to race them (only in our dreams!), but they were just too fast! A fellow from Germany who was visiting family was watching the airshow and came over to us and asked if he could go for a flight. He is a glider pilot and has his own ship. Very interesting discussion around flying at his home and here. We all agreed that soaring was, indeed, the best pursuit a person can do...words aren't enough to describe the experience. At the end of that day, an entourage of paragliders showed up at the airfield as the sun was getting low. It was an incredible ending to an incredible day!

I should mention that *Big Sky Dive* continued their operations along with some itinerant traffic from all around including students from *Skywings* at Red Deer. Busy days like this at Innisfail really provide an opportunity to hone

one's skills of aviation, navigation, and communication as well as being conscientious in doing a good lookout (see and be seen). This is value-added in the training to become better pilots.

Cale Feduniw soloed in the Puchacz. We are excited to have him licensed. We had three youth students join our club. Clayton, Jonathan, and Jack are already proving themselves to be contributing members and are eager to learn. Nico flew his Ka6 for the first time and Judy Soroka flew her L33 Solo (*YouTube: gliderchic*). Sadly, our CTP, Dale Brown, has moved to Whitehorse to be closer to his grandchildren. We will miss you, Dale. Looking forward to better weather and more flying in 2019!

Judy Soroka

Lethbridge

We started the year with two trade shows: the Crowsnest Outdoor Adventure Show and the Pincher Creek Chamber of Commerce Trade Show.

We had a glider fully rigged on display at the Crowsnest show, which was a good attraction and was very successful bringing us a new member. The Pincher Creek show was also very successful and we only had a small booth to display and show videos.

We also had a fantastic display exhibition at the Galt Museum in Lethbridge. They had lots of history from the 1930s to the present in their archives. A story about the exhibition is on page 20.

Even though organizing these shows is a lot of work they have proved very successful promoting the club and the sport in this area. We had a record number of fam flights from these. The intention now is to carry on doing the local trade shows.

We started operations a little later in the year than in previous years due to the large amount of snow on the Cowley airfield. We had a very good year, with students and licensed pilots soaring in the beautiful area we have. Winch operations have proven we can get away and do cross-country soaring. The winch is very reliable and we have a proven set of procedures for a safe operation with no safety incidents.

The big thing for LSC this year was the purchase of the *Freedom's Wings* Grob 103, NUO. With grants and donations we now own with no loans this excellent training glider. We have used the hand controls with disabled pilots and fam flights. What a joy it is to experience these flights with a disabled person. We will continue to promote this side of the club as much as possible. Ben, a paraplegic from Saskatoon, had a very long flight with Phil Stade during the summer camp.

Having the hangar has really helped the club and the Cowley soaring legacy grow. We continue to make improvements to the site, making it a friendly place for people to come and enjoy the sport.

What does the 2019 season have in store for LSC? I would like to see steady membership growth, quality instruction, more cross-country flights, and attract more visitors from other clubs to join us.

We are a small club with very hard working members who willingly give their time to help each other to enjoy this sport. Cowley has a great atmosphere. Thank you all for your support.

Geoff Minors

Edmonton

The 2018 flying season saw a lot of changes at ESC including a change of landscape with the addition of a new custom built hangar for storage of towplanes and equipment. The new hangar, completed this summer, will help reduce the risk of the club losing its entire fleet in the case of a fire by separating our fueled equipment from the gliders.

This flying season saw a decline in flying activity for a variety of reasons including weather, smoke, and some of our aircraft being unserviceable. We had 55 flying days this season versus 72 last year with 605 glider flights flown. Flights were down 37% from the 959 our members flew in 2017. Total flight hours were at 268 this year, also down 37% from last season. On a happy note, total reported safety incidents fell 30%.



A very welcome addition to the ESC fleet is our new (to us) DG-1000. Purchased from Minden, Nevada this fall, we are looking forward to flying it in the spring.

The DG will join our Perkoz and Puchacz to support our two-seat flight needs. We are currently working on finalizing another upgrade with the addition of a Jantar to our fleet, purchased from an ESC club member. These purchases are part of the ESC plan to renew our fleet with more

2018 pilot achievements

Solo

Cale Feduniw (CAGC)
Adam Leinweber (Cu Nim)
Seth Thorson (Cu Nim)

Badges & badge legs

Soren Christiansen (Cu Nim) – Bronze, Silver distance & height
Pilar Cifuentes (Cu Nim) – C badge, Silver height
Jasmine Gordon (ESC) – C badge
Jukian Li (Cu Nim) Bronze badge
Derek Jones (Cu Nim) – Silver distance, height, duration
Patrick McMahon (Cu Nim) – Gold distance & Gold badge
Geoff Minors (LSC) – Silver duration & Silver badge
Seth Thorson (Cu Nim) – Silver duration
Pablo Wainstein (Cu Nim) – C badge, Silver distance & height
Karl Waskiewicz (ESC) – Diamond Goal (in Australia)

Licence

Cale Feduniw (CAGC)

ASC trophies awarded for 2018 activities

Chris Gough (Cu Nim) *Carling Trophy* – best flight
Chris Gough (Cu Nim) *McLaughlin Trophy* – best 5 flights
to be determined *XC-100 Trophy* – best 5 under 100 hr
at start of season

OLC – club results

| | | |
|-----------------|-----------|---------------|
| Cu Nim | 35,058 km | 186 flights |
| | 24 pilots | 37,525 points |
| Edmonton | 10,271 km | 79 flights |
| | 14 pilots | 12,044 points |
| Central Alberta | 3,054 km | 18 flights |
| | 3 pilots | 3,298 points |
| Lethbridge | 2,630 km | 34 flights |
| | 4 pilots | 2,809 points |

*Kudos to Cu Nim and its very active XC pilots.
Total XC distance was 29% more than in 2017
and 114% more than in 2016!*

10 best XC totals (using top 6 flts)

| | |
|--------------------------|-------------|
| Chris Gough, Cu Nim | 4293 points |
| Bruce Friesen, ESC | 3429 points |
| Tony Burton, Cu Nim | 3237 points |
| Struan Vaughan, Cu Nim | 2298 points |
| Chester Fitchett, Cu Nim | 2038 points |
| Patrick McMahon, Cu Nim | 2030 points |
| Phil Stade, Cu Nim | 1806 points |
| John Mulder, CAGC | 1729 points |
| Gerald Ince, Cu Nim | 1664 points |
| Kerry Stevenson, Cu Nim | 1460 points |

Congratulations to everyone on these steps along your soaring path.

**What's your personal goal for 2019?
It's hard to improve without having one.**

modern and high performance aircraft to encourage members to take up competitive and cross-country flying and aerobatics.

I would like to thank all the members who helped us make substantial improvements to the club, those who worked on construction of the hangar, and members who volunteered their time to drive down and pick up the DG-1000. These are the things that make ESC a great club – our members willingness to spend their time and sometimes their own money for the improvement of this sport.

In closing, we are looking forward to a strong and productive 2019 flying season and our efforts will continue to be promoting the sport, attracting new members, and fleet upgrades.

Aaron McDermand



Adam solos!

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