

free flight • vol libre

5/89
Oct/Nov

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POTPOURRI

A short scenario to illustrate the fallacy of deciding to land with the wheels up. You are in trouble and down to 700 feet — the only field available is very short, plowed and rocky... Harken to the words of the ASW-20C Flight Manual:

“(2) Emergency landing with retracted landing gear. We cannot recommend carrying out an emergency landing with landing gear retracted, as the ability of the fuselage to absorb loads is many times less than that of the sprung landing gear.”

A further comment is made by the chairman of the Soaring Society of America's Flight Safety and Training Board: “With the landing gear retracted, your wheel doesn't work and you will likely slide much further than you would with the wheel extended and braking.”



A new Canadian Soaring Record which registers the highest speed of any record by a Canadian, so far approved, was made by Walter Weir in his ASW-20B, C-GGWW on 27 April 1989 when he successfully established a new record for the FAI speed to goal and return of 300 km at a speed of 191.3 km/h, which is 118.87 mph. This flight was made rather late in the day out of Kettle Dam, PA to Williamsport (island in the Susquehanna river) and return. Running a ridge to give that kind of lift must have been through very rough air which would pound the aircraft and occupant with little sympathy, leaving the pilot joyful but exhausted. Congratulations Walter, it's an incredible accomplishment.

Another of our success stories is the work of our various committees. A good example is the Flight Training and Safety committee which is responsible for the three annual instructor courses. This year the Western course was conducted by Mike Apps at VSA in Hope, BC; in the East, by Paul Moggach at York Soaring and in Quebec, by Alex Krieger at St-Raymond. These generous people take a week of their annual holidays to conduct these courses which are invariably well done and most productive. This is a tiring process but most rewarding, primarily because of the input of the students who speak highly of the talent and dedication of these committee members.

We should end the year with a gain in membership. Vancouver has increased from 52 to 67, Edmonton is up by 20 members, Winnipeg from 59 to 77, Cold Lake from 13 to 34, Guelph from 21 to 33 and Bluenose from 35 to 39. No doubt there are many others who show a gain. Asking some about their annual membership campaign, the answer is to start early and keep at it with the usual in-house gatherings and mall displays. The general economic upturn has certainly helped which indicates that an expected slow down will require extra work to stay at the same numbers. Another factor is the publication of interesting articles about our sport in a wide array of magazines and papers. The *Financial Post* seems a strange place for an article but it proved a winner with a close-up photograph of a glider pilot sitting in a DG-300 with an interesting supporting story written by our Publicity Director — this was reprinted in many papers across the country.

Soaring in the fall is usually bracing, brisk and beautiful, often with booming thermals and too short days. Remember, being at your talented best after a season of soaring may leave you a bit complacent about your sharpened skills which can result in procedure short cuts or sloppy flying. As soon as such symptoms appear fight back to your usual careful self so you may enjoy the full season without mishap or problems. Take care.

Gordon Bruce

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Trademark pending Marque de commerce en instance

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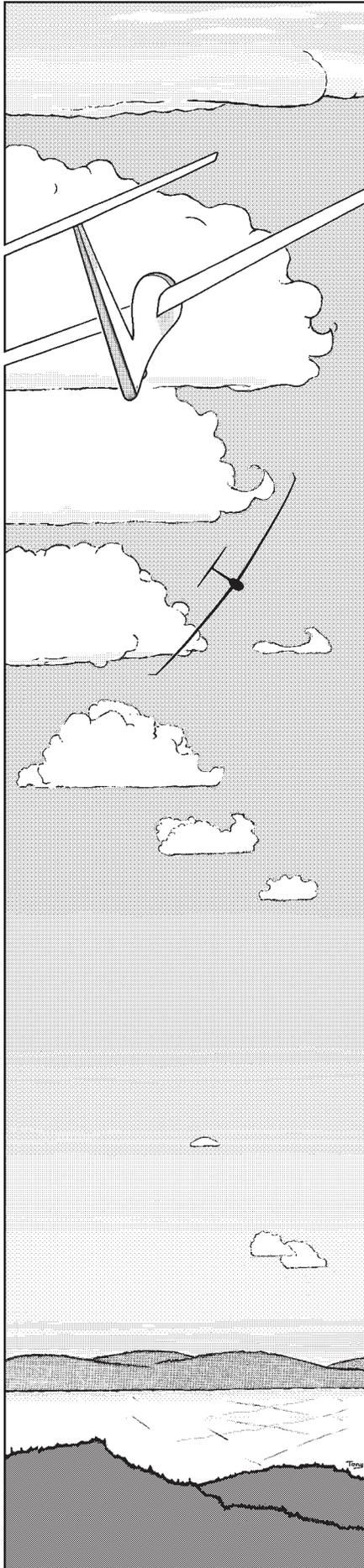
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The Winnipeg Gliding Club Lark soars over the prairies near the club at Starbuck.
Photo by Susan Maskell



THINGS TO DO IN THE OFF-SEASON

Paul Moggach

SAC Flight Training and Safety Committee

At this time of the year the "off-season" is rapidly approaching for most of us. Well there is no better time than to think about preparations for that great soaring season that lies ahead.

On the safety side, for those of you who are thinking about doing some work on your ships, you might want to take a glance at the June 1989 issue of *Soaring* and consider some of the ideas for improving the crash-worthiness of your sailplane as presented in the article by Ed Crawley and R. John Hansmann. Most of their suggestions don't require structural modifications to the aircraft, any special skills, or a lot of money, and definitely will increase survivability in the event of a crash. A gear warning system would also be a good project. The latest version of my system will use reed switches and magnets to form a proximity switch. The total value of the parts found at the local surplus store will be under ten dollars.

For those storing an aircraft over the winter, lubricate all of the exposed fittings well and carefully check your trailer for both the small leaks (moisture) and the large ones (critters), which may lead to unforeseen hazards when the ship is first launched in the spring. Remove the battery and charge it occasionally over the winter if it's a gel cell. According to the manufacturer's literature the lifetime of gel cell batteries is improved significantly if they are kept charged. The winter is also a good time to check your instruments for leaks, poor connections, et cetera, rather than discovering them later in flight. If you are thinking of hauling the glider to warmer climes in the winter, now is the time to make sure your trailer is in good shape, rather than when there is a foot of snow on the ground.

Well, enough of the random thoughts on safety and on to the training side of things. Bearing in mind that it is the mind that moves the machine, a few books for study in the cold months come particularly to mind. For those new to the sport, "The Complete Soaring Guide" by Ann Welch (A.C. Black), is about the best beginner-to-intermediate book on soaring. Ann Welch as always is highly readable and technically right on the mark. For those contemplating cross-country flying the best first book is the "New Soaring Pilot" by Welch and Irving (John Murray). You may encounter some difficulty in getting a copy as rumour has it that it is out of print (beg, borrow, or steal one). The more advanced pilot might try "Soaring Cross Country" by Helmut Reichmann (Thomson) which is available from SAC. This is a very terse book, however it is well worth the investment, as you will return to it again and again. Newer on the scene is the "Handbook of Soaring Meteorology" by Charles V. Lindsay, which is probably the best book on the subject to come out since "Soaring Meteorology for Glider Pilots" by C.E. Wallington (John Murray).

I don't know what the status is of the Wallington book but the other is available from the author for \$US19.95 plus \$US1.75 P&H at 1030 Colonial Meadows Way, Virginia Beach, VA 23454, USA. For those instructors wishing to update their skills consideration should be given to the new Air Instruction Notes and the Soaring Instructor's Guide from SAC. The Notes are presently available and the Guide should be ready for sale in the near future. Both have been extensively edited and rewritten and are a significant improvement on the materials used in the past.

Finally, for those of you still flying at this time, be particularly careful of the conditions at this time of year. The weather is generally quite volatile compared with the summer season, so don't get caught off guard. New pilots should fly in these conditions to expand their skills, however it might be a good idea to take along an instructor for safety's sake.



The SOARING ASSOCIATION OF CANADA

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

free flight is the official journal of SAC.

Material published in **free flight** is contributed by individuals or clubs for the enjoyment of Canadian soaring enthusiasts. The accuracy of the material is the responsibility of the contributor. No payment is offered for submitted material. All individuals and clubs are invited to contribute articles, reports, club activities, and photos of soaring interest. Prints (B&W) are preferred, colour prints and slides are acceptable. Negatives can be used if accompanied by a print.

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

All material is subject to editing to the space requirements and the quality standards of the magazine.

The contents of **free flight** may be reprinted; however, SAC requests that both **free flight** and the author be given acknowledgement.

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5th day of each ODD month

Opinions

L'ASSOCIATION CANADIENNE DE VOL À VOILE

est une organisation à but non lucratif formée de personnes enthousiastes cherchant à développer et à promouvoir le vol à voile sous toutes ses formes sur une base nationale et internationale.

L'association est membre de l'Aéro Club du Canada (ACC) représentant le Canada au sein de la Fédération Aéronautique Internationale (FAI), administration formée des aéro clubs nationaux responsables des sports aériens à l'échelle mondiale. Selon les normes de la FAI, l'ACC a délégué à l'Association Canadienne de Vol à Voile la supervision des activités de vol à voile telles que tentatives de records, sanctions des compétitions, délivrance des brevets de la FAI etc. ainsi que la sélection d'une équipe nationale pour les championnats mondiaux biennaux de vol à voile.

vol libre est le journal officiel de l'ACVV.

Les articles publiés dans **vol libre** sont des contributions dues à la gracieuseté d'individus ou de groupes enthousiastes du vol à voile.

Chacun est invité à participer à la réalisation de la revue, soit par reportages, échanges d'opinions, activités dans le club, etc. Un "courrier des lecteurs" sera publié selon l'espace disponible. Les épreuves de photos en noir et blanc sont préférables à celles en couleur ou diapositives. Les négatifs sont utilisables si accompagnés d'épreuves.

L'exactitude des articles publiés est la responsabilité des auteurs et ne saurait en aucun cas engager celle de la revue **vol libre**, ni celle de l'ACVV ni refléter leurs idées. Toute correspondance faisant l'objet d'un sujet personnel devra être adressé au directeur régional de l'ACVV dont le nom apparaît dans la revue.

Les textes et les photos seront soumis à la rédaction et, dépendant de leur intérêt, seront insérés dans la revue.

Les articles de **vol libre** peuvent être reproduits librement, mais la mention du nom de la revue et de l'auteur serait grandement appréciée.

Pour changements d'adresse et abonnements aux non membres de l'ACVV (\$18 par an, \$EU 18 dans les Etats Unis, \$EU24 outre-mer) veuillez contacter le bureau national.

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FUNDING CUT TO SAC

Letter, 10 July, to President SAC from Abby Hoffman, Director General, Sport Canada:

The purpose of this letter is to provide confirmation to you that the Soaring Association of Canada is not eligible for Sport Canada contributions funding effective with the fiscal year 1989-90 and until further notice.

In 1985, Sport Canada published its funding eligibility criteria... subsequently, Sport Canada served notice to all (sports) that a two year time period would be given for the criteria to be met... The issue of registered competitive membership numbers in the SAC which is the major funding ... problem remains unresolved, and we must now proceed with the action stated above.

Should SAC eventually be able to demonstrate that it meets all of the required ... criteria, we would of course reconsider the case

A MEMBERSHIP SOLUTION?

Letter, 26 July, to President SAC from Stewart Midwinter, President Hang Gliding Association of Canada (who is also a SAC member).

... I feel both our associations could benefit from a cooperative effort before Sport Canada. As we discussed, there is a need to obtain a combined membership of 3000+ from the two associations. With full members only (we have): 1300(?) in SAC and 700 in HGAC.

The question arises, where do we get the extra 1000 members? I believe that we already have most of the required extra members, we just have to take note of them in our books. If members include all those who have tried the sport in any given year, then SAC could count all those who have gone for introductory flights in that year, and in HGAC we should count all the student members who have taken at least a one day course. If you were to ask the various SAC clubs, you may be surprised at how many intros there are during a year.

(In Alberta we send) a copy of the AHGA student member's guide, a membership application form, and a copy of our newsletter to all students who have paid \$2 to the association. We calculate a slight loss in providing this information, but reckon that we increase the likelihood of a student member becoming a full member. I think that something similar could easily be instituted within SAC by having intros put their name and address on tow tickets and by club secretaries marking the names on a list.

In Alberta as of June 1989, there were 80 members in the AHGA. Last year, there were an additional 150 student members, so we could probably scrape up close to 500 nationwide. I'm sure SAC would find in excess of 500 intros in a year, so we should be able to meet the 3000 limit.

The next obstacle might be the requirement to have eight provincial associations receiving more than \$5000 in funding. Perhaps we have enough to complete this requirement.

The concept of an umbrella organization for funding purposes would have to be agreeable to Sport Canada ... would they react more favourably to an expanded SAC or to a new organization combining the two organizations? The key, I think, would be to emphasize that the amalgamation was being done for legitimate strategic reasons, ie. the recognition that both activities are soaring, just the tool is different, rather than for unalloyed money-grabbing.

Finally, (the HGAC) interest in the whole plan stems from two desires: to obtain some recognition from the government, and to have a permanent mailing address that doesn't change from one board to the next. As such, it seems sensible to contribute whatever funds that might accrue from this plan to the operation of the (SAC National Office) which you have started (for both sports) rather than start up our own administrative operation ... recognizing that Sport Canada assigns funds solely to administration.

INTRODUCTION TO GLIDING

This package proves popular with students at Winnipeg Gliding Club, and may be of some help to other clubs in their search for more students.

The executive directors of WGC several years ago hit upon an idea to promote the sport of soaring. In order to attract as many people as possible they felt a low cost package was needed. Therefore they introduced the "Introduction to Gliding" or IG as it is commonly known.

It consists of the ground school materials and 13 weeks of ground school taught by some of our own member/instructors, a one year membership to SAC, a future credit towards a full membership with the club, and also 10 instructional flights with the aerotow included. This entire package is offered this year for \$325 and we have gained 24 new students, some of whom will only fly the 10 flights and then decide gliding is not for them while others will continue on to licence stage. All in all it has been very worthwhile, and will likely remain a part of our training program.

Mike Maskell

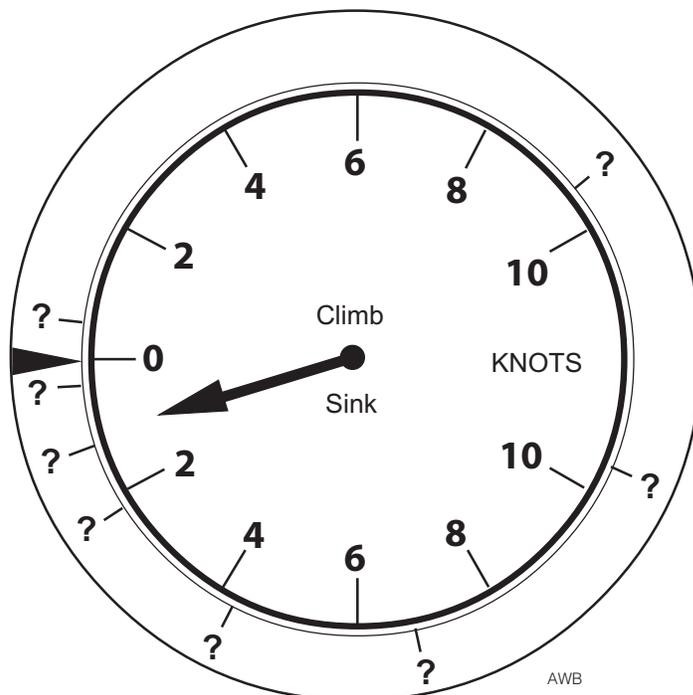
SPEED TO FLY ?

Rethinking MacCready

Rudolph Brozel

from Soaring Pilot

Rudolph Brozel is the designer and manufacturer of ILEC variometer systems and total energy probes. In this article, Rudolph proposes several reasons why the classic “speed to fly” may not necessarily produce the maximum speed on a cross-country flight. He does not offer a definitive alternate method, but provides an interesting analysis and some thought provoking comments and ideas.



THE CLASSIC SPEED-TO-FLY theory is correct provided two assumptions are made:

- 1 There are no losses of any kind, in either time or in energy, upon transitioning from one phase of flight to another.
- 2 During the glide phase there are no losses which affect the sailplane's polar.

Unfortunately this means the theory loses validity immediately because of the well known effects of polar degradation due to any use of the controls and also vertical and side gusts due to turbulent air.

There have been recent reports based upon computer simulations using many variables and equations, and more or less arbitrary assumptions about the distribution of lift, transition losses, etc. These reports show that stubbornly flying speed-to-fly not only yields no gain, but actually slows average speed.

The old speed-to-fly theory is no longer sufficient in practice. Unfortunately, a new, more comprehensive theory to optimize distance flights, a theory which could be applied to the expanded techniques of today's soaring pilots, does not exist. This lack of a theory means that we still cannot completely understand and explain the good flights achieved today – a truly unsatisfactory state of affairs.

As long as this new theory does not exist, we are restricted to carrying out our flights according to our feeling, hoping that we have done things the best way. However, feeling is a bad counselor, it would be much better to know. Theory seems to be behind, where in the best of worlds, theory should be ahead of practice.

It may seem that some pilots have already learned a new theory of "speed-to-fly". How have they learned? By comparing with competitors? Or is it just natural talent? I have my doubts that the speed-to-fly problem will ever be completely solved. The number of influences is just too big. It is my opinion – admittedly a philosophical one – that the talent of the pilot is the most important one. We can help the pilot a bit by showing what advantages and disadvantages a certain action will cause. However, we will never be in a state to tell whether the one particular decision just made is the best one. There is no theory which could serve as the general rule. There remains, therefore, only one possibility – to make as many right decisions as possible, and to hope that this will be beneficial for the overall results.

The correct answer is: it depends.

So much for the theory. Let us try to demonstrate, for our practical flying, what can be calculated, and proven.

Case 1 The Great Sink

Two identical Standard class sailplanes fly through an area of sink, 1500 feet across. The airmass proper is sinking at the rate of 400 fpm. Pilot *Careful* flies through it at best glide speed, say 55 knots, sinking at a rate of 150 fpm. The other one, pilot *Fast*, shoots through it at 80 knots, sinking at a rate of 350 fpm, as he wants to have the bad sink behind him quickly. What's the result at the far side of the bad area? The computations are really simple:

Pilot *Careful*

flight speed: 55 knots = 92 fps,
needs 16 seconds to cross the sink
sink speed: $(400 + 140)$ fpm = 540 fpm or
9 fps for 16 seconds,
his altitude loss is 144 feet

Pilot *Fast*

flight speed: 135 fps,
needs 11 seconds to cross the sink
sink speed: $(400 + 350)$ fpm = 750 fpm or
12.5 fps for 11 seconds,
altitude loss 137.5 feet

The result is that *Fast* merits his name. He not only arrives at the end of the sink 6 feet higher, but also five seconds earlier — it seems to pay well to fly fast in sink!

Case 2 The Great Lift

Assumptions are the same as in case 1, only this time we have changed the airmass to a rising one at the rate of 400 fpm. Because thermals are never so large as sink areas, the zone has a length of 1000 feet this time. Pilot *Careful* intends to collect as much altitude as possible, and flies at 40 knots. Pilot *Fast* is in a hurry, and flies at his usual speed of 80 knots. How do they fare?

Pilot *Careful*

speed: 68 fps, duration 15 seconds
climb speed: $(400 - 120)$ fpm = 3 fps
altitude gain 45 feet

Pilot *Fast*

speed: 135 fps, duration 7 seconds
climb speed: $(400 - 350)$ fpm = 0.8 fps
altitude gain 6 feet

The result?

Pilot *Fast* is indeed 8 seconds faster, but Pilot *Careful* is almost 40 feet higher! Which pilot has gained? Who would you choose based upon your present beliefs? The correct answer is — it depends.

It depends upon the next lift in which both circle. *Fast* gets to the next thermal 8 seconds sooner than *Careful*. If it provides a 300 fpm average climb, then *Fast* must circle 8 seconds longer than *Careful* to make up the

40 foot altitude difference, until they are equal again. If the thermal is weaker than 300 fpm, *Fast* has had bad luck. If it is better, he will be clearly better.

What kind of knowledge can we draw from our two examples? In case 1, *Fast* flew faster than the speed ring indicated. Was the 80 knots assumed for *Fast* correct? Our simple calculation does not tell much in regards to the precision of this selected speed. It is certain that the answer depends on the strength of the next thermal our two pilots accept. It is clear, however, that *Careful* has lost. In case 2, affairs are not so straightforward. Both cases can end one way or the other depending on the next thermal.

The calculations we have just carried out are completely correct. Unfortunately, and this is precisely the problem with classic speed-to-fly theory, it's not the whole story. We also need to consider:

- what speed our champions were flying before the lift or sink;
- how they managed to determine the speeds they chose, and
- whether they were well into the zones before they noticed the lift or sink.

Unfortunately, the ability to see into the future is not generally available to us. These factors, and the need to return to the previous speed after the lift or sink, make the whole story much more complicated.

Unfortunately, our simple calculations may have been entirely wrong. The widths of the sink and lift areas were such that transition losses from one flight regime to the other have a significant effect. (Had the widths been ten times longer, the small transitional problems would not have played as important a role.)

In order to grasp more about what happens, let's consider a very straightforward case, a simple pull-up (zoom). We shall later use the knowledge gained to try to find out whether it is of importance in other cases as well.

Case 3 or The Happy Pull-up

Pulling up is a thing we practise very often on a distance flight. To achieve reasonable average speed we must fly fast when gliding, and slow when circling. (There are cases where one rushes along at great speed beneath a cloudstreet or along a mountain ridge. These flights involve little pulling up, and will not be dealt with here.)

To reduce speed from cruise to climb, a pilot can pull up, or deploy the air brakes. Pulling up is much more energy conserving. After the

pull up, the pilot is then forced to push over at the top of the climb to assume the selected slow airspeed. Also, during the inverse maneuver, one must first push to accelerate to the new selected airspeed, and then follow with a pull back on the stick to maintain the new fast airspeed.

Pulling up and pushing over come together like morning and evening; after each deceleration (pull-up) one must accelerate (push over) again. Deceleration and acceleration maneuvers always come as a couple. Why is this important? Because each of these maneuvers is paid for by a loss in performance. As each maneuver is always accompanied by its mirror image, this makes for a double loss.

Accordingly, we shall define our third maneuver, the pull-up as a deceleration maneuver, and we shall try to find out what losses arise. We bypass the difficulties of defining a measurement method for the losses by again having two identical sailplanes fly with, or against, each other. Therefore, our beautiful third case looks like this:

Case 3 Details

Two sailplanes fly at 80 knots in calm air beside each other. Pilot *Stay-up* thinks he has encountered a thermal and pulls up. Slowing to 40 knots, he realizes he was wrong, and pushes over until he has reached 80 knots again. His friend *Go-ahead* was not impressed by the short gust and drove steadily on at a constant speed. How much did *Stay-up* lose against his friend *Go-ahead*?

In order to be able to compute everything (and I am not going to go through the calculations here), we have to assume some minor details. We will consider a pull-up in actual lift in a straight line without turning. *Stay-up* will fly the initial arc at 1.5 to 2 G's, enter a climb at some 20 to 30 degrees inclination, and round off finally such that he arrives at a speed of 40 knots in a manner that keeps the dirt on the cockpit floor. (Small deviations from these values will not change the losses very much. However, when pulling up at 3 G's and 45 degrees the losses become larger by an important amount.)

To deal with the problem quantitatively, we unfortunately would have to resort to flight mechanics which I do not intend to do in this article. Let me handle it with a few words:

When pulling up, the wing not only has to provide lift to carry the sailplane's weight, but in addition, it has to provide the force to push it into its new trajectory (centrifugal force). Increased lift also causes increased drag. The sailplane loses energy faster while pulling up. This means that as the load factor rises, the actual sink rate will be far greater than its polar indicates for the speed actually flown. To be more precise, rather than deceleration, it is rate of loss of energy height.

This increase in sink due to the load factor dramatically increases the slower one flies. The culprit is the induced drag of the wing. Its coefficient grows reciprocally to the fourth

power of speed (at constant load factor). During a pull-up, the sailplane may actually be sinking at twice the rate stated by the manufacturer as the sink rate at that speed!

On the other hand, if the load factor is reduced below the normal value of 1 by pushing over at low speed, the sink rate is also reduced. The load factor optimal for that will be around 0.2. Unfortunately, this scheme can only work for short periods of time. You can't keep pushing forever! Above a certain speed depending on the aerodynamics of the sailplane (approximately 108 kts at normal wing loading), the deceleration effect becomes nearly zero. In this regime you can pull as hard as you like, with little cost in performance. However, you must be very careful not to overstress the sailplane.

For the more technically minded reader, the illustration below shows the set of accelerated polars for the ASW-19. The relationships are very similar for other sailplanes. The normal, well known polar is the curve marked ①, the others are the accelerated polars for the corresponding load factors. (This theory also works for circling flight. The load factor is $1/\cos(\text{bank angle})$. For 48 degrees of bank, the factor is 1.5.)

When applying this theory to the case of our friend *Stay-up*, we shall find the following:

- An ideal, frictionless sailplane (which still does not exist, despite the Open class) would gain about 180 feet during his pull-up in the brief gust.

- Because his sailplane is not frictionless, *Stay-up* actually gains about 20 feet less than this.
- Because his average speed has become smaller, he also has to accept a time loss against his friend *Go-ahead* as well.

Now, when we take into account the fact that *Stay-up* must push over again to accelerate to the same speed as his friend, we need to add another 20 feet of altitude loss. (For simplicity, we have assumed that the inverse maneuver results in about the same losses, and lasts about as long.)

Until *Stay-up* has arrived again at 80 knots, he has lost about 40 feet of altitude and his average speed has been about 60 knots. At the moment *Stay-up* arrives back at 80 knots, he will spot his friend about 450 feet ahead or some 3 seconds timewise. Additionally, *Stay-up* will find himself some 6 feet below the trajectory of *Go-ahead*. (If he maneuvered much more aggressively than our conservative assumption, he may be 30 feet below!)

(At the instant he returns to 80 knots, *Stay-up* is at a higher altitude than *Go-ahead* and it may look to him as though he has gained, however, he is actually below the flight path flown by his friend. T Knauff)

What can we learn from these examples? The consequences of *Stay-up's* error remain within reasonable limits, at least at first sight. If we assume a next thermal of 300 fpm it

means that *Stay-up* has lost about 5 seconds (a little over 3 seconds in time, and a little over 1 to gain back the 6 feet). This doesn't sound like much, but there are people who have lost competitions by this amount – less than one full circle!

How does the whole story change depending on the speeds flown, or the MacCready value set?

Let's look at lower than MacCready airspeeds. With airspeed decreasing, energy losses increase at constant load factor. Load factors however decrease; thus energy losses will not increase heavily. Glide ratios will become better, because speeds are lower, energy losses therefore will weigh heavier. Time losses will become less important due to low speeds. I'll leave the math to you. According to Murphy's law, I should think things will not be better.

At higher speeds, in principle, the reverse is true. One thing is certain: time losses will become very important, as one loses too much speed when pulling up. (The losses in energy may become small but they may not be able to change things.)

What consequences does this mean for speed-to-fly, and dolphin flying? To keep energy losses small,

do not perform abrupt, hard maneuvers.

What does this mean for distance flying with conventional circling and gliding? Keep the number of speed changes to a minimum, as every change in airspeed leads to energy losses.

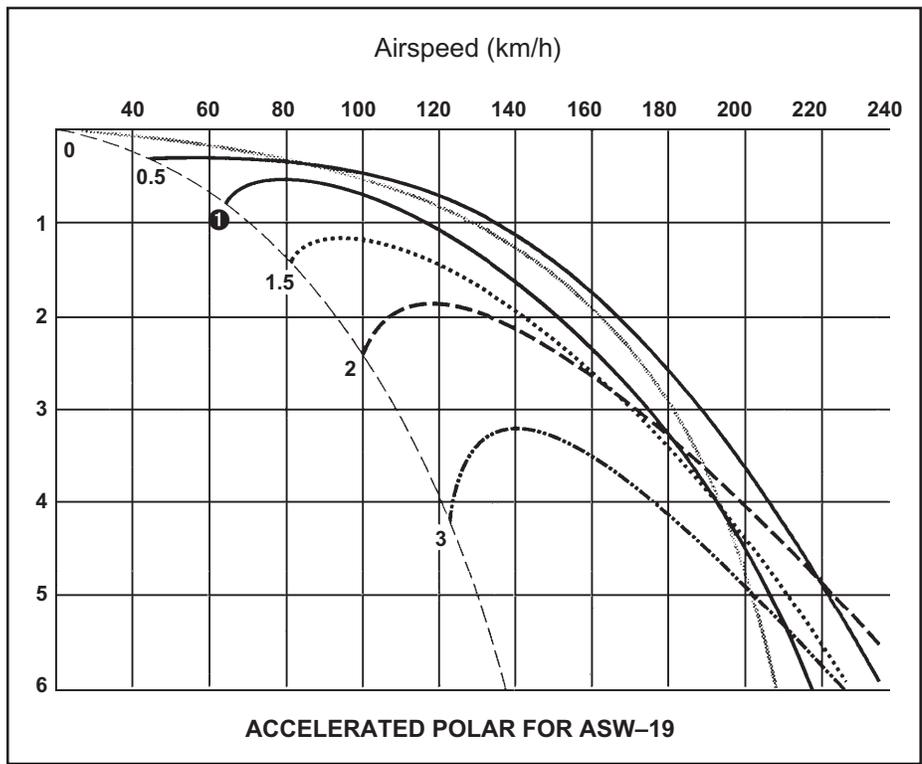
So far we have supposed that after pulling up, one continues on a straight line. In general however, one will try to circle. Now a circle takes about 20 seconds, four or five times as much as a pull-up. If things go wrong, not only are the 5 seconds for the pull-up lost, but also the 20 seconds for the useless circle. The total is now 25 seconds lost for just one ill chosen circle!

In general, it is probably safe to assume that most of us do not know what we will do as we perform a pull-up in suspected lift. We wander about and make tentative control motions, and change our minds several times as the pull-up commences. It probably is true that the typical pilot loses not 5 seconds, but probably an average of close to 10 seconds on each pull-up. It becomes obvious that one has to minimize the number of thermals one uses if average cross-country speed is not to suffer.

As an exercise, we shall calculate how large the expected lift area has to be for the losses due to pulling up to be compensated by a gain in altitude in straight and level flight. To do that we take our case 3, assuming additionally that *Stay-up* indeed catches lift of 300 fpm and continues in it at 40 knots, while *Go-ahead* dashes on at 80.

... the typical pilot loses not five seconds, but probably an average of close to ten seconds on each pull-up.

... the ugly loss from changing speed is there.... This is the weak point of the MacCready theory.



continued on page 15

THE 1989 CANADIAN NATIONALS

From an organizer and contestant's viewpoint

Paul Thompson

SOSA

THE CANADIAN NATIONALS have come and gone – they always seem to go too fast, and I think most, if not all, the participants and crews will consider this a successful contest in many ways.

First was the weather. On the eve of the eighth consecutive day of flying, and good flying days at that, we began to start thinking of ten out of ten. The question was: "Have we ever had a Canadian Nationals with ten consecutive flying days?" I think the answer is no. That dream was shattered as the rain greeted us on the morning of Day nine. Day ten was rained out too, but the euphoria still lingered. We went to the banquet for a fun evening and lots of awards, both serious and funny. I would like to think, since I was the Master of Ceremonies at that event, that it was indeed a fun evening. There were a lot of smiles and laughing the whole evening and the food was great too, so I will assume the ceremony was enjoyed by all.

Second was the introduction of the POST task (Pilot Option Speed Task). Day two was declared as a two hour POST task day, and after all the pilots were back home the enthusiasm was everywhere. I have never heard so many pilots commenting on how enjoyable the day had been. The question everywhere was, "How many kilometres did you do?" With George Dunbar's lightning fast computer printouts arriving on the bulletin board before the evening meal was even started, the results confirmed the gossip:

- "How did he do that many kilometres that fast?"
- "I went down south and should have gone north." or,
- "I tried going that way but there was this big blue hole", or worst of all for the slow ones,
- "I went to the north, past the blue hole and flew cloud streets at 120 knots for an hour or so." That one really hurts.

Third was the camaraderie and the social events. Every other day we had a club sponsored evening meal which ranged from hamburgers and hot dogs, to a pasta night, a German sausage night, and a steak night. The welcoming wine and cheese party had not only wine, compliments of Bob Carlson and the Aero Club of Canada, but all sorts of vegetable dips and meats, compliments of

SOSA Gliding Club. On the "odd" days the barbecue was on for anyone who wanted to use it. As it turned out (and it wasn't arranged this way on purpose), when a lot of people landed out it was on the "odd" days. Then, a pilot could take his crew out for dinner and not miss anything at the club. Good accidental planning we thought.

From an admittedly biased point of view I feel that the contest organization went very well also. We had portable toilets available, several water ballast locations around the field, designated tiedown spots, lots of trailer and campsites available and a contest head-

people missed some great soaring weather and we missed the enjoyment of a large field and the increased competition. Kevin Bennett, our token westerner, was heard making plans to sell everything and move east. As organizers, we had hoped that moving the contest dates so that they wouldn't conflict with the Cowley summer camp, would produce more pilots from "Boomer Country".

Now onto the flying. On the good days we had 6 to 10 knot thermals and bases up to about 7000 feet agl. Visibility for most days was very good. Launches started around noon and except for day three, when the weather

photo unavailable

Jörg Stieber and Vicki Stamison prepare the LS-4 on the launch grid.

George Dunbar

quarters trailer. The trailer had a high quality PA system, a fax machine, extra phone lines and photocopier for reproducing daily scores, task sheets and grid positions.

The grid was built quite quickly every day and with using only three towplanes – with our 150 HP Citabria as back up – the grid was launched each day in less than an hour.

The only disappointing part of the contest was the rather poor turnout, only 23 ships. Many of the regular contest pilots chose not to attend this contest. Some didn't make it for work or personal reasons and some chose to fly American contests in this off year for Canadian team selection. Unfortunately, these

turned on us and the whole field landed out, we had an 86% completion rate. We had four POST days and four designated task days.

In the 15m class the competition was quite intense with a total of sixteen contestants and nine pilots placed in the top three at least once. Walter Weir (2W – ASW20B) was in the lead up to Day six when he slipped slightly to second place, but on Day seven disaster struck when Walter did the whole flight and won the day, with the lens cap on his camera. Needless to say his final score was zero for the day and this dropped him back to sixth place. As a matter of fact when I added Walter's score for Day seven to the

15 Metre

	DAY 1 (Speed - 303.1 km)		DAY 2 (POST)		DAY 3 (Speed - 413.6 km)		DAY 4 (POST)		DAY 5 (Speed - 293.1 km)		DAY 6 (Speed - 338.8 km)		DAY 7 (POST)		DAY 8 (POST)		Total Score
	day pos	km/h pts	day pos	km/h pts	day pos	km/h pts	day pos	km/h pts	day pos	km/h pts	day pos	km/h pts	day pos	km/h pts	day pos	km/h pts	
1 John Seymour	ASW-20B SM	4 (228.4) 228.4	2 178.2 94.4	2 (190.9) 140.9	2 351.1 87.4	1 92.3 513.8	4 105.0 644.7	2 317.6 82.1	1 300.3 100.2	3501.8							
2 Heri Pözl	LS-6 KC	2 63.6 445.8	7 155.6 88.9	8 (102.2) 52.2	4 318.7 83.8	6 82.2 498.7	1 110.5 665.3	1 348.0 85.7	6 260.3 85.0	3417.3							
3 Wilf Krueger	LS-6 K2	1 65.0 450.0	8 152.4 92.4	4 (190.3) 140.3	1 348.3 88.1	5 87.4 499.3	3 108.3 664.8	12 223.9 57.1	5 258.7 95.9	3342.5							
4 David Frank	ASW-20 SR	7 (233.6) 183.6	11 149.2 79.8	3 (190.7) 140.7	8 295.3 72.6	7 83.8 488.6	5 93.8 606.5	4 275.6 71.9	3 279.7 93.0	2986.1							
5 Kevin Bennett	Ventus X1	8 (227.0) 177.0	3 188.0 89.9	8 (102.2) 52.2	6 290.9 74.4	4 89.2 504.6	2 106.5 649.6	8 252.2 67.4	2 281.4 93.6	2979.7							
6 Walter Weir	ASW-20B 2W	3 60.0 435.1	1 189.4 95.8	1 (284.6) 234.6	7 296.9 73.3	2 89.3 505.0	13 74.8 542.3	16 dnc	4 282.3 93.4	2945.2							
7 Andy Gough	Mini Nim 94	6 (254.0) 204.0	9 159.0 80.2	7 (103.6) 53.6	3 336.4 86.0	13 69.6 447.2	12 82.7 568.9	6 261.9 67.5	14 230.8 69.7	2721.0							
8 Nick Bonnière	PK-20B ST	8 (227.0) 177.0	10 149.2 82.1	11 (89.9) 39.9	5 307.5 76.4	11 73.0 457.1	14 72.4 534.3	5 264.4 68.1	10 240.8 81.5	2693.8							
9 Colin Bantin	ASW-20 3B	13 (86.4) 36.4	4 165.4 88.3	6 (106.6) 56.6	10 243.8 63.3	3 89.3 504.9	8 89.3 591.4	13 218.9 55.4	11 247.8 79.8	2449.5							
10 David Hogg	ASW-20 VQ	14 (31.4) 0.0	13 128.3 72.1	13 (63.6) 13.6	12 226.5 56.2	9 81.1 480.9	7 89.6 592.3	3 299.6 77.5	12 220.8 75.5	2370.4							
11 Bob Gairns	ASW-20 TZ	4 (278.4) 228.4	14 130.1 69.1	5 (51.0) 1.0	13 220.4 55.8	12 69.7 447.3	15 70.2 528.6	9 247.6 63.3	13 220.9 75.1	2357.9							
12 Chris Wilson	Mosquito W2	8 (227.0) 177.0	6 160.8 87.2	12 (83.9) 33.9	9 252.1 67.7	10 81.1 480.8	11 83.6 572.0	10 239.5 67.5	16 156.3 106.3	2344.8							
13 Jack Proudfoot	ASW-20 TN	12 (96.0) 46.0	15 103.9 77.0	5 (111.4) 61.4	14 211.6 60.9	8 81.6 482.3	11 224.0 62.6	15 178.2 50.7	8 238.1 83.9	2299.4							
14 Springford/D&L	ASW-20 S1	14 (43.9) 0.0	5 162.5 87.6	10 (92.3) 42.3	11 228.5 61.6	15 57.8 412.4	6 90.9 596.7	7 252.2 73.1	9 238.4 83.5	2231.4							
15 Robert Diferio	ASW-20B DZ	dnc	dnc	dnc	dnc	dnc	9 87.6 585.6	7 252.2 73.1	7 245.3 83.2	1371.4							
16 Wood/Crocker	1-35 AO	11 (184.5) 134.5	12 163.9 77.4	14 (63.4) 13.4	15 34.9 0.0	14 58.4 414.2	15 (185.2) 135.2	14 179.0 53.6	15 156.4 55.8	1311.6							

STANDARD

() values in brackets are distances in kilometres
"p" preceding a score indicates a penalty was applied

total he would have won the contest by 41 points. There is a lesson here for any budding contest or badge seeking pilots. Use two cameras and throw away the lens caps. I don't know whether Walter has discarded his lens cap yet but I did hear him mention last week that his second camera should be in within a few days.

The steady performance of our only American entry, John Seymour, paid off for him and he won the contest. John is not only an excellent pilot (he jointly holds the world triangle distance record), but has a real knack for telling a story. We had the pleasure of experiencing this talent while sitting around the clubhouse and he gave us another example of his orator ability at our banquet. By the way, John enjoys coming to our Canadian contests because he finds the friendly and sociable atmosphere a pleasant change from some of the other contests that he enters.

Heri Pözl, the Canadian winner of the 15 metre class, and Wilf Krueger along with Walter Weir all occupied first place on at least one occasion.

The Standard class was a little more predictable with Ed Hollestelle (A1) leading the contest from day one. Jörg Stieber (JS) was in hot pursuit with Paul Thompson (T2) close behind them. The point spread was close enough that if Ed had made a major mistake it could have dropped him down a couple of positions. He didn't, and flew consistently during the whole contest. Jörg won three days but Ed managed to keep the points in his favour. Ian Spence popped into the top three on three occasions but he had had a couple of bad days, and with the new scoring system the point spread was too large to make up. Stewart Baillie flew a consistent contest and ended up in fourth place. At least I had a chance to stand up once and give the winner's speech at a morning briefing but a few days later, after the camera times were examined, Jörg had won the day by 0.1 km/h. There were only seven pilots in this class, but the competition was still there.

The jury is still out on the new and very simple scoring system devised by Colin Bantin. One point per kilometre and 0.75 points for each km/h. There were a number of objections to this too simple format at the meeting of pilots during our first rain day. Colin's feeling is that we have to give this new system a chance and one or two more contests will be needed to assess it properly. It would be an interesting exercise to score this contest using the old system and see what, if any, changes it would make to the final scores. Are you listening George and Colin?

As the President of SOSA and a member of the contest committee that arranged the '89 Nationals and from my biased position (I've already admitted this earlier), I think we had a darn good contest. I won't mention all the names of those who helped make it a success. You all know who you are. I would like to thank everyone for the many hours that were spent on this event.

Soaring is truly a volunteer and amateur sport and the club spirit is what makes it work. From this contestant, thank you all. ●

I CAN'T PROVE ANY OF THIS – A DAY 7 STORY

Walter Weir, 2W

from CASG Newsletter

They called a four hour POST and it was a blue day. "How do you fly POST on a blue day?" I asked John Seymour. He never wastes words: "Gaggles – gotto – dead meat if you don't." I figured he knew how to do this, I better stick with him. After launch I found him, attached myself to his tail, and stayed with him. There were cu on the southwest horizon – probably, I thought, about where Tillsonburg and Aylmer turnpoints were. That looked as good a direction as any.

When John moved to the start point I followed like a puppy, and when he started out to the southwest that was fine with me. We were a gaggle of two, not an impressive vote of confidence from the others.

I was behind, below and off to one side hoping to find some good air and get above and ahead. Instead, I got further and further behind and below as we made our way slowly through weak blue thermals towards Aylmer, 85 km from SOSA. About 10 km from Aylmer, we hit cu and John went into a tight spiral as though he had at least 6 knots on the average. I flailed about underneath and became more and more frustrated as I couldn't find anything worth circling in. Finally, I decided to head for the turnpoint on my own, and with the cu as markers I did quite well. I never saw John again – I didn't see anyone for the whole flight except once in a while someone going in the opposite direction.

I got my Aylmer picture and started north in super conditions, bypassing Woodstock and Stratford, to Listowel (104 km from Aylmer). Listowel was way out in the blue but bases were 7700 msl and it wasn't too difficult to go in for the picture and back to the cu without getting low. Then it was south to Stratford, Woodstock, and Tillsonburg, where one good thermal was enough for the final glide to Rockton to finish the 4 hour POST in 3:54.

I thought I had done pretty well and when John and I added up our distances I had beaten him. I was ecstatic! Back to the cockpit for the camera to take the tail and clock pictures.

AAAAAARRRRRRGGGGGGHHHHHH!!!

The lens cover was on the camera! I asked God to tell me that I had put it on after landing but there was no answer. Sure enough the film came back with six blanks, a start picture and five TPs, with times neatly printed in the corner. I had handheld the camera for the board picture, put the lens cap on, and screwed the camera onto the mount.

So although I had won the day by two points over Heri Pölzl, I was DNC (thanks, George, that was better than scoring me zero).

I can't prove any of this.

SUMMER COWLEY

Tony Burton

Cu Nim

THE GRASS WAS GREEN AND LONG on the airfield as people began arriving on 28 July, a rare sight given the extended years of drought in the southern prairies. The Cowley summer camp of 1989 was one for the record books. By the end of the gathering, 107 pilots had registered and about 100 other guests signed in, 45 sailplanes were present representing 27 different types and four towplanes were on the line. There were a total of 1714 aircraft movements, well up from the previous record of 1391 from last year. Some regulars from the States came and clubs from Winnipeg to Vancouver were well represented, with a large contingent from Regina this year.

Special guests present were Doris Grove and Tom Knauff, fresh from his US Open class win at Hutchinson, Kansas, and Manfred Radius of Toronto, on his way through to do his aerobatic performance at the Abbotsford Airshow in his Salto.

Though westerners love to beat on eastern soaring weather, I suppose we have to hold our tongues somewhat this year after hearing the reports of the excellent conditions at SOSA for the Nationals. It's clear that Cowley weather was exported for the event, while we got the midcontinent clag for the first four days of the camp, when the humidity was higher and the visibility lower than I've seen in this part of the world in the last ten years. Wednesday brought a change of airmass and stiff westerly winds to produce two wave soaring days. Although the winds had too much of a northerly component to give classic wave, what was present gave many pilots their first experience of wave soaring, and three Diamond climbs were gained.

The Wednesday winds on the surface were very strong and variable, often over 30 knots, and the operation was shut down for half the afternoon as a result. When the Pincher Creek weather office called in with a wind warning for possible 50 knot winds arriving, even many gliders aloft came back for a precautionary packing away in the box.

It turned out that the very strong winds were a local effect funnelling through the Crownsnest Pass, dropping off substantially at Cowley and further north up the valley. At the time the high winds were being broadcast, Glen Buhr of Winnipeg was low and setting up for a land-out only 12 km north of Cowley. Setting up a hot approach to his chosen touch-down, he was surprised to see that he was using up a lot of ground getting down. On climbing out, he saw the winds almost calm! Meanwhile at Cowley extra bodies were being rounded up to go out for a high wind derigging session that was unnecessary. However, it's always prudent to give the weather a lot of

respect near the mountains – as past camps have amply proven.

That afternoon Vaughan Allan of Calgary was thermalling over the Porcupine Hills just east of the field and quickly found himself unable to penetrate back. He wisely turned downwind to the prairies and was blown east to eventually land 75 km away near Carman-gay. Rick Zabrodski of Calgary was the first of the Diamond pilots, though it was close and he didn't know for days if he had it (the first reading of the barogram came in 20m short!), but after getting an accurate station pressure from Pincher Creek from their records, the altitude gain came up 30m over the 5000 needed.

The next day Jim Oke of Winnipeg and Mike Thompson from Vancouver got Diamond climbs also to about 25,000 feet. Jim said at the pilots meeting the following morning that he had been trying to get a Diamond at Cowley for many years, and while stuck for a while in weak lift short of the needed height, was encouraged by a fortune cookie message the evening before that said, "Patience is better than brains". Patience was necessary as the offset wind direction over the Livingstone Range was giving very localized and time dependent areas of wave lift. Mike was on his first ever wave flight – that's the way it goes. The evening was capped by a great hamburger barbecue for everyone present.

Tom Knauff had been invited to give the Alberta Soaring Council Cross-Country Clinic which was well attended, naturally. He was determined to fit Cowley into his schedule as a result of soaring over it last year on the way home from the course he gave in Edmonton which was mostly rained out. Everyone enjoyed the benefit of his long experience in record soaring and cross-country instructing, and his dry wit. The major lessons learned:

- the inter-thermal cruising speeds chosen hardly matter at all when compared to the overriding necessity of accurate and efficient thermalling and avoiding sink.
- Minimize control movements and speed changes which are major causes of energy loss during flight (see the Speed-to-Fly article elsewhere in this issue).

Manfred was here for fun this year. Rather than giving a course, he spent first half of the camp building himself some fibreglass wing tiedown collars for the Salto. (The weather was too much like southern Ontario then anyway to see much scenery from the air.) Later in the week he gave us two practice airshow performances which were spectacular as he

continued on page 22

THE QUEST

Steve Weinhold

Cu Nim

THIS STORY relates the events leading to the fulfillment of a dream. It was a dream born in early May of 1987, while working in the Pincher Creek area of southwest Alberta.

This particular evening I drove out to Beauvais Lake Provincial Park, never having visited it and wanting to become more familiar with the local terrain. Many times I had overflowed this area during our annual Cowley flying camps; now I could more closely investigate potential off-field landing sites.

As I strolled about, the brisk westerly wind tugged at my jacket as though it was trying to get my attention, a reminder that I was in the Crowsnest Pass. The sun was setting as I looked northwest toward the Livingstone Range whose eastern flanks were now a somber shade of dark gray. At this time of year the upper reaches still held some stubborn patches of snow, now barely discernable in the failing light. The mountains cast a mantle of darkness over the Cowley valley. To the east, the last rays of light touched some of the more prominent fir covered knolls clearly illustrating the origin of the name of the Porcupine Hills.

The sky now occupied centre stage as it prepared a light show that held me spellbound. Stacks of lennies shifted about; building here, vanishing there, the leading edges almost a luminescent yellow with deep magenta undersides and slate gray trailing edges – all this against a deep orange zenith. These were the untamed stallions of the sky which permitted the fortunate few to climb on board in search of diamonds and broad horizons. "For I have slipped the surely bonds of earth..." Indeed, an all-encompassing performance consisting of primary, secondary and tertiary lenticulars. The onset of darkness brought me back from my reverie.

Driving back to Pincher Creek I recalled that many entries in the "Cook Book" (the diary begun in the 50s by the pilots who first explored the Cowley Wave) were made during this very time of year. And so in turn other eyes had surely been witness to what I had seen – Stachow, Hea, Mamini, Riddell, Audette, Eley, Cook, Huber – some of these I had the fortune to meet through personal contact, others through our literature, and still

others I would never know. I was overcome by an overwhelming urge to form a bond with these wave pioneers.

To be accepted as a kindred spirit among their ranks would require personal sacrifice as well as recognition of their accomplishments.

I thought that a cairn in their honour erected on Centre Peak of the Livingstone Range might meet those requirements.

As ideas formed they were put into action. A visit to the county office in Pincher Creek resulted in two maps, a 1:50,000 topographical map with 100 foot contour intervals which would prove useful in planning a route up the mountain and a county land map which would give me landowners' names in the event I needed to cross privately owned land. Several evenings were spent travelling local roads at the base of the mountain and spotting the eastern slopes with my telescope. After choosing an ascent route I contacted Peter Hucik for permission to cross his land with the intent of climbing to the summit of Centre Peak. (He recounted how in past years he had been to the top on more than one occasion.) Meanwhile, I also decided to incorporate a plaque into the cairn so that others who might venture to the summit would understand the significance of this pile of stones.

A month passed by, and as June ended an inscription had evolved over the course of five trial drafts (see box). This was then stenciled onto a one foot square aluminum plate one eighth inch thick.



I test drilled into limestone rocks in my backyard with a hand drill and masonry bits to be sure I had the appropriate tools to set the rock anchors to secure the plaque once I was on the summit.

It was my intention to erect the cairn prior to the Cowley summer camp. Not knowing what difficulties might be encountered during the climb, I decided on a two day excursion with an overnight on the mountain top. This in itself might prove to be a pleasant experience. My brother Bern had expressed an interest in accompanying

me on the venture, and so it was that on the morning of Wednesday, July 15, we found ourselves on the eastern slope of the Livingstones.

The morning sun beamed down out of a clear blue sky. A light easterly wind created a murmur in the fir trees. We slung our 50 pound packs laden with camping gear on our backs and started our ascent following an old seismic exploration line. This trail ended on the spine of a long treed ridge which ran west up the mountainside to within 1000 feet of the top. If we could reach this point

would be 2000 feet north of Centre Peak. I had determined during previous examinations with the spotting scope that a direct ascent up the east slope of Centre Peak was not feasible. The final 1000 feet consisted of unstable scree slopes which terminated in vertical drops of 50 to 100 feet. Our plan would be to cross over top of the Livingstone

Cowley Wave Site

This cairn is dedicated to the memory of those pioneers who gave freely of courage and time to explore this mountain wave area along the Livingstone Range.

These individuals persevered both on the ground and in the air to make their dreams become reality. Their legacy must be respected and protected so that future generations might enjoy the benefits and exhilaration of one of the world's foremost mountain wave soaring sites.

Soar high on silent wings;
search out the serenity of space.

July 1987

Range ridgeline north of Centre Peak and then work south from the west side to reach the summit.

The weight of our packs forced us to proceed at a measured pace. Occasionally the sound of a Clark's nutcracker or raven would break the silence. As we gained altitude the trees became shorter and were spaced further apart permitting a welcome breeze to fan our perspiring bodies. Having broken through the treeline we dropped our packs and paused for a snack of beef jerky and dried fruit. As we gazed out over the broad expanse of the Cowley valley I wondered what

Refreshed after our break, Bern and I worked south along a scree slope which became continually steeper and thus also more unstable. Within 800 feet we had come to an impasse. To our left were vertical spires which offered no footholds and the steeply pitched scree on which we stood terminated in an 80 foot vertical drop to our right. No more than 600 feet before us lay easy access to the summit of Centre Peak. So near and yet so far! Prudence dictated that we go no farther. We were neither experienced enough nor equipped for technical rock climbing, so to proceed would be foolhardy. One misplaced step or disturbed rock would result in a scree avalanche and certain tragedy. With a heavy

defeat after the first attempt. I would come back and try again!

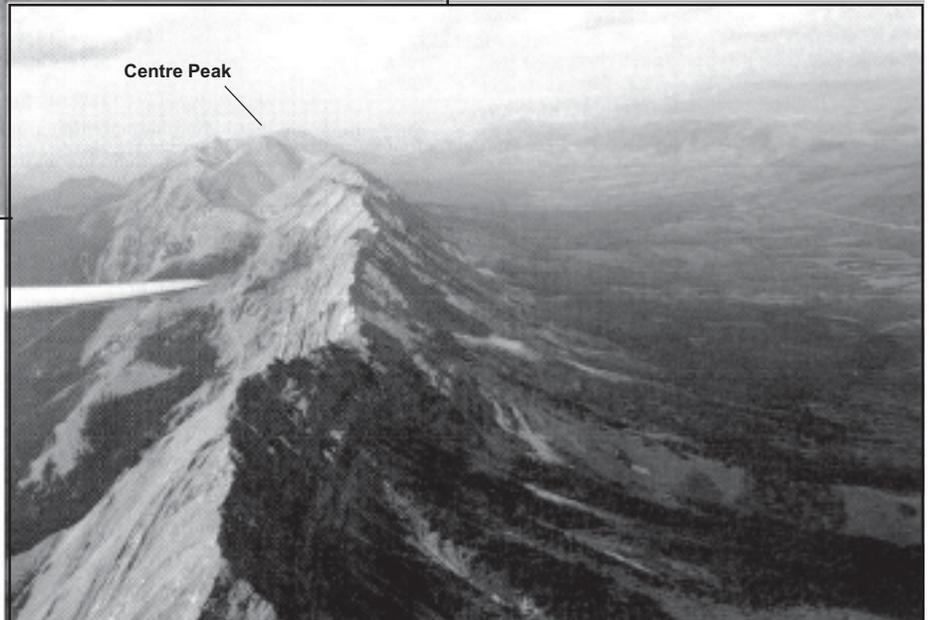
Two weeks later Shirley and I attended the Cowley summer camp and celebrated our first anniversary during the closing weekend. During the week we had driven to Sparwood, BC to replenish my supply of "Kokanee" beer. On our return I detoured north at Blairmore and travelled a dirt road which led to some open pit coal mines that lay west of the Livingstone Range. From this vantage point I once again took out my spotting scope and glassed Centre Peak in search of an accessible route to the summit. An approach from the southwest might be possible. The attempt would have to wait though as my work took me to Texas and then on to Michigan; I did not return to Alberta until Christmas.

1988 turned out to be particularly depressing for me. For the fifth time since 1980 I did not join the Cu Nim Gliding Club as my entire summer was spent in Michigan. I felt far removed from the soaring community which had become a fraternal home for me. I did receive some measure of satisfaction in being fortunate enough to attend both the EAA Convention in Oshkosh as well as the Reno Air Races – anyone even remotely interested in aviation would find either of these events well worth seeing. The year drew to a close and I had not even laid eyes on the Livingstones.



impact the proposed Oldman River dam might have on the future of this area. It was 11 am now and we had been climbing for two hours. From this point on the pitch of the slope continually increased and the footing changed to large cobbles requiring attention to the placement of each step. At 7500 feet our ascent was halted by a vertical face some 30 feet high. We diverted southward and intercepted a sheep trail which enabled us to negotiate the otherwise unstable scree slope. Boulders which worked loose under our steps would start a violent rolling tumble, taking others with them as they bounced down and finally disappeared out of sight 1000 feet below. Their crash and clatter bellowed back from the cliff faces. After a short scramble over a vertical obstacle that afforded some hand and toe holds we were able to break over to the west side of the range. A glance at my wrist watch showed 1 pm.

What a relief to set down those packs! The sandwiches and juice tasted especially good in the noticeably thinner air. A peregrine falcon swooped by, soaring the ridge lift. We heard the clammering cries of its offspring somewhere in the cliffs but were unable to spot the nest site. Crow'snest Mountain at 9138 feet broke the skyline 10 miles to the west. Cu were billowing over the mountains as far south as Waterton Lakes although the prairies to the east were not yet spawning any convective cloud.



heart I took a last look at the peak, turned north and retraced the path we had just ascended.

During our climb in the morning our legs were pushing against the force of gravity, thus our breathing had been laboured. Now however, gravity was helping us down, our legs had only to check our descent with each step. At 5 pm we were back at our van, the muscles in our thighs screaming for mercy. A frosty beer out of the cooler was our only reward. That evening we swam in the Oldman River at its crossing with highway 22 and prepared a barbecue dinner. As the orange sky silhouetted the sawtoothed spine of the Livingstones I resolved not to admit

In 1989 things would be different. Late March I left Michigan to return home to Calgary. Several Sundays later in April I took some of my radio control gliders out to our club to look for some early season thermals. To my surprise a group of instructors was present to start the annual spring checkrides. Before long I was coerced into a Scout to do some towing and I was once again an active club member.

Several months later I was back at Cowley. At times, when I looked at the Livingstone Range, it felt as though Centre Peak was beckoning me, and I of course was eager to go. While taking the camp's final morning temperature sounding, I took the Scout to

10,000 feet west over the Livingstone Range. This gave me an opportunity to survey my proposed route from a different perspective. On descent I skirted over Centre Peak at 8400 feet – a lone ram mountain sheep was standing sentinel. If the weather cooperated, I would attempt the climb again on the following weekend.

By midweek the weather reports sounded promising, sunny days with scattered evening thundershowers indicated the likelihood of a weekend with some convection for soaring. Friday afternoon I packed my gear and told Shirley I'd be back home Sunday night. She was concerned that I was going alone this time, so I included my handheld transceiver in my packsack. If I should have an accident I could contact an overflying airliner on 121.5 MHz. I stopped briefly on my south-bound route at our airfield at Black Diamond to tow some students. From there it was on to the Crownsnest Pass where I spent the night in the van.

Saturday, August 12, dawned clear and calm. The first beams of light beckoned in through the rear window of the van and woke me, and following a hearty breakfast I made a final check of my gear to see that nothing had been overlooked. My overflight last weekend had shown that all snowfields were melted so I had no option but to pack my water with me. At Blairmore I followed the old coal mining road to the eastern slopes of the mountain range. An east fork on this road in turn took me northward on a jeep trail paralleling Gold Creek, which has its origin at the base of Centre Peak. I hoped to follow this stream through the forest to guide me to my destination.

At 9:15 I was hiking into the sun just now clearing the Livingstone Range. Fortunately I had discovered an old seismic trail which made the first half hour walking quite enjoyable. Our abundant rains this year left the forest floor carpeted in a lush green with a myriad of wildflowers now in bloom. At points where the stream crossed the trail I looked for animal signs in the soft earth and soon saw bear tracks. Although they were only black bears, I kept up a steady whistling of tunes that came to mind to broadcast my presence to whom it may concern.

All too soon my pathway came to an abrupt stop, but I had gained 500 feet in the past one and a half miles and was presently at 6000 feet. The next hour was spent pushing my way through dense undergrowth and tripping often; I'm sure my curses frightened any bear in the area away. On several occasions I heard crashing ahead of me similar to the sounds I was making, but the only tracks I encountered were those of elk. The gain was 500 feet vertical in a half mile when I broke into more open pine in a saddle between two ridges. Another half hour and I finally broke clear of the treeline at 7000 feet.

Ahead of me the mountain proper seemed to be staring down at me. A steep slope of loose boulders rose 800 feet ahead ending in a 40 foot vertical wall which fell off into an abyss to the north and trailed off to the south out of sight. Forty-five minutes of scrambling brought me to the base of this wall which I

followed south in search of a cranny that would permit me to scale it.

Before me on my left a trickle of water wetted the limestone face and provided moisture for a small patch of grass at its base. I removed my pack here and ate a light snack. Half my water supply had been consumed and I realized I would have to replenish the stock. A long shoelace removed from my hiking boot acted as a wick when held against the wet rock face. In five minutes I recovered two litres of water. Proceeding a little further without the packsack I encountered a narrow ledge with suitable handholds to permit scaling the face. A chimney provided the means by which I was able to clear the last of the vertical wall. From this point on it was a straightforward walk up a moderate slope consisting of loose rock. Forty-five minutes of hiking put me on the summit at 2 pm.

The reward for climbing any mountain is the vista which stretches out around you in all directions. Under a clear blue sky the Porcupine Hills to the east melted into a patchwork

I ... spoke in silence to
some inner thoughts... It
was time to return to
earth.

quilt of green and yellow until that too finally diffused into the horizon near the Saskatchewan border. To the south the pale gray scar on Turtle Mountains' flank marked the location of the Frank Slide which took place at the turn of the century, burying an entire coal mining town while it slept. Further still, Chief Mountain in Montana stood sentinel just beyond Waterton Lakes National Park. To the west, Crownsnest Mountain marked the continental divide and the British Columbia border.

The charts show Centre Peak at 8364 feet msl. This peak is actually very small being no more than four feet wide and running north-south along the spine for no more than twenty feet. Here I found a small pile of rock rubble with a post lying across it. The post was wrapped in a faded orange survey ribbon. Under the rock rubble a brass plate was grouted into the bedrock placed here by the Geodetic Survey of Canada. I opened a plastic 35 mm film container which held two pieces of paper. One was dated June 1985 by a survey crew who admitted arriving here by helicopter. The other dated August 4, 1980 was signed by two men aged 19 and 24 respectively. Their comment was simply: "Arrived at the top at 6 pm. Windy as hell and cold. Please keep this note behind."

Work now began on my objective. A three foot square base was carefully prepared upon which subsequent layers of rock were placed using small fragments to securely lock the structure together. I quickly depleted the supply of loose stone in the immediate area and was forced to descend to a point some 50 feet away for a source of rock. Carrying the material at this altitude was tiring but provided security against occasional wind gusts that attempted to dislodge one's footing.

When the cairn was two feet high I decided to return to my packsack and bring it up. This provided a break in the work, as well as allowing me to set up a campsite while there was still daylight. A niche under a rock ledge provided a large enough flat area to lay out the sleeping bag wrapped in a plastic sheet, in turn weighted with stones against the gusty wind. I returned to the Peak, now only a half hour away, with tools, plaque and radio. Before resuming work I set the radio to 123.3 and shortly thereafter the frequency came alive. Several of the Cu Nim pilots were flying cross-country. I spoke with Dick Mamini flying his ASW-12 at Strathmore 175 km away. He promised to telephone Shirley tonight to let her know I had safely reached my goal.

I worked on as the sun slowly settled into British Columbia. A flat-faced two foot square rock six inches thick was rolled up to the base of the cairn, and after several failed attempts lifted to the three foot level on the south face. After it was secured by placing other rocks around it, the anchors were drilled and the plaque secured to it.

I sat down and rested briefly; the sun disappeared below the orange western horizon and the wind's fingers now had a chill. A scimitar shaped silhouette approached from the north, flying the ridge lift. I sat motionless as the peregrine passed within twenty feet of me, unaware of my presence. Perhaps it was the same resident my brother and I encountered two years ago.

At 9 pm I went down to my camp for supper. As I crawled into the sleeping bag the southern sky was alive with lightning. The cognac I had packed up with me now provided a warm internal glow, soothing my aching body and quickly weighted my eyelids. Later I awoke with a light drumming of rain on the plastic sheet covering me. My feet and the base of the sleeping bag were wet so I drew them up nearer to me under the sheet. The rain continued intermittently through the night.

Shafts of light broke through the early morning cloud deck and dappled the Cowley valley. I carefully slid out of the sleeping bag, not disturbing the pockets of rainwater trapped by the plastic cover sheet. This water was then funnelled into my drink container. I returned to the cairn and capped it off when I was no longer able to set the rocks any higher. The sun had now burned off much of the overcast and it was an opportune time for some photographs. My own note joined the other two in the film canister: "This cairn was erected in honour of the soaring movement. Anyone wishing more information on the subject should contact the Cu Nim Gliding Club in Calgary."

I took one last look at the pristine beauty around me and spoke in silence to some inner thoughts. I had established contact with those whom I admired. An inner peace vaulted upwards, spiralling in a thermal not of warm air, but of kindred sentiment. It was time to return to earth. ●

Note: If sufficient interest exists, the author would be prepared to lead a day hike up Centre Peak at next year's summer camp.

SPEED TO FLY

continued from page 8

Stay-up loses 5 seconds against *Go-ahead* in the pull-up. One could think now that it is sufficient for him to only regain those 5 seconds. It is actually much worse than that. *Go-ahead* has an added advantage by continuing to fly faster than *Stay-up*. We must also compare flight altitudes. *Stay-up* obviously gains altitude as *Go-ahead* plunges onward. At the end of the lift area, *Stay-up* is higher than the trajectory of *Go-ahead* by ΔH . However, *Go-ahead* has arrived at the same distance earlier by ΔT . Obviously, both pilots are equal again, if in the next thermal *Go-ahead* has to circle longer by his advantage in time to just compensate for the advantage in altitude which *Stay-up* has. This condition is expressed by the equation:

$$(1) \Delta H = 300 \text{ fpm} \times \Delta T$$

where the next lift has been assumed at 300 fpm.

As *Stay-up* has a sink rate of some 120 fpm, the air mass must be rising at 420 fpm. *Go-ahead*, who has a sink rate of some 350 fpm, climbs at 70 fpm. *Stay-up* has a forward speed of 68 fps, *Go-ahead* of 135 fps. Time spent in the lift area is simply equal to length of the area divided by speed. Altitude gain is equal to time spent in the area multiplied by climb rate. This will lead to the altitude advantage of *Stay-up* against *Go-ahead*.

$$(2) \Delta H = D/68 \text{ fps} \times 300 \text{ fpm} - D/135 \text{ fps} \times 70 \text{ fpm}$$

where D = length of lift area

The time loss of *Stay-up* is easily calculated as the difference of the times spent in the lift area plus time loss due to pulling up.

$$(3) \Delta T = D/68 \text{ fps} - D/135 \text{ fps} + 5 \text{ seconds}$$

The result, with the conditions assumed, is about 875 feet. Time duration of flying through the area for *Stay-up* thus is about 13 seconds. At first, the result doesn't seem so catastrophic. Upon closer examination we realize that a thermal lasting 13 seconds flying straight through it is not very frequent, except below a cloudstreet.

The losses due to pulling-up become very large. Pulling at 3 G's instead of 2 G's would have made for a loss of some 9 seconds, not just 5; and the lift needed to balance this would have to be some 2000 feet long, or about 30 seconds at 40 knots!

The existing theory shows that flying slow in a lift area immediately starts to pay, when the losses due to speed changes are allowed to be zero. Mathematically, this is very easy, however it is contrary to reality. Eliminating the 5 seconds loss in equation (3) will lead to $D = 0$.

Checking the calculations, one will find that D is proportional to the initial time loss.

This conclusion brings us back to the old speed-to-fly theory. Here we arrive at a gain,

as soon as one flies slower in a rising air-mass. Unfortunately, the ugly loss by changing speed is there ... This is the weak point of this older theory.

By inserting a "dead time" at the beginning of each lift taken on, into classic theory, as has been done already in simulations, one arrives at quite similar conclusions.

Our result also indicates that it is wise to reduce inevitable losses to the strict minimum, by flying gently with the controls. This means no high load factors due to strong pulling, and no steep ascents, at least with weak conditions where energy losses make the pain much worse. In very strong conditions, one must pull firmly, otherwise, one will overshoot the thermals at the high entry speed. But here also, energy losses weigh less heavily. Or do they? Certainly time losses, because of the higher speeds, will weigh heavily too.

The question becomes, how far do you go in minimizing the number of thermals you take on versus staying in a thermal which is getting weaker, just not to have to take on another one? Even the pilot who is willing to go quite low has to take on a certain number of thermals. The old rule states that one should quit the present thermal as soon as the momentary (I think somehow averaged) climb rate falls below the expected initial climb rate in the next thermal.

For this review, our rather simple set of considerations which take into account only one set of conditions, will not suffice. One would have to work on a large set of climb rates with the accompanying flight speeds calculated according to the old speed-to-fly theory, before making a new set of generally applicable rules. Since this has not been done, the theory discussed here will remain a hypothesis, although a few points can be proven. The new comprehensive theory of distance flight still remains to be written.

To answer a question put earlier, in case 2, The Great Climb, the balance will most probably tilt in favour of our friend *Fast*, even if the thermals are not so gorgeous. In case 1, The Great Sink, his blatant advantage has even become bigger.

In the end we must still answer the question whether this whole beautiful calculation is correct. The theory of accelerated flight as used here is correct. Many people still believe the accelerated polars should look like those with variable wing loading. They do not do that quite simply because aircraft masses are very much different in both cases. I have observed the effects as calculated a few thousand times in flight looking at my TE-variometer. For me, this is reality.

There remains the matter of losses due to pulling up derived from this theory. Frank Irving has calculated similar trajectories at similar speeds with the help of an absolutely different method. He has arrived at quite similar results. Differences of a few percent do not disturb the practical results and can be explained by differences in the assumptions. This confirmation only concerns the energy losses. There remain the losses of time. It is possible that I may not have this absolutely correct, yet there is no doubt about the fact of considerable time losses due to pulling up.

Having cross-checked everything, the question arises, how does this affect our first problem – speed-to-fly. It would certainly be foolish to throw the old speed-to-fly theory overboard. We have seen in case 1 that one loses a lot by flying too slow in sink. Observers of one very successful pilot claimed to always fly at a constant speed, report to have seen him change speed at moments where there is strong lift or sink, yet nobody seems to have seen him performing strong gymnastics. Is it possible he has perceived the changing air earlier than many others?

If I were flying in a competition, I should certainly fly faster, when the speed director demands it. I would only fly slower when the lift becomes pretty strong. Certainly I should decelerate upon a climb when low and in lift. Immediately after having left a thermal at its top, I should try to resist any temptation to stay up. One thing I have taught myself to

abandon a long time ago, is to pull up and push hard. Most other top competition pilots have also done this.

There is another consideration which is perhaps timely in these times of pilots believing in fancy, expensive computers. Our speed director has no eyes. It does not know that our sailplane at this very moment is pointed right at the cloud ahead, and after that there is a great area of sink. The pilot knows this. The pilot must do what seems correct despite the beeping speed director. (Increasing the damping or time constant of the speed director system is no remedy. Its dependence on the past will only become greater. It doesn't grow eyes because of increased damping).

One needs the speed director. It should be a good one, so that the pilot knows how correct or how wrong he or she is flying at that instant. Without it, only a very few pilots can tell whether their speed is correct or not.

The pilot, not the speed director, is the master of the stick. Some believe we should link a speed director directly to a sailplane autopilot so this would control the speed also. Thank God we haven't got to this state yet! •

Keep the number of speed changes to a minimum, as every change in airspeed leads to energy losses.

To keep energy losses small, do not perform hard, abrupt maneuvers

IMPORTING A USED GLIDER

DO'S AND DONT'S WITH DoT AND CUSTOMS

Kemp Ward

CVV Appalachian

FREE TRADE IN SAILPLANES doesn't exist yet. Even so, when you are searching for a used fibreglass bird in good condition, think seriously about the US market. Not only is the choice wider than in our country, but the final price in Canadian dollars can be lower. You will also find that the import process is a memorable introduction to the Department of Transport's bureaucracy.

The physical importation of the aircraft is simple (*unless the sailplane is not yours – see box. ed*). With separate bills of sale for the sailplane and trailer (there is duty only on the latter), and a credit card or cash to pay the sales tax on the sailplane, you can easily bring the equipment through Customs, then to your backyard. On the other hand you can't fly the aircraft until it is registered, inspected, and a Certificate of Airworthiness issued. But, if you follow these instructions, you can manage these steps with little trouble.

Before going into how to find your way through the DoT maze you will probably want to choose a sailplane to import. Most manufactured sailplanes flying in Canada may be imported. Check with DoT Airworthiness. My experience came as the result of a partnership with a friend. We looked for a low priced machine with at least 35:1 L/D. After discovering that Larry Springford's Libelle had been sold, and not a single suitable sailplane was available in Canada, we turned to *Soaring* magazine. There were six or seven listed, including several in California and two in Texas: Libelles, Cirri, Piks, and others. We phoned the closest, settling on Don Edam's Libelle in Monument. He sent us many photos, logbooks, a Schweizer inspection sheet, a complete description of the condition of the exterior, and the Certificate of Registration. On this basis and a price of US\$ 10,950 we made a tentative agreement to buy. The package included a fine Standard Libelle, with

instruments, radio, speed director, TE audio vario, oxygen, Smiley bags, and an aluminum trailer. Many sellers will be willing to deliver half way, but we had to drive to Colorado from Sherbrooke, Quebec, as Don was unable to travel. As a result, he had deducted \$US500. The total cost including 12% sales tax, duty on the trailer, fees and inspection costs, was less than \$Cdn16,000.

After devising a payment and guarantee system that satisfied both parties, we dealt with the DoT. This is where you have to know the procedures and maintain your patience. Here is what we learned:

The first step is to deregister the sailplane in the States. The seller will do this by contacting the FAA, requesting at the same time an Export Certificate of Airworthiness. This certificate can be obtained by having the sailplane inspected by a qualified USA mechanic,

received the German paper, and DoT didn't insist (we found the Americans more informal than the Canadian authorities). DoT will also give you the type certificate number for the sailplane you are buying which you can send to FAA.

A temporary flight permit isn't necessary since you won't be flying the machine into Canada.

Having unloosened the USA connection you must obtain a Canadian registration. This means filling out application form No. 26-0011 which comes in triplicate. The information required includes the manufacturer's name, the country and city of manufacture (we left out the city), the model designation (ie. Standard Libelle), serial number, and US registration. The rest of the form is general. Obtaining our registration took two months. Part of the delay occurred because we forgot to include the \$25 fee, and had to be reminded; the rest

must have been due to overwork in the Montreal office. Communication by postal service is frustratingly slow, so keep it to a minimum. The Montreal phone for registration (Immatriculation) is 633-3324, which will find Mlle Rouleau, M. Lavigne, or Mme Rolland.

While you are waiting for your registration letters you should be lining up an AME who will not only help you organize your contacts with Airworthiness, but also examine the sailplane after it reaches Canada. He may be willing to visit your airfield or driveway to see the aircraft. He must submit a complete report to DoT, and make the first entries in your new Technical Log, Series I and Series II, as well as in your new Journey Log. These entries include the last information in the US logs, compass swinging results, snags write-off, and his approval of the airworthiness of the machine. The logs may be bought for about \$28 from Printing & Publishing, Supply & Services Canada, Ottawa, ON K1A 0S9, Cat.# T52-2365-2.

Once you have corrected the snags your mechanic found, snags his US counterpart may have missed, you are permitted through your AME to inform DoT that the sailplane is ready for a free Airworthiness inspector's examination.

IMPORTING A CLUB SHIP

While bringing your own sailplane across the border is relatively hassle-free, not so if you are transporting someone else's. For example, if you are importing a 2-33 for your club, you are a "shipper" and must be prepared to fill in several importation shipping documents that you would ordinarily be free of. Canada Customs has made the paperwork more difficult recently for the "amateur" one-time shipper. The forms have a lot of esoteric codes which are normally completed by a broker. You can do it yourself, but it's tricky and Customs personnel are under no obligation to assist you and probably won't at a busy or large port-of-entry, or ten minutes before the shift change. Based on personal experience, I suggest the following:

- Contact Customs well ahead of time, describe what you want to do, and ask for the specific forms required. Get chapter and verse on the no-duty status of sailplanes and hang on to it.
- On driving into the States, stop at the Canada Customs you intend to reenter through (preferably at a slack time) and repeat the process, just in case something got forgotten the first time. Pick up the pamphlets which describe how the forms are to be completed. Tell the agent exactly what you will be importing and when you are planning to come back through, what would be the best time of day, etc. Ask lots of dumb questions and perhaps a kindly agent will offer some information on the codes and which blanks are to be filled in, information required from the seller, etc. Be friendly and innocent and establish yourself as a person, not a number (often much easier at a small port-of-entry).

then a report submitted to the FAA. This agency also has the original export permit (from Germany or wherever), which Canada's DoT would like to see. In our case we never

DoT will expect the AME to be present for queries and instructions. If he is not easily available the process may continue in his absence, but you may find yourself running messages between these two agents and seeing that further corrections have been made that have to be signed off by your AME. Awkward. It seemed to us that each inspector was able to find snags that the others had missed. For example the final gentleman easily noted that our oxygen bottle was out of date resulting in its removal and a new C of G calculation, never a joy to perform.

In Montreal, Airworthiness may be reached at 633-2846 or 633-3580. M. Pontbriand is in charge.

The DoT inspection of your sailplane and the issuance of your vital Certificate of Airworthiness can be the most time consuming of all these steps. This is because the office is understaffed considering the crushing load it is labouring under due to the large number of foreign aircraft recently imported. Pilots have waited months for an inspector. The way to prevent this is to be prepared to visit the office if possible, and make yourself known. Our AME made more than one such appearance, and we made two, as well as several phone calls to clarify details. There may be in this behaviour the squeaky wheel syndrome, but we found the staff to be genuinely interested and helpful when contacted face to face. Just imagine an inspector's desk, piled high with applications for 747s, Airbusses, and Alouettes, owned by huge companies. You know where your application form will go — to the bottom of the heap. However, by appearing before the staff in person, and by showing how important the flight of your bird is to the consummation of free flight in your small part of the world, you may touch their hearts. Besides, the inspectors know that a visit to your airport in the country, far from the polluted city, combined with a chance to see a lovely aircraft, is a treat they owe themselves.

All going well, you will be given written permission to make three test flights. Do this, record them in the Journey Log and the Technical Log, Series I, then apply to Airworthiness for your C of A. Allow \$20 for the fee. The dates of these last entries must be in keeping with the period of seven days allowed for the flights.

To get this last certificate quickly, take your application personally to the DoT office. Make an appointment if possible. Remember that anything mailed can take a month before you receive its answer. Waiting a few hours in an air-conditioned office is worth the trouble, because you will have the final document in your hands and be able to fly your new sailplane. •

HOW CAN I IMPROVE MY GLIDER TRAILER'S TOWING CHARACTERISTICS?

Stewart Baillie

A synopsis of "The influence of design parameters on glider trailer towing behaviour" by Nelson E. Funston¹

A LOT of "round-the-clubhouse" talk goes on regarding how to improve the towing characteristics of a glider trailer, and a number of changes are always suggested as the best things to do. Technical Soaring has just printed a paper (cited above) on the mathematical formulation of the trailer towing/stability problem and on what changes provide the greatest help in increasing the lateral (read sideways) damping of the trailer. For those interested, Technical Soaring, Vol. XIII, No.3 has the paper in its entirety but for those less motivated, here are the general ways to improve the towing characteristics which are cited in the paper.

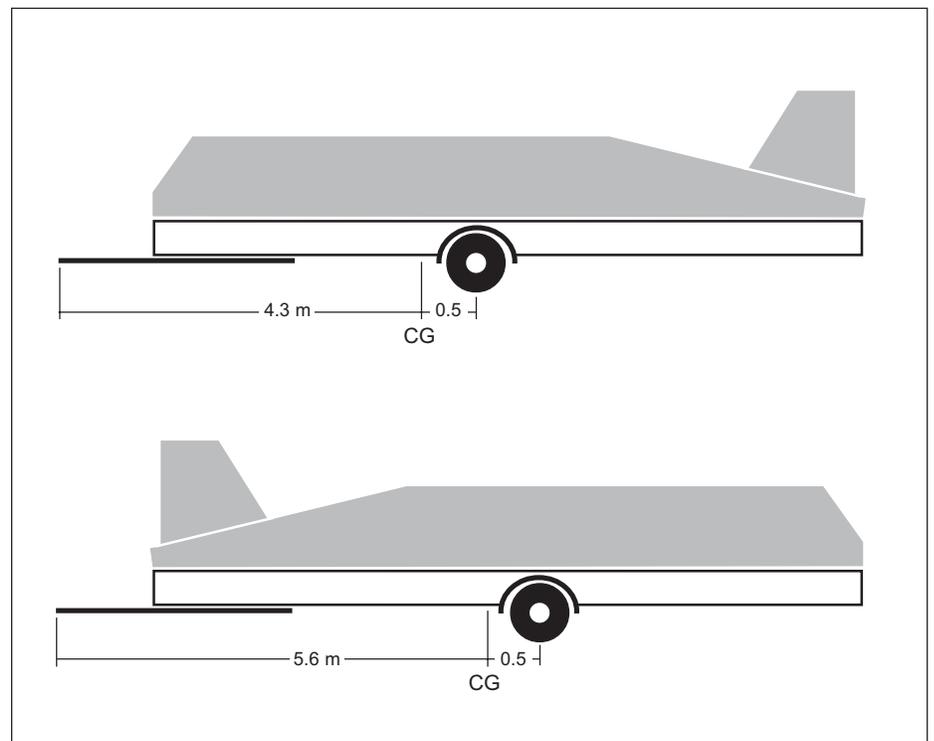
- Increase the hitch weight (or tongue load). This is the most powerful parameter to vary to control lateral damping when everything else is kept constant. The more tongue weight the better! (but please keep in mind that more weight may not be the best answer for smaller tow vehicles).
- Increase the distance between the center of gravity and the hitch. (But don't increase this by putting weight in the back end of your trailer — remember about hitch weight!).

- Decrease the overall weight of your trailer.
- Drive slower! The lateral damping is inversely proportional to speed.
- Reduce the "yaw inertia" of your trailer ... Put extra items such as spare wheels and tool boxes close to the trailer wheels. (Remember about hitch weight however!).
- Increase the trailer's "lateral stiffness" by low profile/high lateral stiffness tires.
- Use a larger tow vehicle. In addition to lateral improvements, think about acceleration (yes, you should be able to pass other cars with your trailer on!) and stopping.

One suggestion in the paper is to tow your trailer "backwards" as shown in the figures below. When you consider the above improvement suggestions, you can see that this configuration does a lot of the right things. It remains to be seen whether this configuration could be designed to have the same ease of rigging and use that the conventional design has. •

Further reading on trailer handling may be found in *free flight* 6/84, pp14, "Taming the Dog". Tony

¹ presented at the XX OSTIV Congress, Benalla, Australia and published in Technical Soaring, Vol XIII, No. 3, pp 90-95.



Club News

MANITOBA CONTEST HIGHLIGHTS WINNIPEG MIDSUMMER SEASON

For the first time in several years the Winnipeg Gliding Club has gone on a soaring expedition, this year in the form of an organized contest. During the early 1970s a keen group would organize a trip to central Manitoba in search of wave conditions over the Riding Mountain Park area. It is doubtful whether they were successful, but all who attended agree it was worth the trip. And so it is this year that we packed up our Lark, Jantar and L-Spatz and headed to Swan River, close to the Saskatchewan border to visit the other gliding club in Manitoba, Swan Valley Soaring Association. Several private ships also made the journey for what turned out to be a very successful and fun trip.

Hosted by the Manitoba Soaring Council and organized by several WGC members with assistance from the good folks in Swan River, the trip was held on the long weekend in August. Most everyone arrived on Friday with the exception of our towplane which was forced to land 20 miles short due to bad weather in the area. It subsequently arrived first thing on Saturday morning.

The contest/fun-fly was held at the site of Harvey Farms. The owners are the spearhead for the soaring movement in the area and treated all of us to an excellent time. Their equipment consists of a Cherokee and a 2-22, with a Champ for a towplane. The airfield is an immaculate grass strip over 4000 feet long and oriented north-south.

Now onto the flying. Saturday promised to be almost perfect for soaring but due to a late start only a small task was set. Once everyone was airborne the startgate was opened and the six gliders went through. Conditions at the time saw a cloudbase at 6000 feet asl, with weaker than expected thermals. As a result no one set out on course and a few landed back for relights.

Sunday proved to be the better of the two days. An earlier start got things going and by mid afternoon everyone had set out on course. Mark Brown in a Monerai was the first to run into difficulties as he only made 5 miles after the startgate and landed out. Paul Moffat in the club's Jantar also landed out but made it around the second turnpoint. After the retrieve Paul made mention of the fact that the farmer who he called upon was asking if he was married. Apparently he has a daughter who is single. What luck. No word yet as to any further developments.

Some of the more fortunate pilots include Gerry Harvey, who completed the task and eventually was declared the overall winner in the sports category flying the Cherokee, Gerhard Dittbrenner in an SF-27 (also in the sports class), and Jim Oke who arrived late on Sunday afternoon from a long drive from

Cowley to finish the task for the performance class and was declared the winner.

A wind-up banquet was held on Sunday evening and it ended one of the most memorable weekends our club members have had in a long time. What made it especially unforgettable was the warmth of the people of Swan River, who like most of us live for the moment when all the conditions are just right and the thermals are the best seen in a long time. Even to sit around the "hangar" and talk of flights past stirs them and hopefully our being there will stir them enough to continue to keep the soaring movement alive in "Friendly Manitoba".

Mike Maskell

BLUENOSE '89

The new Bluenose Soaring Club winch reported in *free flight* last year received a power upgrade this spring. The 6.9 litre "International" truck engine, known for exhaust system backpressure under heavy load, and a lack of air volume, was fitted with a Gayle Banks Power Pack giving a 20% power increase. This improvement provides good launches to a K7 with two people aboard, even in still air and high temperature.

A ground school was run in conjunction with Dartmouth Continuing Education evening classes. The course was arranged by Dr. Tony Lock and Dick Vine, both BSC members. Besides the usual lectures and exercises, the instructors used educational videos provided by BSC's Gordon Waugh. These efforts were successful in attracting five new students to the club's spring training program, which already included two new students and four pre-solo from last year.

The Instructors committee met in January to plan for this large teaching load. The concept of an intensive training period had been tried with varying degrees of success over the past three seasons. It was decided to continue again this year with the added provision that student attendance at the Flying Week be mandatory.

Flying Week was May 13 to 22, and included the two following weekends. There were two teaching sessions each day, 0830 am 'til 1230 and 530 pm 'til dark. Three instructors were on duty for the morning sessions and two for evenings. Afternoons were free, giving the hard working instructors some soaring time. Many of the students had their first soaring experience as passengers in the club K7s during this free time. Instructors for the program were: CFI George Graham, Donald Clark, Byron Bolt, George Warren, Dick Vine, Doug Gerrard and Gordon Waugh. Club instructors were augmented by two Air Cadet instructors Rob Francis and Wade Fleet. Both are now BSC members. Good organization that included pre-registration and training the

students in field management on the weekend prior to Flying Week facilitated 720 training flights. Student progress was rapid with Hope Graham and Marten Douma, two of last season's students, going solo on day five. The first of this year's crop flying on their own were Tony Toole and Don Rankin. They were followed by Steven Gerrard and Scott Travers who achieved the elevated status on June 3rd, the fourth weekend. All other students, Faye Campbell, Evan Locke, Dale Falls, Ron and Joy Van Houten and Corrine Brown are within a few flights of solo.

Instruction will continue with post-solo and soaring training which will also include field exploration and recognition from the air. Debra Burleson and the Burleson/Purcell Cub, C-FUXS, will be assisting in aspects of this instruction.

Besides improvements to the winch mentioned earlier, BSC has a new retrieve vehicle which will add to the comfort level of the drivers as well as cut fuel and repair costs. The old winch has been put in good order and ready for use when the new truck-mounted winch departs for other fields. Plans are in the works for a visit to Debert, Nova Scotia and a chance to soar the Cobequid Hills north of the Minas Basin. The experienced pilots will use the new winch at Debert, while the beginners will use the old one which isn't mobile, to practise at Stanley.

During all this early-season activity in the air, the entertainment hadn't been neglected; there was a Lobster feed during Flying Week, the goodies provided by new member Tony Toole and much enjoyed by all. Peter Christakos, our house and grounds chairman, in for a short visit from his studies at UBC, has managed to paint the clubhouse with the help of those members not actually required on the field ... and put together an excellent dinner party for about the largest crowd of members and friends we have seen at Stanley in a very long time. It seems that BSC is in for the predicted surge ahead.

Next comes the development of soaring skills for the students and cross-country training and badge flying for the old hands; also, Dr. Tony Lock is organizing some level competition between like gliders. For instance, the two club K8s will be launched together and will depart on a short course within easy range of the field, with turnpoints monitored from the ground, to see who gets back first. Other aircraft will do the course on multiple rounds until they finish or get too dizzy, whichever comes first. I'll let you know how it turns out when we've picked the birds out of the trees.

Update August 6th:

One first solo to go! We are now at flight 1374 for the season (last year 1400 total) and counting. The competition was held and was enjoyed by those who took part. It is planned to repeat the event with the assignment of crews to the club aircraft to make sure they all get in the air. Also, with many of this year's new pilots ready to wander a little it will be easier to find participants. Our trip to Debert was postponed, but will take place when the competition is over.

Dick Vine

GREAT LABOUR DAY SOARING, ELEVEN 300s AT SOSA

Labour Day weekend at SOSA Gliding Club this year will be remembered for the unprecedented volume of soaring achievements in a single day – perhaps in any two consecutive days. Sunday, September 3, saw SOSA members complete eleven 300 km tasks, two in club ships. Five of these flights completed badge legs for the pilots, with one also finishing the Gold C. Nick Preradovik's first solo and Charles Gower's five hour duration flight were also part of the day's triumphs.

"AM Weather" on the days preceding this weekend heralded the likelihood of three days of good to excellent soaring, encouraging some members to attend the Region 3 contest at Harris Hill, New York. Otherwise, Saturday morning saw the flying operation start with an unexpectedly small population of eager pilots. Nonetheless, two (Chris Herten in the club's single Astir and Dugald Stewart in his Cirrus 75) declared 300 km tasks, Chris using turnpoints at Granton and Varney and Dugald selecting Aylmer Police College and Mount Forest. Shortly after 5 pm both pilots had landed at York Soaring near Arthur, having completed about 210 km each (neither having reached the second turnpoint). A double tow provided by Walter Chmela saw both sailplanes return to SOSA by air.

Ed Hollestelle in his DG-300, A1, completed a three hour POST task (something over 300 km) and Chris Wilson took pre-solo student Drew Gibson on a 54 km cross-country in a Blanik. Drew flew about 85% of the time, considerably improving his thermalling and speed control skills.

The rain on Friday had delivered the overdevelopment that ended the soaring day early. That evening, a group of cross-country pilots resolved to set a task for Sunday, expecting overdevelopment to be less of a factor. The soaring forecast for Sunday promised a strong day. The lift from SOSA to Aylmer on Saturday had not exceeded 2.5 knots, so the prognosis was welcome. A1 suggested that a 305.4 km course around Granton and Varney be set. Five pilots prepared barographs, declarations and cameras: Alan Wood in SGS 1-35, AO, Alex Szabo in the club Hornet, DW, Fred Hunkeler in the club single Astir, SOD, Dugald Stewart in Cirrus 75, HG, and Dave Springford in ASW-20, S1. Fred chose a different task, Alliston/Mildmay. Six other pilots resolved to fly the suggested task without declarations: Ed Hollestelle in A1, Andy Gough in Mini-Nimbus, 94, Jim Feyerer in Standard Jantar, MF, Wilfried Krueger in LS-6, K2, Jim Carpenter in LS-4, ZZ, and Chris Wilson in Mosquito, W2. As well, Paul Thompson in LS-4, T2, flew most of the task, cutting the corner at the second turnpoint, Varney (about 280 km), while Colin Bantin flew over 200 km on an out-and-return speed task in his ASW-20, 3B.

All elements of SOSA's sailplane overcast returned home, having posted speeds ranging from about 48 km/h to over 103 km/h. Chris and Sue Eaves in the Twin Astir, XU, from London flew with HG from St. Marys to Listowel, returning to Embro (124 km) and

Paul Moggach from York Soaring flew his Standard Jantar, DBY, 510 km. Out of York also, Tony Lindschinger flew the club's Open Cirrus 300 km and Sam Whiteside's Standard Jantar completed a 300 km. When the lift finally ended, it had probably died from overwork! Without a doubt word of other significant flights performed on 3 September, 1989 will be forthcoming.

For SOSA this had been one of the few successes recorded by the "task du jour" concept, albeit without any of the shepherding that has worked so well in cross-country

training of the type provided by the Canadian Advanced Soaring Group's clinic held at York Soaring this year. For the pilots, the sense of accomplishment will linger. For the crews the pleasure associated with returning sailplanes should also linger. Flying more than 4619 km of cross-country in two days without landouts establishes a new non-contest record at SOSA Gliding Club. On the last weekend in July 1986 two days produced seven diamonds, but not the seven beer lists that this single day saw posted!

Dugald Stewart

The National Office Report

Something new! A brief report from the National Office!

All clubs have received their membership cards. New members joining late in the season may contact the National Office if they wish to receive their cards.

As a new policy, the Aug/Sep issue of *free flight* is the begin-ning of the subscription year and only those whose names have been received from your club treasurer by that date will receive a copy of that issue. Names forwarded after that issue will not receive *free flight* until the Oct/Nov issue unless you contact the National Office to request copies of issues missed.

Membership lists are now out to all clubs. Please check your lists carefully and return one copy to us for correction.

All clubs should now have in hand a copy of the insurance policy which was mailed out the third week in August.

New for next year is an instructor course report card which should facilitate course conductors in reporting results to students much quicker than in the past.

A revised OO application form is available from the National Office. We will be mailing out a few to each club shortly. Also, a revised FAI Gliding Certificate and Badge Claim form is available from the National Office. This form was recently distributed to each club.

One of our local members recently contacted us to see if we could assist him in obtaining a copy of a particular FAA Advisory Circular. Within a few minutes Transport Canada's own Paul Fortier faxed SAC the circular and it was mailed that same day to the member. We were happy to assist.

SAC has changed printers for the production of *free flight*. Starting with the August/September issue, *free flight* will now be printed in Edmonton by Fine Color Printing and its owner just happens to be a member of SAC. Hopefully this will speed up the delivery of *free flight* to your door.

Sales from "Soaring Stuff" have thus far been very successful. Keep those orders coming. Not only do you get great merchandise, but SAC also makes some profit.

If you have recently ordered a 1990 SSA or German calendar from the National Office, they are not in stock as yet and will not be in stock until October/November. The calendar orders will be filled just as soon as they arrive.

We are presently redoing our filing system and what a big job that is. Dust and cobwebs are flying!

Hope you all had a good summer,

Nancy and Ella

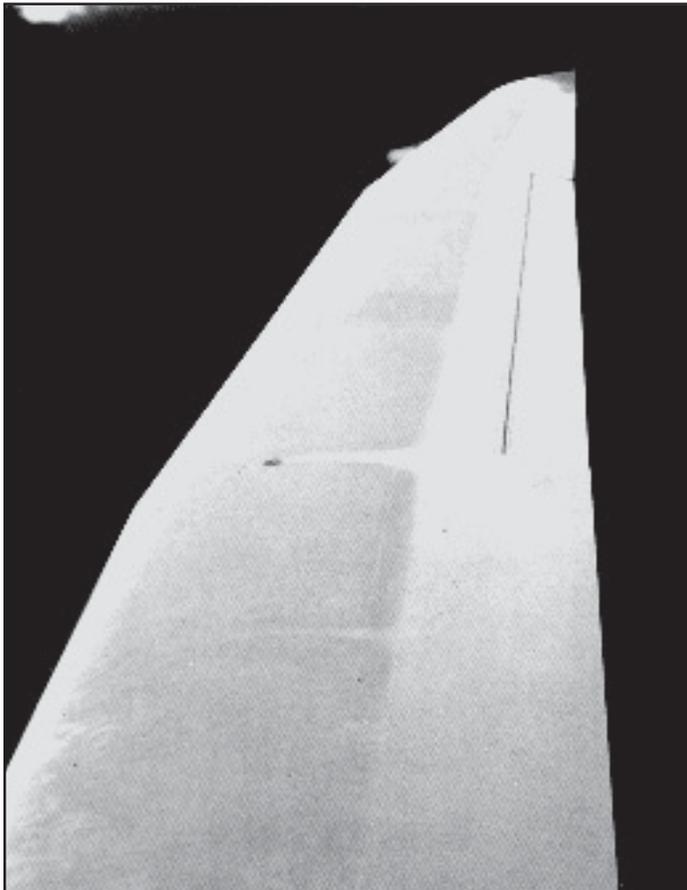
Hangar Flying

YOU ARE WHAT YOU EAT

Drug testing (in the USA) is to become part of the aviation workplace, and the program includes safeguards to minimize misinterpretation of "positive" test results. Nevertheless, mayhaps pilots subject to drug testing should keep a "food log". The Sunday 14 May Arizona Republic cited a representative of the National Institute on Drug Abuse as a source of information in response to a query on the connection between heroin and poppy seeds in bagels:

"Most of the morphine in the poppy seeds gets excreted in your urine, which is why eating as few as two poppy seed bagels can make you flunk a urine test for heroin."

from **SSA Bulletin**



LAMINAR FLOW MADE VISIBLE

The author discovered a new photo by Frieder Schuon just taken after a comparison flight with a Discus in the early morning hours.

This photo (above) shows everything that may be learned about laminar flow, transition from laminar flow to turbulence and interruptions in

the laminar boundary layer. In a laminar boundary layer the temperature changes are much slower (across the layer) than in a turbulent boundary layer due to lack of vertical heat flow.

During a landing in relatively moist and cold air, dew formed on the wing's upper surface areas with the laminar flow because the cooler temperatures at altitude remained in the poorly conducting fibreglass/carbon fibre for quite some time after landing.

The ideally located rear, very even and straight transition line from laminar to turbulent flow is clearly visible. It coincides with the back edge of the airbrakes. On the Discus of the Stuttgart Akaflieg the forward edge of the airbrakes is very well faired and does not disrupt the laminar flow.

Laminar flow disruption by bugs is very visible through a turbulent wedge near the outboard end of the aileron, as is the separation at the water ballast inlet, which seems to protrude somewhat from the wing contour. Contrary to theory, the wedges are narrower than 15 degrees, and this angle is only reached just before the transition zone. Therefore it is assumed that the laminar interruptions are less disastrous than previously believed.

The laminar flow reaches to the wingtip uninterrupted, as can be seen clearly. Also the bend at the leading edge (to produce the aerodynamically tapered wing planform) does not influence the laminar flow, again contrary to some theories. It can also

be seen that a tape to seal the aileron gap hardly interferes as it is far behind the transition zone in the turbulent boundary layer.

We hope that this explains the somewhat unusual photo and has given some practical knowledge about aerodynamics.

from **Bayerische Luftsport Nachrichten, 4/88**
thanks to Günther Geyer-Doersch

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FAI Badges

Larry Springford, 45 Goderich Street
Kincardine, ON N2Z 2L2 (519) 396-8059

The following Badges and Badge legs were recorded in the Canadian Soaring Register during the period 1 July to 31 Aug 1989.

DIAMOND BADGE

74 Andrew Jackson Regina

SILVER BADGE

776 Davina Parkinson SOSA
777 Dave Springford SOSA
778 Peter DeBay VSA
779 Chris Apps ESC
780 Lorna Novosel SOSA
781 Udo Rumpf COSA
782 James Malebranche MSC
783 Stewart Midwinter Cu Nim

DIAMOND GOAL

Eddy Hollestelle	SOSA	305.5 km	Astir G103	Rockton, ON
Gary Paradis	GGC	311.5 km	Pik20B	Pendleton, ON
Udo Rumpf	COSA	309.0 km	HP-18	Chemong, ON
Hillar Kurlents	MSC	315.0 km	Pik20	Hawkesbury, ON

DIAMOND DISTANCE

Andrew Jackson	Regina	639.8 km	Ventus b	Claresholm, AB
Graeme Craig	Regina	561.0 km	Libelle H301B	Claresholm, AB

GOLD DISTANCE

Eddy Hollestelle	SOSA	305.5 km	Astir G103	Rockton, ON
Udo Rumpf	COSA	309.0 km	HP-18	Chemong, ON

SILVER DISTANCE

Davina Parkinson	SOSA	78.0 km	1-26	Rockton, ON
Peter DeBay	VSA	59.4 km	Astir G102	Ephrata, WA
Chris Apps	ESC	62.6 km	1-23	Chipman, AB
Richard Longhurst	Air Sailing	61.5 km	Ka6E	Belwood, ON
Lorna Novosel	SOSA	67.0 km	1-26	Rockton, ON
Udo Rumpf	COSA	154.5 km	HP-18	Chemong, ON
James Malebranche	MSC	72.0 km	1-26	Hawkesbury, ON
Stewart Midwinter	Cu Nim	72.0 km	Jantar Std.2	Black Diamond, AB

SILVER ALTITUDE

Davina Parkinson	SOSA	1190 m	1-26	Rockton, ON
Chris Apps	ESC	1600 m	1-23	Chipman, AB
Richard Longhurst	Air Sailing	1400 m	Ka6E	Belwood, ON
Udo Rumpf	COSA	1250 m	HP-18	Chemong, ON
James Malebranche	MSC	1310 m	1-26	Hawkesbury, ON
Stewart Midwinter	Cu Nim	2000 m	Jantar Std.2	Black Diamond, AB

SILVER DURATION

Lorna Novosel	SOSA	5:29 h	1-26	Rockton, ON
Dave Springford	SOSA	5:25 h	ASW-20	Rockton, ON
Jack Humphries	York	5:14 h	1-23	Arthur, ON
Chris Apps	ESC	5:26 h	1-23	Chipman, AB
Steven Hulshoff	York	5:48 h	2-33	Arthur, ON
Udo Rumpf	COSA	5:35 h	HP-18	Chemong, ON
James Adamczyk	SOSA	7:18 h	1-26	Rockton, ON
James Malebranche	MSC	5:18 h	LS 1	Hawkesbury, ON
Stewart Midwinter	Cu Nim	5:20 h	Blanik	Black Diamond, AB

C BADGE

2170 Wojciech Bulczynski	York	1:20 h	1-26	Arthur, ON
2171 Carole King	Champlain	1:25 h	1-26C	St-Antoine, PQ
2172 Jack Humphreys	York	5:14 h	1-23	Arthur, ON
2173 Pierre Tourangeau	Champlain	2:06 h	2-22C	St-Antoine, PQ
2174 Thomas Klein	York	1:15 h	2-33	Arthur, ON
2175 Chris Apps	ESC	5:26 h	1-23	Chipman, AB
2176 Steven Hulshoff	York	5:48 h	2-33	Arthur, ON
2177 Claude Tanguay	Champlain	2:20 h	1-26	St-Antoine, PQ
2178 William Tom	Erin	1:16 h	2-33	Grand Valley, ON
2179 Martha Folsom	Guelph	1:22 h	1-26	Arris, ON
2180 Joseph Bowe	MSC	1:02 h	2-33	Hawkesbury, ON
2181 Claude Berger	Champlain	3:17 h	1-26	St-Antoine, PQ
2182 Richard Longhurst	Air Sailing			
2183 Udo Rumpf	COSA	5:35 h	HP-18	Chemong, ON
2184 James Adamczyk	SOSA	7:18 h	1-26	Rockton, ON
2185 Gaston Boulet	Champlain	1:49 h	2-22	St-Antoine, PQ
2186 Andrew McFarland	York	1:06 h	1-26	Arthur, ON
2187 Stewart Midwinter	Cu Nim	5:20 h	Blanik	Black Diamond, AB

NEW BADGE AND RECORDS BOOK

A new 5th edition (yellow and white cover) of the SAC guide "FAI Badge and Record Procedures" has been prepared as a result of the hard work and enthusiasm of Tony Burton. This edition takes into account the latest FAI Sporting Code revisions. It also contains updated interpretations which are based on the most recent problems encountered in claim submissions. Any pilot who is interested in badge or record flights should obtain one of these guides from the SAC National Office. It is mandatory for all Official Observers (OOs) and Senior OOs. See item No. 21 in the list of manuals available in *free flight*.

BADGE CLAIMS REFUSED!

Three badge claims were refused recently because the photos submitted were not on newly-opened film. This was one of several points which I emphasized both in the 5/88 issue of *free flight* and in a letter to Senior Official Observers. It was unfortunate that three pilots had to be disappointed but, hopefully the message is clear in their clubs at least. Evidence submitted with claims must be impeccable. And it must meet the requirements stated in the FAI Sporting Code and interpreted in the FAI Badge and Record Procedures guide.

FAI Records

Russ Flint, 96 Harvard Avenue,
Winnipeg, MB R3M 0K4 (204) 453-6642

The following new FAI record has been claimed:

100 km Triangle Speed – Open, 131.1 km/h, 12 Aug 89, Kevin Bennett, Ventus B, C-GIJO. Flown from Black Diamond, AB with turnpoints at Mazeppa and Pekisko. Exceeds previous record of 111.3 km/h set in 1982 by Dave Marden. Of significance is that another flight was completed around a different 100 km course immediately following the claimed flight at about 136 km/h, however the barograph jammed which invalidated this second attempt.

Records approved: 200 km Speed to Goal – Open, 93.6 km/h. Record claimed by Tony Burton and described in the last issue has been approved.

Note: The Goal and Return record claimed by Mike Apps in the last issue has been withdrawn for technical reasons. The previous record of 615 km stands.

SAC TROPHIES

Now is the time for all your good flights to be submitted to Harold Eley the Trophy Chairman so that he can get to work this winter and calculate who had Canada's best flight, the best five flights, etc. etc. Don't keep him in suspense!

Coming Events

Jan 17, and following 10 weeks, **Toronto Glider Pilot Ground School**, Bathurst Heights Secondary School. For registration info, call (416) 789-0551. Course instructor, Paul Moggach (416) 656-4282.

Feb 1990, **SSA National Convention**, Indianapolis, Indiana. For early information, contact Donald Taylor, Capital Center Ste. 1950, 201 N. Illinois Street. Indianapolis, IN 46204.

Mar 2-4, **SAC AGM**, Winnipeg. International Inn (it is walking distance from the airport), (204) 786-4801, \$56 single, \$64 double. More details later. Contact: Paul Moffat (204) 633-5221.

Jul 1-12, **1990 Canadian Nationals**, Starbuck, MB. Hosted by Winnipeg, contact Dick Metcalfe for advance information (204) 269-2916.

ACCIDENTS

Duster, C-GHEU, 25 Jun, Cu Nim. Landed short of runway on low circuit at Claresholm with wing coming into contact with ground first. Moderate wing skin and fuselage damage.

ASW 15B, C-GRXQ, 6 Jul, ESC. Canopy broken while aircraft being moved in hangar.

DG-202/17, C-GVRR, 22 Jul, ESC. Severe groundloop during takeoff with aircraft becoming airborne and landing sideways. Extensive damage to wings and fuselage, possibly repairable.

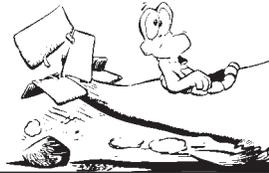
Std. Cirrus, CF-SIR, 31 Jul, CVV Quebec. Claim for farmer's carrot crop after outlanding and spectator damage.

Pilatus B4, C-GHES, 8 Aug, VSA. Severe PIOs on landing with extensive fuselage damage.

Blanik, C-GZEU, 10 Aug, VSA. Canopy cracked when opened inflight during instructors school.

ASW-15B, C-GRXQ, 13 Aug, ESC. Hard landing, damage in tail skid area.

Cessna 150, C-GBNK, 27 Aug, Champlain. Tow rope hit hydro wires causing damage and fire. Possible liability claim from Hydro Quebec.



TRADING POST

here and on p23 and the back cover deleted

ACCIDENT CLARIFICATION

In reference to your June-July issue of free flight, in which reference was made to an accident at Base Borden, I wish to make a clarification. The report stated that the glider landed short on final, sustained moderate damage and that there were no injuries.

The preliminary findings from DoT indicate the glider did not land short on final, but in fact, outlanded due to sudden and very severe windshear. Also, the glider did not receive moderate damage. The aircraft received substantial damage to both wings including damage to the left wing spar. Further, the reference to no injuries is also inaccurate. The pilot did in fact sustain a serious back injury, was off work for over two weeks and did not fly for six weeks.

I believe it is important for your readers to receive the facts concerning glider accidents. It is important to them as pilots to know the details of these incidents. This particular report left one with the impression that this was merely another accident due to pilot error on final approach. It wasn't. This was a case of the pilot having to make a very quick decision when found in an unpredictable situation. I know this for a fact as I was also present that day....

George E. Horwood, Public Relations Officer
Base Borden Soaring Group

Thank you for the correction. The data which appears in the "ACCIDENTS" column each issue is supplied by the SAC accident insurance agents. Their data comes from clubs when a claim is made and from any other available source providing relevant information. I must assume the data is correct in essence as received. editor

SUMMER COWLEY

continued from page 11

flew against the backdrop of the local fields and mountains.

The last four days provided some opportunities for cross-country, though visibility was again marred by some smoke and haze, and some flights to 300 km were made. Russ Flint tried to fly back to Winnipeg again on the last day - it was pretty stable - but he did get to Taber about 140 km eastwards.

The summer camp isn't just gliding of course, it has its own ambience which contributes to its popularity: the evening gaggles around each "island" of campers and tents, the campfire, looking at stars through Lee's telescope, counting satellites, the model flying (this year the rockets were going after the RC models), the swimming hole, and playing soccer with Nimbus, the amazing ball-dribbling dog. •

NOTE TO free flight CONTRIBUTORS

I'm always looking for more material (for a while this issue was going to be only 20 pages until "The Quest" arrived at the last minute). A lot of clubs are never heard from, and I would welcome your newsletter or stories of the flying in those areas, and also from pilots everywhere of any skill level.

In the normal course of events, you may mail anything to me at the address shown at the bottom of page 5. I do have access to a fax at the local Radio Shack but it is pricy, so it's better if that delivery source is used at my request for time sensitive material only.

Regards,
Tony