

free flight • vol libre

4/86
Jul - Aug



Musings

It is remarkable how a solution can be staring you in the face without recognition.

For as long as I can remember, every SAC AGM has included, at the least, some comment on “What are we doing for youth?”, proposals to reduce or eliminate fees, and so on. Save for the generous donation of the funds for the Jessie Glynn scholarship for Air Cadets, nothing happened. The JONATHAN LIVINGSTON SEAGULL TROPHY had good PR potential for awhile, but it too, drifted from view. I hope Dixon has received lots of proposals for its revitalization.

The solution to which I referred at the start of this essay came out of a discussion and proposal from Terry McCartney-Filgate and subsequently with the president of SOSA, Ian Grant. It's quite simple: we use the principle of the fund system that we have been trying to utilize to assist capital projects. Simply, we solicit donations for Youth (or Geriatric) scholarships. They will be tax deductible, and with a suitable proposal from clubs, one deserving youth — or many — will be assisted for as long as the fund has money and suitable proposals. So, now it's up to you as clubs or individuals; go for it. I expect SOSA will show the way.

We've had a little success in attracting corporate sponsorship. We've had a proposal from the folks who do the promotion for Bacardi Rum to sponsor our National Competition. The program will run for five years and Bacardi will be the principal sponsor. You will see the initial effect in this issue with the inclusion of their ad. The balance of the support will appear at the Nationals. Come and enjoy the sampling at the closing banquet. Mind you, you'll have to buy a dinner ticket to participate. Support is planned to grow in subsequent years.

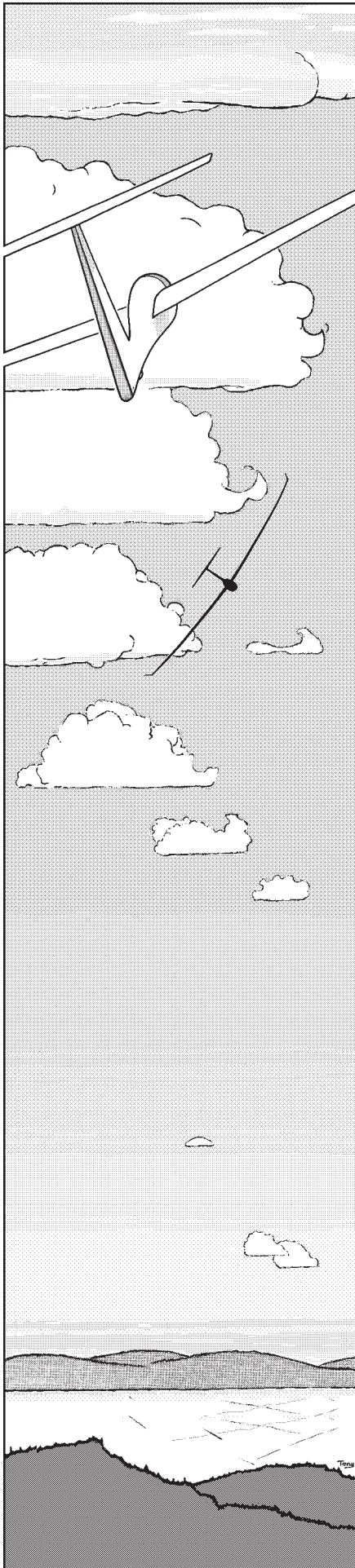
There is one very clear message though, **corporate sponsors are generally not interested in providing support to anything but competition.** I would ask those of you who have been dead set against the SAC fee levels and/or SAC involvement and support in competition, domestically or abroad, to think that concept through very, very carefully. This year especially, if we are to have a team at the World's at Benalla, we're going to need a lot of help. It sure would be nice — if not downright novel — to have general moral and financial support.

I and my advisors are working through the mass of applications for the Executive Director position. We've got to be sure too, that we have the right structure. There's lots of thinking and talking to do. You may have heard that Fitness and Amateur Sport cut our grant by \$7000. We're working that one out too. It never rains, it just pours.

To add to our misery, look at CROCODILE CORNER. Four aircraft have been damaged or destroyed so far this season. One, a towplane at York Soaring, was not in our scheme. Another, at Windsor, was not insured for hull damage. Nevertheless, it is not a good start. The loss at Air Sailing is not likely to be cheap. You should know that the underwriter wanted to reopen negotiations on hull rates for this year because of our poor late season performance in 1985. Much higher hull rates can be expected next year if we have a poor year. So:

FLY OFTEN, FLY WELL AND SAFELY:
REMEMBER, CROCODILES SLEEP WITH THEIR EYES OPEN

A handwritten signature in black ink that reads "Bob". The letters are cursive and fluid, with a large, looping 'B' and a simple 'o' and 'b'.



free flight • vol libre

Trademark pending Marque de commerce en instance

4/86 Jul - Aug

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

ISSN 0827 - 2557

-
- 2 The survival of gliding – editorial
 Fred Weinholtz
 - 3 The record-breaking Chipman XC clinic
 Tony Burton
 - 4 Calculated risk-taking
 Peter Savage
 - 6 Across the Great Divide (and back)
 Kevin Bennett
 - 7 Planning and flying the circuit
 Ian Oldaker
 - 11 Technical sessions summary —
 OSTIV Conference
 Winfried Feifel
 - 13 CIVV report
 Jim Oke

DEPARTMENTS

- 14 Hangar Flying — Nimbus 3D, first 500 km in BC,
 Crocodile corner
- 15 Club News — Invermere soaring camp, WGC news
- 19 FAI Badges / FAI record claims

Cover

The Hope airfield is visited by the Western Warbirds. This group of Harvards fly past prior to landing. Photo by Jim Watson.

THE SURVIVAL OF GLIDING

Fred Weinholtz

Adapted and condensed from a talk given to the British Gliding Association AGM in 1985. Weinholtz is a leading figure of the German soaring scene, and was the director of the World Contest at Paderborn in 1981.

Is it not curious that somebody from the continent has come to talk to you about the chances of survival of gliding in your country? Moreover, for many of you and also for a lot of glider pilots all over the world, this subject does not even seem worth discussing. Well, gliding has found its followers worldwide. Its problems and its fate surely do not end at any national border, however much its forms of organization may differ from country to country. Gliding clubs in my country and yours are very similar to each other except perhaps for a few national variations. On the other hand, I believe it is really time now to make some observations which could help secure the future of gliding, a sport that seems, on the surface, to only be able to live in an ideal world.

I take for granted we all regard gliding as sport — the most stimulating, most thrilling, and best sport we can imagine. But everywhere in the world there are people, often endowed with a lot of influence, who try to deny gliding the status of sport, at least they try to restrict it, and their number is growing. I speak of airspace authorities, the politicians, the “physical training” sports purist, and even environmentalists in places.

We can face the danger that threatens gliding by these people if we stick together and if we succeed in activating the giant army of our “silent friends” throughout the land. These friends are real. They look at our sport with interest and goodwill without showing themselves. If, one day, we really want them to raise their voices for us, then we must present them with an advantageous picture of gliding and we must avoid making mistakes. In their opinion, gliding must remain the beautiful, fascinating sport — and we must improve its reputation even more if possible. It is exactly around this matter, dear friends, that I am most concerned.

Gliding as a sport is quite young. Not long after World War I it was born on the Wasserkuppe in Germany. After the war, though, powered flight was banned in Germany, everywhere else in the world the developments of the war were used to achieve heroic aeronautical deeds. For example, the British pilots Alcock and Brown flew from Canada to Ireland eight years before Lindbergh, in 1919. This feat was largely unknown because the two taciturn pilots persistently refused all interviews before the flight. The angry press got its revenge by remaining deadly silent . . . take this little story as a piece of advice on public relations work.

The first glider pilots had to be all-rounders. Their admittedly very simple gliders were designed, constructed, and repaired — the latter having to be done very often — by the pilots themselves. The gliding enthusiasts learned quickly, and accordingly the instruction became better and better. The cost of gliding was extremely low and the simple material for the gliders could easily be begged. So it happened that particularly impoverished unemployed people and students became the upholders of the idea of gliding. They fulfilled, to a high degree, the demands the new sport made on its followers. They were capable of enthusiasm, they showed courage and toughness, they proved to be flexible in all situations, and they were full of irrepressible optimism.

In those days, the picture of the “typical pilot” was created by a simple-minded public. Even today it occurs in pure unadulterated trash in movies about flying. Behind this picture lay the unquestionable fact that flying, and particularly gliding, has got something “special” that was not realized and is not even realized today by the general public. And this again is one of the reasons — I myself think the main reason — why so many people mistake gliding for an elitist activity.

The sporting development in gliding proceeded world-wide from the 30s to carbon fibre, the admirable performances of the top pilots, and the great training success of the club-based instructional system. But there are now questions. Will the course of gliding continue to get better? Is there a plateau in front of gliding, on which the achieved can be preserved? Has gliding possibly reached its peak and can now only take a downhill path? Or is there even a yawning abyss, into which gliding could plunge? These questions cannot be answered in advance. But we must do our utmost to prevent my following look into the future — intentionally painted black — from coming true.

continued on page 17



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 Royal Canadian Flying Clubs Association (RCFCA), 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 RCFCA 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 Association's official journal.

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. Directors' names and addresses are given elsewhere 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 on any such reprints.

For change of address and subscriptions to non-SAC members (\$18.00 per year/\$24 outside Canada) please contact the National Office.

President R.I. Carlson
Vice President H. Tilgner
Executive Director & Corporate Secretary Jean Matheson
Corporate Treasurer Jim McCollum
SAC Office Secretary Rosanne Paquin
SAC National Office
485 Bank Street, 2nd Floor
Ottawa, ON K2P 1Z2
(613) 232-1243

5 **Deadline for contributions**
5th day of each even month

L'ASSOCIATION CANADIENNE DE VOL À VOILE

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

L'ASSOCIATION est membre de L'Association Royale Canadienne des Aéro Clubs (RCFCA – Aéro Club National Canadien), 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, le RCFCA 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'ASSOCIATION.

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 dont le nom apparaît dans cette 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 (\$18.00 par an/\$24 à l'extérieur) veuillez contacter le bureau national.

EDITOR

Tony Burton (403) 625-4563
Box 1916
Claresholm, Alberta T0L 0T0
Address for courier service:
c/o Claresholm Local Press
Claresholm, Alberta

COMMERCIAL ADVERTISING

National Office (613) 232-1243

Limite pour publication
le 5 de chaque deux mois

5

A RECORD-BREAKING CHIPMAN CROSS-COUNTRY CLINIC

Tony Burton
Cu Nim

For the second year now the Alberta Soaring Council has sponsored, and the Edmonton Soaring Club has hosted, a week-long training course featuring a guru from the East in the person of John Firth. Mike Apps again organized the event and chose the week and both were done very well indeed — over 10,000 km of soaring were completed over six days and, as a bonus, three Canadian soaring records were set.

The goal of the course, held 7-14 June, was to improve the skills of pilots with some previous cross-country experience. This was accomplished through morning briefings, a task in which pilots went around a course together following (or leading) John who was flying in Gemini with one of the course members, and an evening "post-mortem" and lecture/discussion on a topic of interest. This format was very successful and everyone agreed that much was learned.

Fourteen pilots signed up, flying a Nimbus II, RS-15, Ka6CR, ASW-15, two Libelles, three Jantars, and a Blanik. Other pilots sat in on the discussions from time to time and two from Medicine Hat, new to cross-country, brought along their club's Blanik to do their best, although they didn't fly the daily tasks. An enthusiastic new Ka6 pilot chose turnpoints that would allow him to fly with the other ships at least part of the time, and on one of the last days, the Gemini flew the task all the way around with the flaps extended (limiting its speed to 65 kts) so no one would fall behind. John's opinion was that flying that way was a real drag, though.

The task setting was always a bit longer than some thought reasonable for the conditions; and the same pilots found out that you really can go far in less-than-booming conditions with some determination, a little help, and the will to push on to a better thermal and use it well. The tasks were generally quadrilaterals, which kept any retrieves short even though the task length varied from 160 to 290 km.

Some of the valuable lessons learned were: blue thermal soaring, climbing well in the prevalent small thermals, that final glides are possible when you can't see the airfield,

and choice of a good flight path when high and happy or low and hanging on. Many pilots also learned how rotten some instrument installations are after troubleshooting inspections by John.

Tuesday, 10 June, saw the best course results when five pilots completed the 290 km task, and other partial completions and individual flights brought the total distance to about 3300 km. It was also notable because the task did not get started until 1430 because of late cu development and some trouble in getting everybody together over the field at the start.

The 11th saw a very brisk cold front passage and the forecast called for excellent soaring the next day. Hopes were so high that John loosed the reins on his students and everybody charged off to do their own thing. The record results show on page 19, but that's not all: Kerry Bissell, in his Libelle, (who has been trying to get his Diamond distance for so long now that he told me he had thought he might get Diamond badge #10 — and that was earned in 1969) finally made the big flight, landing on the northern outskirts of Moose Jaw for his Diamond badge. The distance was 607.5 km — and the half kilometre extra that he made over Ursula in the Ka6 was a source of some merriment since she had thought that she had outflown every glass ship in the air that day! (Many ships landed west of Battleford when they didn't go far enough south of track to avoid overdevelopment.) Two other happy pilots got their Silver distances in separate Blanik flights. Total flying that day surpassed 3500 km.

The last notable event was a classic thermal-wave which developed the next day, and Gemini and two other gliders were able to transition from cloudstreet bases at 7500 feet into 2-4 knot wave going up to about 15,000. There was a lively discussion the next day trying to marry the theory of thermal-wave generation and details of the actual event.

The fine new ESC clubhouse, still getting finishing touches to the interior, held a great finale BBQ with many lies told and a case of celebration champagne supplied by one very happy wooden ship driver. □

A small note to our Opinionated: This space is usually filled with your letters, but I haven't received any lately. Now, I know there isn't a glider pilot alive who doesn't have something useful to say to the rest of us, so say it through free flight. Tony.

CALCULATED RISK-TAKING

The principal point of assessing a risk is to establish that one's skill and experience is sufficient to qualify you to take it. In other words, it is not really a risk at all. The message is that to grow, it is necessary to fly to the full limits allowed by one's skills and capabilities, but never beyond them. The limitations of one's experience can be extended by consideration of the correct way to handle imaginary situations that, to a great extent, can substitute for risking one's neck and glider when carrying out the real thing for the first time.

Peter Savage
Montreal Soaring Council

After many years as a pilot and having sat on numerous Boards of Inquiry, I am convinced that 90 percent of all "accidents" are not accidents at all, but the inevitable result of ignorance, stupidity, or carelessness by one or more people. As such, they are avoidable.

Ignorance is usually due to laziness or overconfidence, stupidity to lack of experience and common sense (which is less "common" than its name implies), and carelessness is often due simply to taking something for granted, instead of checking for oneself. All of these are curable, though stupidity requires time and patience.

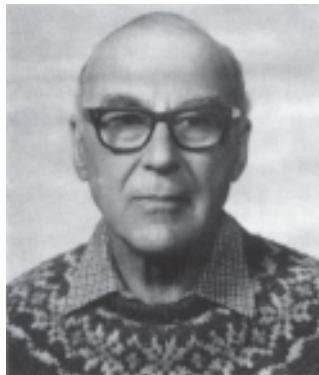
Accident prevention is not simply obedience to rules and regulations, it is an attitude of mind, a way of life. Many years ago, when I first started to fly, my instructor gave me some sound advice which has served me well on many occasions. "Never," he said, "take an unnecessary risk; but when risk is necessary, time is of the essence, take it without hesitation, calmly and with all the skill you can muster, accepting the consequences of the least evil of the choices available to you." How many people, I wonder, have killed themselves desperately trying to avoid the inevitable, when they might have walked or at least hobbled away from a tangled piece of wreckage?

I can almost hear the protest from some aggressive pilot, "What a timid philosophy — I learned to fly for adventure and I like some excitement in my life!" So did I, and I still do, but there is a world of difference between an "off-the-cuff" risk and a well

thought out "calculated risk" which is taken with full knowledge of the various factors involved.

One takes a number of calculated risks every time one ventures into the air. One calculates and accepts the risk that the rope may break at 80 feet, forcing a straight ahead landing into some unprepossessing real estate, and from time to time one checks the rope! One also accepts that the daily inspection has been conscientiously carried out. If you doubt the validity of the daily inspection, there are several things you can and should do, including repeating all or part of it yourself. These are but two instances; if you think about it for a while you will come up with many more.

About the author:



Peter Savage's career in aviation began prior to WWII as a seaman with carrier-based squadrons, and he served as an officer in the Royal Navy for many years. He commanded fighter squadrons, and served worldwide in various naval air positions, from Norway to the Pacific Fleet. After the war, his last posting was in Canada as Naval Attaché to the U.K. High Commissioner, and he retired here to become a Canadian citizen.

Peter had made a few glider flights in 1946 in an Olympia and a Grunau Baby, but did not take up the sport seriously until 1982. He holds a Silver C and became an instructor in 1985.

Taking calculated risks is part of gaining experience, something for which there is no substitute, as it forms the data base from which "common sense" is derived.

The task of an insurance actuary is not to calculate the risk, but to calculate the possible cost and ensure that this is within the capacity of his company to pay. So it is with the calculation of flying risks, it is not the risk, so much as the competence to meet any possible outcome, which is of primary concern. It follows that risks cannot be calculated unless both the severity of the risk and the competence of the risk-taker are both known.

To venture over heavily wooded country, with few and rather small fields, might be hazardous to a first or second year pilot but quite acceptable for a veteran, having regard for the likelihood of his getting himself into a position requiring an outlanding and his ability to pull it off successfully if the need arose.

Calculated risk-taking thus requires that a pilot make a ruthless and realistic assessment of his current level of ability and act accordingly. Overconfidence, which is simply a conceited and grandiose over-assessment of this capability, can be a killer.

Accidents are seldom due to a single cause. They arise from an escalating chain of events, which culminate in disaster. Break the chain at any point, and chances are good that the ultimate climax can be avoided. A fatal accident in which a pilot spins in at low altitude on his final approach turn may seem to be, at first sight, a single cause accident, but a careful review of the facts is far more likely to illustrate the following kind of scenario:

Having climbed up to 4500 feet, an inexperienced pilot sees a potential source of lift some distance away from the airfield. Confident in his height advantage, he makes for it without taking careful stock of the situation, and the first link is forged in the chain. He fails to find the lift at 3000 feet, is worried about his ability to get home,

and a second link is added. He has no out-landing experience and is fearful of making one, so he heads directly for the airfield — link three. Had he been qualified to land out he would likely have found lift on the way back and the chain would have been broken. As it was, he dared not turn aside and he flew through some peripheral sink associated with the lift, adding still further to his difficulties — link four. It is now certain that the best he can hope to do is to join the circuit very low on the crosswind leg. There are quite good outlanding fields available, and had he taken advantage of them, he might have broken both the chain and his aircraft but he would have survived. As it was, he forged link number five. Approaching the field at best gliding speed and somewhat below his accustomed circuit speed, he is forced to tighten his final turn to avoid another aircraft and the fatal spin results.

The importance of experience and ability in calculated risk-taking stand out all too clearly in this instance. Even so, had he accepted the “necessary” risk of turning aside to find lift and had accepted the possibility of an outlanding he wouldn’t, in all probability, have lost his life.

Only by reaching out with calculated risks can you hope to extend your experience. If you have assessed your capability properly and things go wrong, you will compete with the emergency successfully, and will not only add substantially to your stature and experience, but will also earn the right to reach out still further in the future. Failure through overconfidence may prove to be a very expensive experience at the best. Your calculations must be soundly based.

There is another killer. It is panic — and here we are on rather more difficult ground. It is my belief that almost everyone is subject to an instant of panic when something totally unexpected, very unpleasant, and potentially fatal suddenly occurs. It is caused by the cataract of information pouring into the brain from all the sensory organs. It should be instantly suppressed by the voice of reason, calm and unafraid, as the brain analyses the information and comes up with a course of action. You are at a party. Suddenly, there is a loud report behind you and something streaks past your shoulder. You jump half out of your skin, and then calmly reach for a glass, having determined that a bottle of champagne has been opened and your reasoned response tells you it would be a good idea to have some! If, on the other hand, the party had been held in Beirut, you might have flung yourself on the floor and played dead until you had time to further assess the situation.

Emergencies in the air can be much more terrifying, particularly if the pilot is inexperienced and is still a little nervous. If, after the initial shock, the brain says, “This is quite beyond me, I simply do not know what

action to take,” then uncontrollable panic can set in and this is often fatal. Does this mean that inexperienced pilots are more likely to panic than experienced ones? From personal experience, I do not think that this is necessarily so, though the inexperienced pilot does need to make some preparations in advance in order to be able to control the situation should it arise. This is because he lacks a sufficiently wide experience to dictate an instinctive response.

**Living is risky —
the only absolutely safe person
is dead.**

**Your progress and safety lies
not in denying the existence of
risk, but in accepting it and
preparing yourself.**

There are two ways one can condition oneself not to panic. As a start you can school yourself to say, “Steady now, let’s not lose our head, we must take stock of the situation”. There are some occasions when this will work, but in the air, where things can happen very fast, it is at best a second rate solution.

A better one is to pre-condition your reflexes to take instant action. That is what is done for all normal flying emergencies such as spin recovery, for example. There are, however, many situations for which one can only prepare by much thought and careful analysis. The method is rather similar to Einstein’s famous “Thought Experiments”, where the “experiment” takes place in the imagination and the “result” is provided through reasoned logic. In our case, the result is simply to extend the value of actual experience by applying it to imagined circumstances and so arrive at well-considered solutions to a multitude of problems.

$$\text{Safety level} = \frac{\text{Pilot Competence}}{\text{Degree of Risk}}$$

In the comfort of your easy chair, or sitting in the cockpit on the ground, construct an emergency in all its detail, think carefully through your options and how you would handle each one of them. An obvious case is bailing out. This could have a number of versions, depending on height, what part of the glider has been damaged and so on. There are also any number of situations that can occur in the circuit. I know of an instance where a pilot in an Astir inadvertently caught the canopy latching lever as he was working the spoilers in the final stages of an approach. The canopy flew open. How would you manage in this situation, observing that by this stage in the landing, both hands are fully occupied?

Outlandings are also a prolific source of difficult situations. One I particularly like

takes place in wave country. You are in the lee of this mountain and the wind is blowing down a ten degree slope which has a long, narrow field running across it. The rest is trees and rocks. The near end of the field is guarded by 20-foot trees, and beyond the far end, the land drops off rapidly to a rocky slope. Lack of height makes an approach over the trees essential and the grass in the field is 30 inches tall. I believe this landing can be handled with a reasonable chance of success by a pilot qualified to fly solo over such terrain, but the method needs careful thought and planning.

Imaginary situations can also uncover the need for personal research. At 25,000 feet, your blinker stops. What is your immediate reaction? At this height, how long will the oxygen stored in your tissues keep you conscious? In other words, how long have you got to get down to the comparative safety of 18,000 feet? Since your true airspeed is much greater than your indicated airspeed, will this mean that your indicated airspeed should be less than the VNE figure if the danger of wing flutter is to be avoided? If so, what is this speed for the aircraft you are flying, at this particular height? In your anoxic state, will you be able to handle the consequences of the onset of flutter? When do you start to check for obvious oxygen equipment failures, such as an empty oxygen tank or a disconnected oxygen mask?

Of course, when the actual emergency arrives, it will not be the same as any of the situations you have visualized. It will consist of bits and pieces from a number of problems you have imagined. Your brain will, however, withdraw the solution to these from the data bank which you have compiled and start to act upon them. A further advantage lies here, as you will be so absorbed in the fascinating business of putting these pieces together that you will have no time to feel afraid, or give an instant’s thought to what may be lying in store for you just down the road. Of such, perhaps is the anatomy of airmanship, or at least a good substitute for it.

All the way through the article, you will notice that the pilot has been male. This does not mean that the womenfolk are exempt from these predicaments. They are just as liable, though it has been my experience that women, on the whole, take a more realistic view of their current level of competence and are much more careful and accurate in their assessment of the risks they are taking. In consequence, they are less liable to get themselves into the situations to which some men seem prone. There may be genetic reasons for this: nature must, of necessity, have designed the female to be a “survivor”, or the species would have become extinct. Males are designed to be strictly expendable in pursuit of the security of future generations, both born and unborn. Maybe men have something to learn from women. The motor accident statistics, particularly for those below the age of 35, tend to confirm this view.

As I said earlier: accident prevention is an attitude of mind, a way of life. □

ACROSS THE GREAT DIVIDE

(AND BACK)

Kevin Bennett
Cu Nim Gliding Club

The months of May and June in Alberta normally offer some of the best soaring imaginable. The last two weeks of May, however, saw a lot of hot and stable days that were great for sunbathers, but not for glider pilots. June 1 was forecast to be more of the same — not a good start to the month. The prospect was for 30-plus Celsius and relatively stable conditions with little or no cloud in an extremely dry air mass.

The day began as predicted: by 1 pm several flights had come back, except for "Jolly Miller", who managed to stay up and make it to some cu that was starting to form. It was evident on the ground at Black Diamond that there were good cu building in the mountains 45 kilometres to the west and that the cloudbases seemed to be half way to outer space (*that's only 18,000 feet*). The problem was getting over there against the 20 knot westerly wind in the blue.

Getting a launch at 1330 with explicit instructions to the tow pilot to make a straight tow out to the west, I released about eight kilometres west in a weak thermal that gave me a bit more height to work further. I was still in the blue, but a shorter distance to a good looking cu. My initial plan was to try and make it over to Invermere, BC which is 130 km away, almost due west. Cloud streets were now forming over the Rockies oriented with the southwest wind — so much for Invermere. Jolly Miller called again to say he was out over the prairies and that cloudbase there was 15,000 feet.

As I approached the beginning of a street about 40 km southwest of the field, I could see the cloud street extending as far as I could see, and then my Cambridge woke up and started to sing! Both varies pegged and I locked into an elevator ride of more than 12 knots up. I was at 12,000 feet in no time, then straightened out on a SW course under clouds that were still way above me, and I dolphined along through the Highwood Pass.

The norm for the day was going to be 8–10 knot thermals, sometimes more. But there was no way I was going to set the speed-to-fly ring more than a conservative three knots — the terrain was just too intimidating to fly fast, I just wanted to be high. Still dolphing flying between 13–14,000 feet now, I was across the Divide into BC at the south end of the Kananaskis valley only a half hour into my flight. Spectacular view. The Elk Range marks the border at this point, and they are an impressive wall of rock similar to the Livingstones at Cowley, but with 10–11,000 foot peaks stretching 50 km in a north-south direction. I pushed past Connor Lakes (which were still frozen) and started to cross the next range of peaks to get over to the Kootenay valley.

I was still under the same street and still hadn't stopped to turn since my initial climb. Despite the good conditions the going was a little slow, partly due to the 20 knot headwind and partly to the pilot always feeling low — it's hard to believe that 13,000 feet can feel low. I stopped to turn, and then thought that if I had done so earlier, I might have turned back, because as I locked into the thermal and turned through east I realized that I couldn't see flat ground any more; the good ol' windblown prairie! I could feel my heart rate triple. I have been into these mountains before, but never so far that the safe flatland couldn't be seen. Nevertheless, my vario and altimeter convinced me that all was well, and as I topped out at 15,300 I could see the Kootenay valley about two valleys ahead.

The view was unbelievable. Visibility was unrestricted. You had to be there. Now to get to Invermere.

To the north, there were lots of good cu, again in streets, but I would have to hop one more range west to get to the Columbia River valley. I decided to stay with my pres-

ent street and continue southwest. I passed over the Hughes Range (peaks about 8000 feet), then followed the Kootenay River a short distance to the town of Canal Flats. Columbia Lake appeared stretching to the north, and I then realized that I had no film left in my turnpoint camera — I had used it all up yesterday practising taking turnpoint photos. So I announced over the radio, "X-ray One is at Canal Flats". Surely someone will believe me.

The view to the north of Columbia Lake revealed Fairmont Hot Springs and then Windermere Lake, at the north end of which is Invermere. You definitely had to be there.

It was now 1600 and I was 132 km from home so I decided against Invermere and turned around for Black Diamond. With 10,000 feet between me and the airfield and now a 20 kt tailwind, I started my final glide. Well, not quite . . . back at Connor Lakes I felt low again so took a couple of thousand feet to slow the heart back down. Forty-five minutes after leaving Canal Flats, I was at the Highwood Pass at 11,000 still dolphining along under the same cloud street, but now over home ground.

The flight had been so easy, except for the strain on my survival instinct. I kept thinking about what Dick Mamini could have done with this day in his ASW-12, or might have been possible over the flat ground if the day had started earlier. But I certainly wasn't complaining about what ranks as one of my most memorable flights.

As I approached Black Diamond, I didn't feel like going down after only a two-and-a-half hour flight, especially when there was still some good looking cu out on the prairies to the east.

I rendezvous'd with "Prime Minister" and cruised around outer space for another hour, amazed at how much higher I seemed to be now. But the view . . . not even close. □

Kevin flies a DG-200, and this flight marks the first time a two-way crossing of the Rocky Mountains has been recorded in Canada. Congratulations.

PLANNING AND FLYING THE CIRCUIT

Ian Oldaker

Chairman, Flight Training and Safety

illustrated by Les Waller

Teaching "the circuit" can take a few flights or many flights depending on the student's aptitude and perhaps more importantly on the instruction. Essentially there are two parts to be learned:

- planning the circuit which involves the development of judgement, and
- flying the circuit which is the acquiring of the necessary flying skills to control the aircraft down to the landing.

Although this article is geared towards the instructor, it will be of interest to student pilots as well. It starts with a plan to keep track of progress during the flying of the "pattern", and goes on to discuss three recognized methods for judging the circuit. Finally, flying the circuit is covered, and a number of important teaching and learning points are emphasized.

PLANNING THE CIRCUIT

Planning the circuit can be difficult for some people, particularly when it comes to trying to judge the height by reference to the ground. This is an important part of judgement for the circuit, and it can be started, therefore, fairly early in a pilot's training.

There are three ways to teaching circuit judgement, and your choice can depend on a number of factors such as your preference, or the ease with which the student picks up the concepts.

First though, we should consider the "AIMS". Refer to Figure 1. The first AIM which we give a student is to start the circuit by maneuvering the glider into the general area for starting the downwind leg at a height of about 800 feet above ground. This is sometimes called the initial point, but care must be taken not to fix this to a geographic feature. Starting the downwind at this height should give the ab-initio student ample time to go through the SWAFTS check list. The second AIM in the circuit is to be opposite the landing area, or more precisely opposite the "aiming point", at 500 to 600 feet above ground in the downwind leg. This should be the last height reference, and use of the altimeter should be discouraged from now on. Provided the final turn is not made dangerously low, the exact height is not critical, and it will be varied for different winds and positions of the turn.

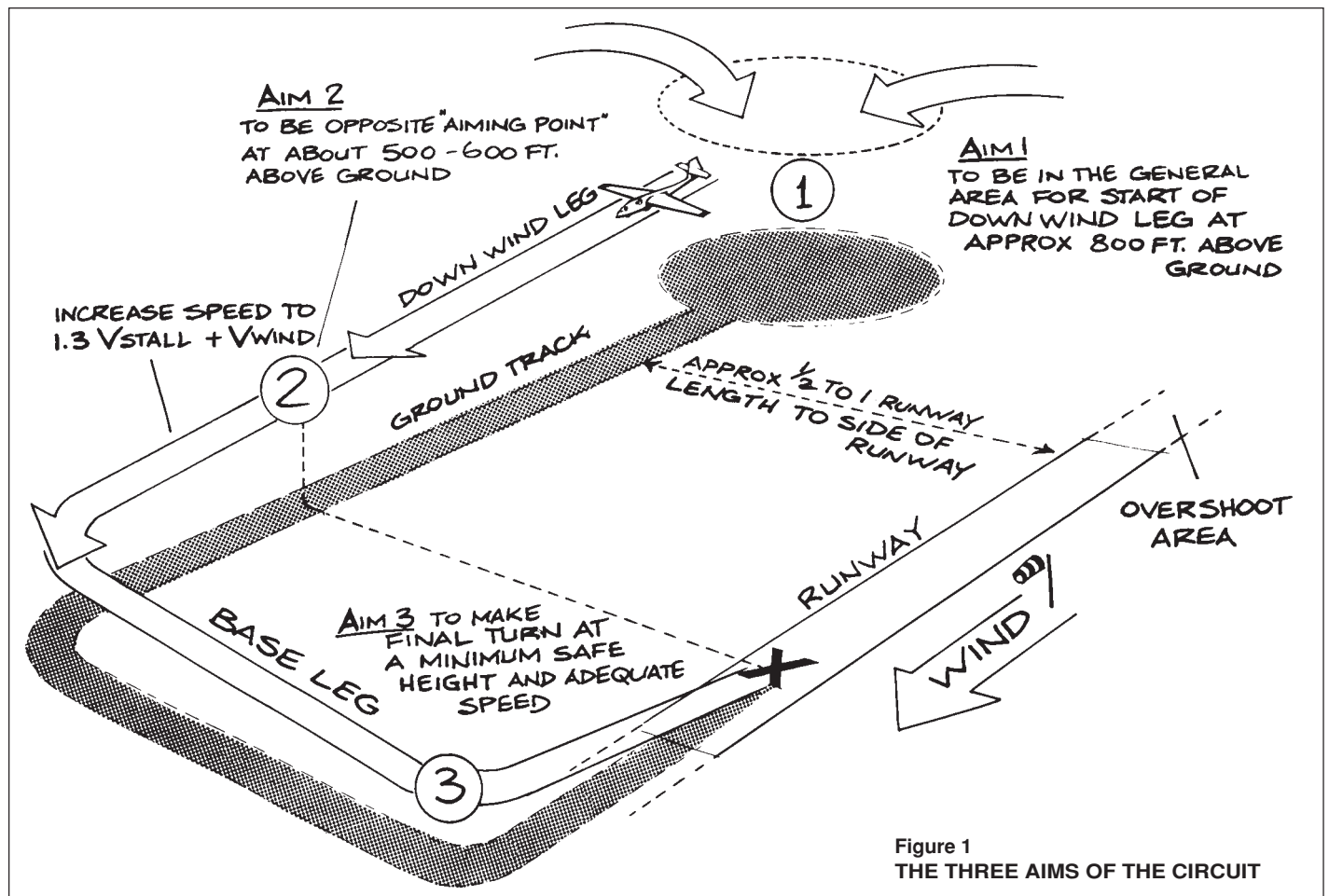
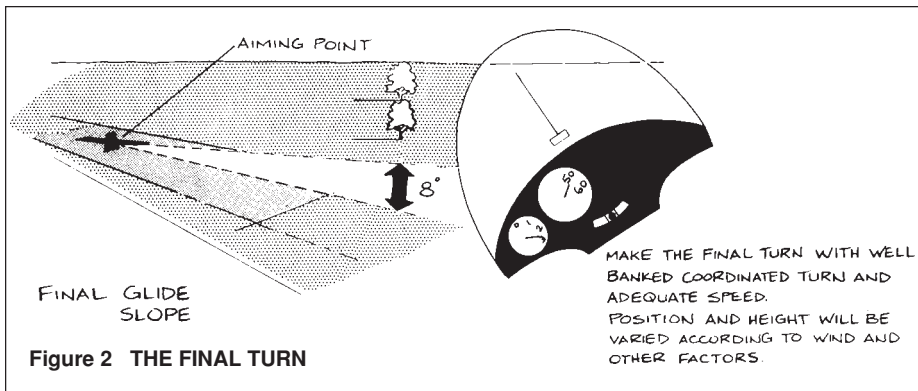
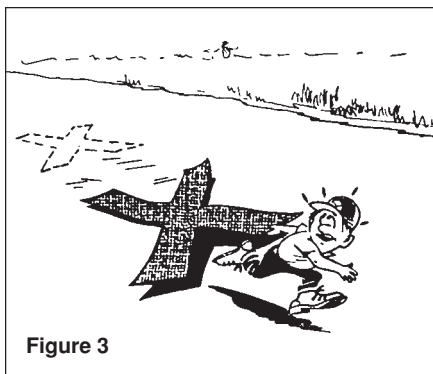


Figure 1
THE THREE AIMS OF THE CIRCUIT



You may wish to define instead that the final turn should be completed at a height of not less than twice the height of "those tall trees" or large hangar, and higher on windy days. This is the **third AIM**. Very soon the student will be relying on his judgement and not the altimeter to meet this aim. Refer to Figure 2.

Although it is no more dangerous to finish the final turn at a height of one or two wing spans in a modern machine than in, say, an older trainer, the modern sailplanes require a longer approach to allow the inexperienced pilot time to assess the (flatter) glide angle and to make appropriate adjustments. The final turn therefore might more practically be made two or three times higher than the previously defined "twice the height of those tall trees" or hangar.



One important point about specifying three AIMS for circuit judgement is that the pilot has three distinct points at which to check the progress of the circuit. If the downwind leg is flown in strong sink and the height rapidly drops below 500 feet, the second AIM will be met earlier — the pilot is *now* opposite a new aiming point. The circuit must be abbreviated, in other words, by moving the regular aiming point further up the runway as in Figure 3 — but more on this later. Having started the circuit at the right height, the downwind leg can be monitored constantly with respect to the next "aim". Once at the second point, AIM 2, the pilot is asked to select the third AIM, that is the position and height for the final turn. Judging how to do this, and how to get there, is what this is all about — there are three techniques that are used by instructors and these are discussed below. They are not well known but deserve to be. Give them some thought and when you next go to fly, think of them and try to visualize how you would teach them.

Height and Distance Method The first technique for teaching circuit planning or judgement is the height and distance method. This is to choose a point back from the landing area (or touchdown point) at which to place the final turn. This will normally be 300–400 metres behind the touchdown point, closer in strong winds. Refer to Figure 4 which shows the pilot aiming to start the downwind leg at about 800 feet, and to be opposite the aiming point at 500–600 feet, as explained before. He then tries to imagine his final turn point, visualizing both its position and height behind the runway. On the base leg the procedure is to use up extra height by using the airbrakes so that at the final turn there is no excess height. Height is judged quite simply by reference to buildings or trees — see Figure 5. In light winds the final turn position can be judged very well. However, in stronger winds it will be necessary to bring the final turn closer to the field and to fly faster to increase the distance that the glider will fly against the wind, and to prevent the effects of the wind gradient from "grabbing" you and causing an under-shoot.

When using this method it is important to stress that this distance technique must be related to the *length of the field* and the *landing area*, and not to a geographical feature. What we want the student to do later when landing at an unfamiliar field, is to use this technique to make his final turn *relative to the landing area*, and not to a geographical feature that may not be there! Get your student to practise this techni-

que and practise some approaches into an odd corner of the club's site or if possible at a neighbouring field or club.

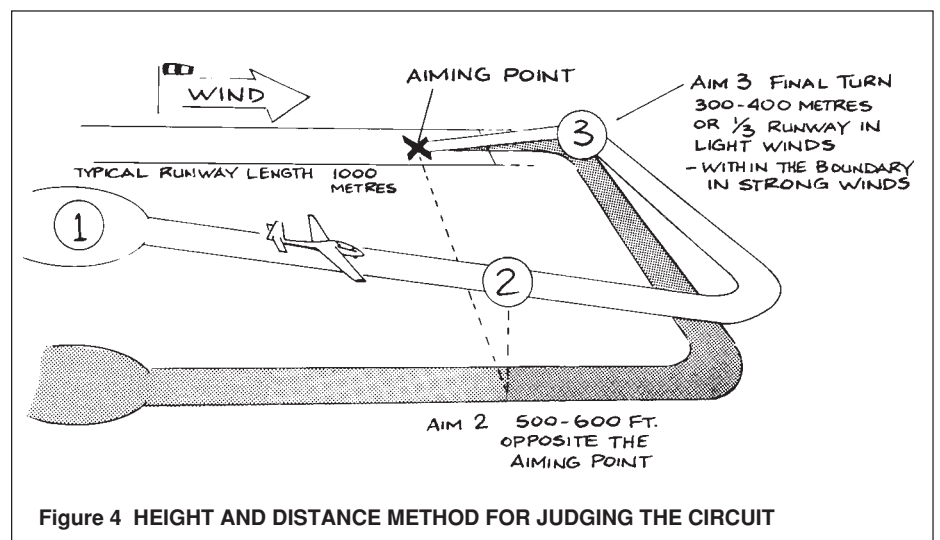
Angle Method The next technique for teaching circuit planning is for the student to learn the angles themselves. These are the angles that the glider makes vertically to the aiming point, first at the end of the downwind leg, and second when on final approach.

The student has to learn to recognize these "glide angles" and to adjust the height of the glider first for the turn onto base leg such that this first angle is about 16 degrees vertically to the aiming point. As shown in Figure 6, the turn is made when the glider is at the desired angle, and it is positioned along a line drawn from the aiming point at an angle of 45 degrees horizontally to the runway centreline.

While flying the base leg, the height is adjusted using the divebrakes, or by flying a wider path or moving closer to the runway, in order to produce a final glide angle of about eight degrees. This "glide path" can be imagined as coming up, out of the "aiming point". By looking at the aiming point while flying the base leg it is not too difficult to visualize it. On the final approach the normal aiming point technique is used. If the angle has been set close to eight degrees, then only half brake will be used for the balance of the approach.

The wind will not affect this technique for light winds of up to about 10 knots. For stronger winds the student should choose his aiming point *further up the runway* — this has the effect of moving the base leg closer to the boundary of the field, and the student does not have to learn a new angle. Having turned onto his final approach the student can now (almost automatically) fly a steeper approach path, as he penetrates against the wind, to land in the usual landing area. Watch for a stronger wind gradient though, under these windier conditions.

Using this "angle technique", the student should be encouraged not to refer to features on the ground (he does not need to) and certainly not to rely on the altimeter.



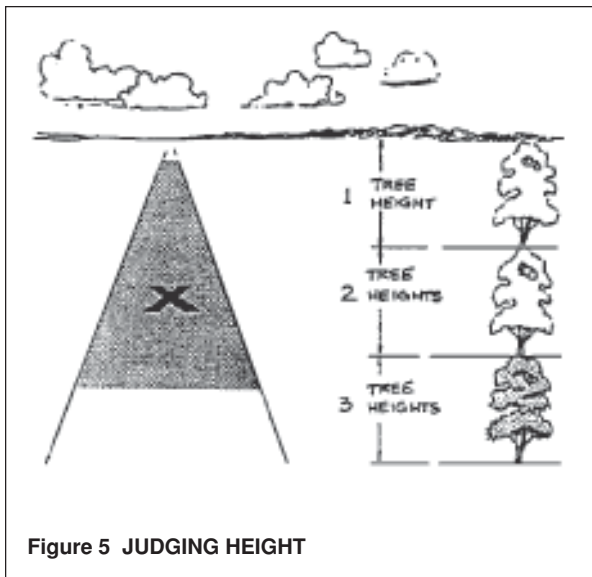


Figure 5 JUDGING HEIGHT

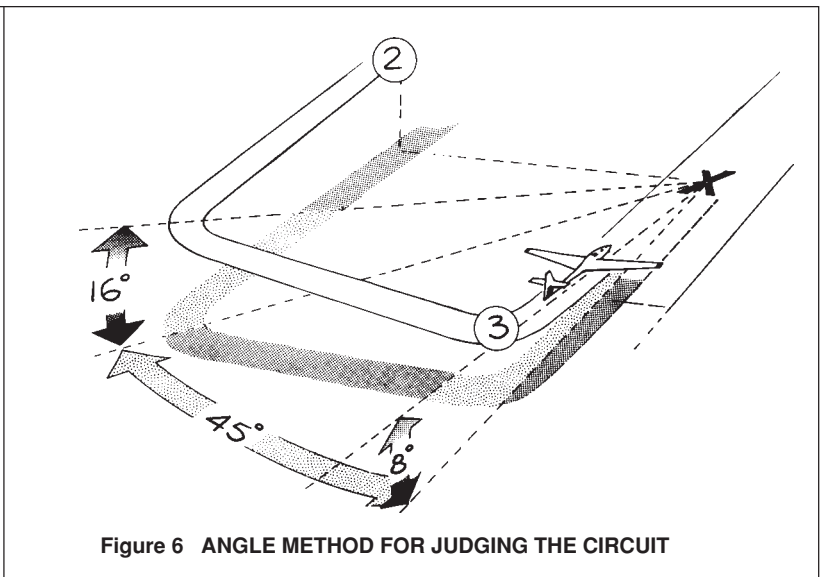


Figure 6 ANGLE METHOD FOR JUDGING THE CIRCUIT

However, if he starts the circuit with insufficient height, his turn onto base leg (that is, when he is at 45 degrees to the runway centreline) may be at a lower than normal height, and the base leg may be so close to the end of the runway that his final glide angle will be more than the eight degrees he is aiming at. He may well be tempted to open the airbrakes to reduce this "angle" without considering how much height is needed to complete the final turn. In these cases it is best not to use the airbrakes until after the final turn and land further up the runway. However, we should not allow ourselves to get into this situation in the first place — read on for what to do when getting too low (if only we could avoid getting too low, wouldn't life be easy).

As was the case when running out of height in the first technique, the pilot must be taught to first recognize that he is losing height more rapidly, and that when the height reduces to 500 feet above ground the "aiming point" must then be moved up the runway. The turn onto base leg is made earlier than "normal" but the heights above ground are at their usual values, and the final turn can be made at its normal safe height.

"That Looks About Right" A third technique that is sometimes talked about is the "that looks about right" technique. The downwind leg is planned and started as before. When opposite the aiming point at about 500 feet above ground, this defines the aiming point, again as before. As the student goes past this point he should be reminded to look back at the aiming point and to try and judge when it "looks right" to turn onto his base leg. This requires several trial and error attempts to get it right, and it is really a combination of the preceding two techniques. It is perhaps an inferior technique because it gives the student no guidelines by which to judge whether or not to turn.

The first two techniques are preferred; the distance and height technique is safer in high winds, always remembering to fly at the faster approach speeds which will allow the glider to penetrate against the wind.

Running out of Height in the Circuit

Sometimes the glider is allowed to get too low for a proper circuit, and if the "normal pattern" is flown, the final turn will probably be made at a dangerously low height. Even though an inexperienced pilot might recognize that he is running out of height, there is a magnetic fascination to getting back to the normal landing area — this must be resisted. In some cases, the pilot will fly closer to the runway, and the final turn becomes a 180 degree turn — this also should be resisted — but in any case the turn must be started higher than normal and with plenty of speed. Instead, the student should be taught that when he reaches a height of 500 feet above ground in his downwind leg, this defines his aiming point — it is now opposite him on the runway. He should then fly an "abbreviated" circuit and should disregard any runway downwind of this "new" aiming point.

When low and trying to conserve height, a pilot will unconsciously fly the glider more slowly, just when he must be flying faster! Flying more slowly when low becomes more critical when sinking air is flown into. Most pilots will have experienced an increase in airspeed when flying into lift; the opposite occurs when flying into sink! Hence by flying too slowly, this further loss of speed will increase the loss of height even more. Trying to complete the turn onto the final approach under these conditions will likely case a stall and spin off the turn. If you think a 2-33 can't be spun, just think of the banked wings across the wind gradient — it's a different story than when trying to spin higher up where there is no gradient!

Flying slowly in the circuit must never be allowed, and the essential point to be taught is that extra speed (calculated by $V = 1.3 V_{stall} + V_{wind}$) must be established by 400 feet above ground, that is when still in the downwind leg and at a point just past the point opposite the aiming point. Note that this speed must be established before the turn onto the base leg. If the speed drops during the turn it must be re-established before the final turn.

FLYING THE CIRCUIT

When your height above ground is getting down to about 1000 feet, you should be moving towards the start of the circuit. This should be the standard downwind, base leg and final approach pattern, with the downwind leg being flown parallel to the runway. For an ab-initio student the downwind leg should be long enough for him to get settled down and go through the "SWAFTS" pre-landing checks. This should be completed if possible by the time you are opposite the aiming point or the landing area on the runway.

Starting the Circuit The first aim of the circuit then, AIM 1, is to start the circuit at about 800 feet. This will often be over a familiar landmark or area, but do not insist that your student always adhere to this "initial point", especially if one day he is too low or is off to one side. The second aim, AIM 2, is to be at 500 to 600 feet above ground when opposite the landing area or "aiming point". As he flies the downwind leg he should aim for the 500 foot height, bearing in mind the cautions about airspeed and running out of height in the circuit. Also caution him that pilots flying high performance sailplanes may join the circuit anywhere in the downwind leg.

Fly the downwind at the best L/D speed, which is 45 knots (50 mph) in a typical trainer. In high winds the groundspeed will be high and the pilot might be tempted to fly more slowly — point this out as the opportunity arises. If high, now is the time to widen the circuit — if low move in a bit, and try to teach your student to think one step ahead — he should be thinking of his second AIM, that is to be opposite the aiming point at 500–600 feet. Even before getting to this point he should be thinking ahead to the turn onto the base leg.

Increasing Speed Having passed below 500 feet, ie. immediately after passing the position opposite the aiming point, your student should be taught to increase speed to the chosen approach speed — in fact, he should be taught to feel distinctly

uncomfortable if he is flying slowly at any time he is below 500 feet. Retrim the glider, and now the student will be keeping his eye back on his aiming point so that he can judge the 16 degree angle if he is using the angle technique, or so that he can judge the distance of 300 to 400 metres at which he will fly his base leg if he is using the distance-and-height method of judging when to turn onto his base leg.

The Base Leg While flying across the wind on the base leg, crab slightly into wind, and watch that your student keeps the yaw string in the centre! This is the part of the circuit where he will be adjusting height and position for the final turn, his third AIM, so get him to visualize his final turn position now. Get him to adjust height using the airbrakes. If he is too close to the runway, get him to move back a bit — he still should have time to position the glider well for a good, safe final turn. Before the final turn, check for aircraft that may be on a long final approach, and check that the air-speed is adequate for the wind speed — while on base leg you have an opportunity to re-assess the wind speed and to adjust the approach speed accordingly.

The Final Turn The final turn must be made accurately; that is, particular attention must be paid to the possible over-use of the rudder. It is important to remain correctly coordinated especially if there is a strong wind (and therefore an appreciable wind gradient). Flying with adequate speed and with correct amount of rudder will ensure a safe turn. Insist on accuracy now and on later flights!

General Remarks For the student's first attempts to judge and fly the circuit the instructor should operate the airbrakes — the student will be busy enough with quite a heavy workload! As he gains experience prompt him to use them — and on final approach he should be using the aiming point technique to glide down towards his aiming point, ideally with half brake opening.

At this stage the instructor will be teaching the student the different attitudes for the approach. Show these first at altitude and remind him later as you "demonstrate" an approach; show him how the attitude might change between dive brakes closed and fully open for the same airspeed, for example. Also, this is where you will be teaching him how to recognize overshooting and undershooting. He must be taught to flare (or round out) and how to "hold off" to complete the landing.

Before take-off, demonstrate the held-off touchdown attitude. Have a helper hold the wings level, with the student strapped in, canopy closed; then adjust the glider's attitude. Make the student look ahead and notice the nose relation to the horizon or trees at the end of the runway. This is the attitude for touchdown that you must remind him about when ready to flare, ie. when he needs to look well ahead to judge the attitude for the touchdown.

During the approach, try to get the student to maintain a constant attitude and to tell you if the aiming point is appearing to move up the canopy (undershooting) or

down the canopy (overshooting). If he tends to lower the nose to reach the aiming point he is overshooting. Point this out to him and have him adjust the airbrakes instead and, at a constant attitude, watch the aiming point again.

As you descend closer to the ground it becomes more difficult to judge height, especially if the student is tending to stare at the aiming point too intently. Get him to look up at the horizon, and to glance to either side, to help him judge his height. Now remind him of the attitude needed for the touchdown as the glider descends the last few metres. At a height of three to six metres begin to flare with a progressive pitching up the nose. The glider should now be held just above the ground in the touchdown attitude (power pilots in particular should be warned that this is not a stalled landing but is held off, that is the glider's attitude must not be more "nose up" than when you demonstrated this before take-off). During this last part of the descent, teach your student to keep the brakes fixed in one position — it becomes very difficult for the beginner to juggle the dive brakes (left hand) and attitude (right hand) simultaneously.

The glider will gradually lose speed and then sink onto the main wheel and tail wheel (or skid). The attitude should be maintained ie., do not let the nose skid hit the ground (have a heart for the instruments!), and open the dive brakes fully once on the wheel. This helps prevent a bounce into the air again. With some power pilots who are transitioning to gliders, they have been used to progressively moving the stick back to the rear stop, so explain to them that with a glider such as the 2-33, they may tend to raise the nose too much and the glider will be difficult to land well; better to concentrate on keeping the attitude constant, in the held-off attitude.

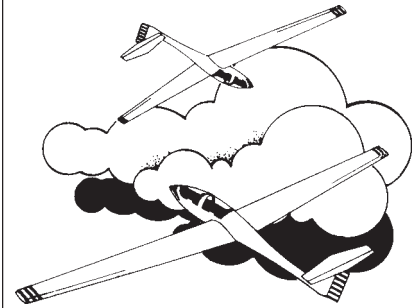
If the glider is held off too high it will sink gradually onto the main wheel, provided the attitude is held constant. The sink rate can be reduced, of course, by closing the brakes. If it bounces, the same actions should be taken, maintain attitude and immediately close the brakes, and then do a second held-off landing. In strong, gusty conditions landing in a more level attitude is appropriate. Once on the ground, keep the glider's attitude constant to avoid the possibility of becoming airborne again.

Once running on the wheel open the airbrakes fully and use the wheel brake as required. Keep straight with rudder and keep the wings level as long as possible. Centre the stick as one wing drops to the ground, to avoid damaging the aileron.

Post-flight Review Immediately after the flight, go over the circuit first and ask the student how he might alter the circuit next time to "improve" it. You know how you would have done it better, but try to get the student to analyze it himself.

Leave the student with a plan of action for the next flight, which may include reviewing the "Soaring Instruction Manual", and give him a final encouraging assessment of the flight. □

AN INVITATION



Arizona Soaring Inc.

ad

aerobatics courses

at Estrella

TECHNICAL SESSIONS SUMMARY 1985 OSTIV CONFERENCE

Winfried M. Feifel
from AERO-REVUE 5/86

The 19th OSTIV-Congress (Organisation Scientifique et Technique Internationale du Vol à Voile) convened in August 1985 at Rieti, Italy, the site of the 19th biennial World Soaring Championships. Rieti, a picturesque walled city dating back to Roman times, is located near the high peaks of the Appennine Mountains which offer excellent meteorological conditions for soaring. OSTIV lectures were subdivided into scientific sessions, which mainly addressed meteorology, and technical sessions dealing with aerodynamics, structures, glider design and flight testing, instrumentation and flight techniques. The technical sessions were chaired by W. M. Feifel from the Boeing Aerospace Company. The following paragraphs give a brief summary of the 23 technical papers presented. For the first time, papers regarding the special problems of human powered and ultralight aircraft were included in an OSTIV meeting.

It was only in 1977, after more than twenty years of unsuccessful attempts, that the first Kremer prize was won by an American team under P. MacCready for the flight of a human powered vehicle over a figure eight course. Then the average speed was less than 20 km/h. Just late in 1985, a German team under G. Rochelt won the new Kremer Speed Prize flying over 44 km/h, with only the pilot pedalling. E. Schoeberl described in his lecture the high technology associated with such a craft: the ultra-stiff and light carbon composite structure, a large diameter minimum loss propeller and airfoil sections, designed by the late Professor Wortmann, and further optimized for the low Reynolds number flight regime by D. Althaus at the University of Stuttgart low turbulence wind tunnel.

An efficient propeller is a key ingredient for any low power aircraft. In his lecture "Minimum Induced Loss Wings and Propellers", E. Larabee, professor emeritus at the Massachusetts Institute of Technology, described his design methodology for lightly loaded propellers.

In many countries, tows by airplanes are the most common launch mode for sailplanes. This launch method is considered to be very safe, yet every year there are accidents. F. Irving, professor at the Imperial College, demonstrated in his paper "Glider Tow Plane Upsets" how the glider-tug combination can very suddenly become locked into a dive, when the towed glider flies too high above the towplane. Long tow ropes decrease the possibility of such an occurrence.

Towing expenses represent a significant fraction of sailplane operating costs. In his paper "Glider Tow Planes", Professor P. Morelli presented a thorough analysis of the technical requirements for towplanes and desirable operating characteristics. The optimum towplane should have a large diameter propeller and a large wing span, similar to an "over-powered motorglider."

The high performance of modern gliders allows for flights of long endurance. Thus now many more flying hours are accumulated than previously anticipated. Material fatigue, long an important consideration in the design of large aircraft, is becoming an increasingly important concern for gliders. The fatigue life of materials is critically dependent on the load spectrum. W. Stafiej offered in his paper, "Pattern of Glider Operation", valuable information on the number of load cycles gliders are exposed to on the ground, in pilot training, aerobatics, and in flight in gusty weather.

Compared to conventional materials, the long term fatigue characteristics of composites, which now form the primary load carrying structure of most new sailplanes, are less well understood. For this reason, gliders using such materials are certified for a limited number of flying hours – in Germany, as an example, for 3000 hours. In an important paper, "Fatigue of Composite Materials in Sailplanes and Rotor Blades", C. Kensche presented new findings on glass and carbon fibre composites, which may eventually lead to a significant increase in the glider structure certified service life.

A rather obvious way to increase airplane performance is the elimination of surfaces which produce drag but little lift, such as the tail. Tailless gliders historically have been marred by aeroelastic problems, and in addition, much of the expected performance gains were negated by the need to employ airfoil sections compromised for aircraft stability and control. However, with the advent of stiff composite materials and the maturity of advanced computational methods, the Akaflieg Braunschweig (University Student Flying Association) felt that the construction of high performance tailless gliders has now become feasible. With a theoretical lift-to-drag ratio of 44, this new glider is predicted to outperform most traditional 15 metre sailplanes. C. Schürmeyer described the design and flight evaluation of new, low drag laminar flow airfoil sections which satisfy the stringent pitching moment requirements of flying wings.

However, flight tests of a radio-controlled scaled model of the Braunschweig flying wing revealed unacceptable flutter motions. H. Berns described in the paper, "Aeroelastic Problems of a Swept Back Tailless Sailplane of High Performance", how stiffening the wing spar and reducing its sweep will increase the critical flutter speed of the flying wing well above the operational flight envelope. Flutter avoidance is always one of the main concerns in aircraft design. W. Potkanski summarized in his paper, "Flutter Analysis for Gliders", the computational methods developed at the Polish Academy of Sciences.

Aeroelastic deformations need not always be detrimental. In his paper, "The Effect of Aeroelasticity on Energy Retrieval of a Sailplane Penetrating a Gust", Professor U. Mai indicated that a glider with a wing of low bending stiffness may gain more altitude penetrating a gust than an otherwise equivalent rigid wing. In addition, the flexible wing would offer a smoother ride in rough air.

In the case of ultralight aircraft, aeroelastic deflections are of paramount importance for both flight performance and handling characteristics. In the early days of their development, ultralights, which in most countries are only loosely supervised by the regulatory agencies, were involved in many, often serious accidents. In a paper of great significance for ultralight safety, Professor M. Schoenherr described test techniques and equipment developed by him for the evaluation of the stability and control characteristics of these extremely flexible vehicles. His "weight shift diagram" clearly explains how some highly flexible vehicles, controlled only by the pilot shifting his weight, can be locked into unrecoverable flight attitudes.

Only flight test results can tell if all the design goals and performance predictions have been achieved, and there are often surprises — not always pleasant ones. H. Zacher, formerly head of the sailplane and motorglider testing branch of the German Aerospace Research Institute, DFVLR, gave a lively account in his presentation of "Some Experiences with Sailplane Inflight Measurements over the Past 40 Years". Nearly every year sailplane designers offer new models with ever higher performance and ever higher prices. This cost escalation has put the sport of soaring out-of-reach for many aviation enthusiasts. In her paper, "The Light Glider", Ann Welch presented her assessment of the necessary features of a glider offering reasonably good performance at a reasonable cost.

The aerodynamic characteristics of a lightweight fabric wing need not be necessarily inferior to that of a rigid wing, as was shown by L. Boermans. The flexible sailing airfoil section he designed and tested in the University of Delft wind tunnel, exhibited equal or better lift and drag characteristics than the baseline rigid wing. The sailing airfoil section consisted of a streamline shaped tube forming the leading edge region, while the shape of the aft portion, made of fabric, was controlled by trailing edge tension.

"Effect of the Wing Section Polar Shape on the Desirable Wing Area and Attainable Cross Country Speed of Standard Class Gliders", was the title of a presentation by P. Koivisto and E. Lehtonen. Trading airfoil section maximum lift, minimum drag and shape of the airfoil "low drag bucket", the optimum area of the glider wing was found to be also very dependent on the assumed strength and shape of the updrafts in the atmosphere. Unfortunately, Mother Nature is not very predictable and there seems to be little consensus regarding the strength and the shape of thermals. This became quite evident from the discussions over the thermal models presented by R. Broezel,

and the assumptions made in "The Climb Rate of a Glider Circling in an Isolated Thermal Vortex Ring" by W. Gorisch.

Glider pilots spend much money on instrumentation measuring the rate of climb and the total energy of the glider. P. Storrer presented his views on variometry, including a 'total energy' barograph. In his paper, "Glider Induced Errors in Total Energy Variometry", R. Broezel gave an enlightening analysis of the errors that can arise if the equipment is thoughtlessly installed. For example, the line volumes and orifice sizes of the static pressure and total pressure lines need to be carefully balanced,

or the performance of the variometers will be seriously degraded.

Many high performance sailplanes employ variable camber trailing edge flaps which have to be deflected depending on flying speed and maneuver load factors in order to achieve minimum drag. Proper positioning of trailing edge flaps poses an additional workload for the pilot. The Akaflieg Munich has developed an automatic flap deflection system actuated by balance weights, as reported by J. Ehrhardt and W. Fischer. In discussions, there was concern voiced over the possibility of overstressing the airplane in rough air with such a system.

The flaps, for example, are moving downward when an upward gust is encountered. The glider pilot's skill to extract at the maximum possible rate, the energy available in updrafts and to cross downdraft fields with a minimum energy loss is still probably the most important ingredient for success. In his paper, "Semi-Dynamic Soaring", B. Stojkovic suggests that in strong, narrow thermals, chandelle type semiaerobatic maneuvers appear to be more optimal than circling flight.

MacCready's speed to fly in order to achieve the highest possible cross country speed does not account for phases of the flight when sailplane speed is changing. This has been pointed out and corrections suggested by E. Fritsch in his paper, "Consideration of Accelerated Flight Phases during Time Optimal Cross Country Flight."

The ultimate in glider performance will eventually be approached when the flow over the entire aircraft is laminar. Dr. W. Pfenninger has been relentlessly working on this problem and reported on recent advances in laminar flow control airfoils. For his lifetime work in this field, Dr. Pfenninger was awarded the coveted OSTIV Plaque and Kemptner prize for 1985. The OSTIV prize was given to H. Friess, K. Holighaus, W. Lemke and G. Waibel for their pioneering teamwork 20 years ago in the design of the D36, an all-composite sailplane of the Akaflieg Darmstadt. These papers will be available from: OSTIV-Secretariat, c/o DFVLR, D8031, Wessling, West Germany. □

Bacardi ad

CIVV REPORT

Jim Oke

Chairman Sporting committee

This year I was again able to attend the annual CIVV meeting at FAI Headquarters in Paris, France. The meeting ran for a full day and a half with a good deal of valuable information being brought forward, but no really significant decisions being made.

Mr. Bill Ivans of the United States was again in the chair assisted by Mr. Bertrand Larcher, the FAI Director General.

The first item of business was a report on the last FAI General Conference in New Delhi with the main item of interest being the recognition of the FAI by the International Olympic Commission as an international sports governing body and of gliding as an Olympic sport. The FAI President, Dr. Kepak, had travelled to Geneva last fall to present the FAI's case: the IOC had, however, done its own investigation and considered that only hang-gliding, sports parachuting, and gliding could be considered eligible Olympic sports (speed and altitude records, etc. being more of an exercise in technology than sporting activities). Furthermore, it appears that gliding was recognized in 1938 in preparation for the ill-fated 1940 Olympics and this recognition had never been withdrawn. Thus, gliding had become an Olympic sport apart from any direct request from the CIVV! The situation is that gliding is now on a list of approved "demonstration" sports which a host country can select from to include in the games. The earliest that gliding could appear in the games is 1992.

The site for the 1992 games will be determined this October from amongst seven applicants. Presumably some lobbying on behalf of gliding through the National Olympic committees might be necessary to have gliding included as a demonstration sport, assuming the host country selected had suitable terrain and weather conditions for the sport. Part of recognition by the IOC is a grant of \$10,000 to the FAI from the IOC to assist in the governing of Olympic sports; this may mean that the CIVV will at last have an operating budget.

There was mixed reaction amongst the various delegates present to gliding's new (or revived) status as an Olympic sport. Some consider Olympic recognition as a key to government funding, while others see it more as an invitation for unwelcome political meddling than as a source of funds. Other issues are professionalism (the status of paid gliding instructors in competition, such as Ingo Renner, for instance) and

South African participation. It was stated that CIVV would be recognized by the IOC as the international sports governing body for gliding and so would be the ruling authority on amateur/professional status. In other words, CIVV could set whatever rules it wanted in this area and presumably could design rules to accommodate the handful of people who actually get paid for gliding. With regard to South Africa, it would simply be a matter of following the existing IOC guidelines vis-à-vis each country's status, with no special CIVV action required; this apparently is not in conflict with the FAI position that all countries be allowed to participate in FAI activities regardless of political considerations.

Each country was asked to be prepared to state in the future (perhaps at the next CIVV meeting or by mail) support or otherwise for CIVV/IOC cooperation. This is clearly a decision that must be made by the SAC Directors; however, I see no reason not to support wholeheartedly Olympic status for gliding. Other actions that might be taken by SAC are to establish contact with the Canadian Olympic Committee, emphasize that gliding is now an Olympic sport and solicit Canadian support for gliding as a demonstration sport at a future Olympics (assuming this is the position taken by the SAC Board).

Tor Johannessen, the very able chairman of the rules subcommittee, was not in attendance. In his absence, the bureau (the CIVV vice-presidents) had discussed several interpretations of the three turnpoint rule for free distance introduced two years ago, but was not able to produce any definitive wording for their proposed changes. There was general approval of two changes (or added interpretations) to the existing rules. These are that a remote start point and a remote finish point may be declared in addition to the three turnpoints, and that a completed closed course flight may be permitted to contribute towards any free distance extension to that closed flight. The former was thought to be of interest to motorglider owners and the latter means that after completing, say a 300 km triangle, another 200 km could be flown in any direction to complete a Diamond distance flight. These rulings are considered to be interpretations only and so are in effect immediately. Other information is that CASI is examining a stricter definition of the ICAO standard atmosphere for FAI award and record purposes which might affect the gliding Sporting Code in a few years' time.

There was a lengthy discussion of the admissibility of new electronic nav aids to

gliding competition. Bernald Smith of the USA had done a technical investigation of what's available these days expecting to focus mainly on the new generation of the VOR receivers, but he found far more potential in the new technology Loran C systems. These devices are now small enough, light enough, and cheap enough (\$800-\$1000 US) to be attractive for use in gliders and apparently are already being used during record attempts in the USA for navigation assistance and groundspeed checks (there is no FAI rule to prohibit this during record flights). The discussion varied from sporting considerations to safety and flight observation possibilities (for instance, electronically recorded Loran C data could, in theory, replace turnpoint cameras). Bernald was asked to continue his investigation of the issue and report back with some recommendations next year. He subsequently asked me to assist with this task, which I was happy to agree to as this is related to what I do at work. In my view, we are already a good way down this road with Cambridge nav computers and the more advanced Peschges instruments, so it is immaterial whether the device depends on an external electronic signal or not.

The Club class continues to be quite popular in Europe. A European championship will be held at Rieti, Italy this summer, and France made an offer during the meeting to hold a 1987 contest possibly at Châteaurox. Bernald Smith of the USA described the SSA "Sports Class" contest held last summer, although the type of sailplanes involved in that event placed it rather beyond the Club class. There was considerable interest in the SSA Sports class rules as has been seen already in Canada.

Prof. Morelli reported on the 1985 World Championships at Rieti. One indication of the magnitude of the event is that he stated that the organizers invested about US-\$800,000 in airfield facilities and turned over operating costs of about US-\$400,000 during the competition to break more or less even. The Australians, as expected, raised the issue of mountain flying during world contests based mostly on Ingo Renner's published views. Prof. Morelli did concede that some of the tasks were overambitious, but there was otherwise not really any strong support for the Australian position. Most were more concerned about the increased value of local knowledge in mountain flying than any real safety concerns. The issue was eventually talked out with no decisions taken.

The Austrians caused some excitement by announcing that they would be unable to hold a pre-worlds contest in 1988. Their argument is that the organizers cannot obtain extended vacations for two years

running and so they must forgo 1988 in favour of the world contest in 1989. Up to 30 international entries will be accepted at the 1987 Austrian Nationals to be held at the Wiener Neustadt site and casual flying would be available there in the summer of 1988. There was a considerable number of objections to this situation, especially with the perception of the mountain flying factor being dominant again. The Austrian delegate was asked to take the request for a 1988 contest home for consideration by the Austrian Aeroclub.

The Americans reported that they have an organizing committee in place for the 1991 Worlds and plan to hold a series of contests at the Minden site to firm up the operation there well ahead of time. SSA seems to be following the example of the Los Angeles Olympics, as the first such event will be the "Hitachi Invitational" this summer. The 1991 contest will offer the best chance for Canadian pilots to get some site familiarization flying in for many years and we should take advantage of the opportunity.

Although selection of a site for the 1993 Worlds was not an agenda item, four countries took this opportunity to formally record offers to host that contest. These countries were India, with a site near New Delhi; Finland, using the 1976 site at Rayskala again; Sweden, site not announced; and New Zealand, site not announced. After the selection by default process, which took place last year, this was quite an embarrassment of riches. Bill Ivans tactfully avoided the need to make a choice by stating a policy that World contest sites would only be confirmed four years in advance and requested that these four countries provide fuller written details of their bids to be considered at future CIVV meetings; by this policy a site for the 1993 Worlds would not be made until spring 1989. Although this is a sensible move, it did beg the question of why the Americans were awarded the 1991 championships last year, a full six years in advance. This was probably a clever tactical move on the part of the SSA, as the Europeans are not happy about having to travel outside of Europe and would probably have put forward at least one competing bid if Minden had not been confirmed for 1991 last year. However, this point was not raised last year and so the European countries will have to travel to North America in 1991; their loss, but a gain to Canadian gliding.

West Germany will host the 1986 European Championships at Mengen in June this year. Various details of the contest were announced. Incidentally, it was indicated that entries from outside Europe would be most welcome at this event and indeed pretty well all European competitions. I will attempt to publicize this fact to encourage those Canadian pilots who might have an opportunity to travel in Europe to try and acquire some high quality competition experience.

The European Feminine Championships seem to be another popular event. The success of the '85 contest in Yugoslavia was reported on, and then Sweden and Bulgaria were invited to amplify their written bids for the 1987 contest. Bulgaria was

awarded the contest by a close vote. The USSR then presented a bid for the 1989 contest.

The agenda item on FAI sailplane Class definition was next with a couple of fairly reasonable proposals on the table for discussion. Unfortunately, the Spanish delegate opened with a red herring by proposing that the 15m class be replaced with an 18m class as had been discussed and voted down overwhelmingly last year. His rationale ran something along the line that towplanes are becoming scarcer and there are none actually in production any more, thus motorgliders are the way to go and an 18m class would offer designers more flexibility in adapting engines to competition sailplanes. I was surprised that this proposal was actually allowed to be presented to the meeting as it had not, in my view, received the necessary written circulation beforehand. It was resoundingly defeated and a second motion to end all discussion of a 17m/18m glider class also passed.

The Scandinavians had made a reasonable proposal last year to limit maximum weights in the 15m and Standard classes and I was expecting some worthwhile discussion on these ideas. However, the Swedish delegate rose and withdrew his country's support from the document. The Danes and Finns then wavered about actually entering their motion and ultimately withdrew the proposal. The matter essentially died at this point.

The general impression I had was that there is extreme reluctance to make any changes whatsoever to the existing class rules. This is largely in reaction to the criticism heard ten years ago or more when the Standard class rules were relaxed making a whole generation of gliders obsolete overnight. I feel this is an unfortunate position to take as the glider classes are evolving largely independently of any CIVV input. For instance, it was noted that the organizers of a world contest are now entitled to set maximum weight limits for the purposes of their contest and most choose to do so. Thus, there is a defacto weight limit of about 450 kilos except that it is subject to change and the manufacturers cannot really be expected to design to it. There is a trend towards heavier and more elaborate sailplanes that is presently simply uncontrolled. Many Standard class ships at Rieti were equipped with electric pumps to shift water ballast around for C of G control purposes, for instance.

The German proposals for a two-seat class met a similar fate. No one had any particular comments about the details of the proposal as tabled, only that it looked expensive and thus, not much interest could be expected in most countries. The vote was about 70/30 against and so the proposed rules were not accepted. It was not clear at the meeting whether or not a two-seat class is a completely dead issue or if a revised set of rules might be accepted next year.

It was announced that the "Conference of European Coaches" has decided to affiliate itself with OSTIV as a flight training and

safety study group. They will meet next in Antwerp, Belgium on 14-16 November this year. OSTIV itself held a useful and active session during the Rieti World Contest.

There was a lengthy report by Prof. Morelli on his technical investigation into towplane performance. He has researched about 30 different types of towplanes in common use and conducted a performance and design analysis. His findings were that the single most important design factor was a high aspect ratio. This was backed up by the Austrians who are using 100 horsepower motorgliders to launch Standard class sailplanes with quite reasonable results.

The next agenda item was the vote on nominations for the Lillienthal Medal. The Americans had rather carelessly nominated Doug Jacobs (15m champion at Rieti), while Dick Johnson had been held over from previous years and chose to withdraw the latter's name (each country is allowed one nomination only). This may have been a tactical error as the award citation reads that it is for a single outstanding flight that has advanced the science of gliding or for extended service to the sport of gliding. Winning one contest in admittedly convincing fashion does not exactly meet these requirements. Nominating Dick Johnson again in the future may prove to be difficult. In any event, the successful nominee was Dick Georgeson of New Zealand, who has set many world records and has dominated the competitive soaring in his country for many years. This choice appeared to be a generally popular one.

There was a lengthy session on airspace matters. Generally, we in Canada can be thankful for our relatively great freedom to fly and good relations with the airspace authorities. Most of the discussion dealt with negotiating strategies to use with government agencies. One significant point is that ICAO will soon be recommending a change in the rules of the air to place gliders on an equal status with power aircraft; that is, gliders would no longer have an automatic right of way over power aircraft, only when landing. This is a recommendation by ICAO only and each country is free to adopt it as they see fit. Most delegates see this as a desirable thing to give some weight to the view that glider pilots are responsible users of airspace and can be trusted to venture near large airports, etc. The Germans now require their pilots to hold quite a high level radio licence (of several types available in their country) as a similar cost of retaining access to busy airspace. Mr. Bill Paris of the RCFCA was again noted to be the FAI's point of contact with ICAO. I was asked to make sure that he is briefed on glider pilot airspace requirements as he is apparently not a glider pilot himself.

The Americans are interested in some form of badge or other recognition for flights beyond Gold and Diamond level. They were asked to study the matter and provide some recommendations for CIVV consideration next year.

Next year's meeting will be held in Frankfurt on 26-27 March 1987. □

HANGAR FLYING

Compiled by Tony Burton



NIMBUS 3D FLOWN

Designer Klaus Holighaus has lifted the next Schempp-Hirth supership from the drawing board with the first flights of the Nimbus 3D prototype in May. This new two seater is a mix of the clean Janus fuselage and the slim Open class Nimbus 3/24.5 wings, with the addition of the "Turbo" sustainer engine package as an option. The following modifications were needed:

- A new wing attachment system.
- Forward sweep on wings to minimize c.g. shifts with changing cockpit loads.
- 60% increase in wing strength to take the much larger payload.
- Extensive redesign of Janus cockpit and rear extension of canopy to improve rear pilot visibility.
- Weight savings in fuselage with more use of carbon, and additional reinforcement of the cockpit area with Kevlar for better pilot protection.

The prototype's first flight was on 2 May. It then participated "hors concours" the next three days in the Open class of the Hahnweide competition, winning all days with different pilots. The prototype will be participating in the German Open Class Nationals and the European Championships to fine-tune the design, and series production is expected to begin in early 1987.

Technical Data

Wing span	24.5m (80.7 ft)
Aspect ratio	36
Empty wt (less engine)	460 kg (1014 lbs)
Payload (less engine)	290 kg (540 lbs)
Max water ballast	168 kg (370 lbs)
Turbo engine package	40 kg (88 lbs)

Performance Data (est.)

Best L/D	greater than 55:1
Minimum sink (43 kts)	89 fpm
Wing loading range	6.7-9.7 lb/ft ²

COWLEY VISITOR ALERT

The organizers of the '86 Cowley Summer Camp have heard that it is virtually certain that representatives of Transport Canada Western Region will be at the camp. Therefore, be certain that *all* your personal and glider documentation, licences, etc. are on hand (including radio and operator licences, and such esoterica as a copy of the "Intercept Orders" from the AIP).

EASIER DIAMOND DISTANCES

Note the new interpretations of the Sporting Code summarized in Jim's article on page 13, paragraph 6. Free distance may also be the total distance achieved in a closed course flight *plus* whatever "real" free distance is flown subsequent to that.

FIRST 500 KM IN BC

The first 500 km flight in BC was completed on 19 May by Don Hill of Vancouver Soaring Association, flying his Astir CS from Invermere. The turnpoints were Golden, 108 km northwest up the Columbia Valley, and the village of Elko, 148 km to the southeast, for a total distance of about 514 km.

Flights to both turnpoints had been made in the past by several pilots, but not on the same trip. Don took off at 1300 in his Astir and headed towards Golden, first using the near ridges facing the valley at 6000 msl, then got to cloudbase at 8500 feet and moved onto the spine of the mountain range. Turning at Golden, he was able to dolphin back towards Invermere for 100 km without circling. He arrived at Elko at 1625 hours. Heading home, he stayed as high as possible and got his last thermal at Fairmont Hot Springs to finish at 2010.

The flight time was not indicative of poor conditions as Don was just sightseeing and enjoying the scenery that day. The flight will, however encourage a lot of people to do some serious badge flying out of Invermere airport.

ACRO BASICS AT ESTRELLA

*Our scribe describes (he is so droll)
Inverted flight, the loop, and the roll.
So though I'm no judge of great poetry
I'll leave this to you to read joyfully.*

Lesson Six is Done

Oh, Master, let me fly with thee
And do thy will with accuracy
Keep my station on the tow
Straightened yaw string as I go.

Attitude first and attitude last
Eyes to airspeed briefly cast
Look outside and fix the nose
On the spot the Master shows.

Dive forty-five down to proper speed
Ease on four G's and let's proceed
Ease off pressure, keep it round
Pull G's again on going down.

To roll, it's aileron left to stop
Now forward, or the nose will drop
And all the way she goes around
And comes out facing the chosen mound.

Just pressure — never pull or jerk
Just pressure — it's easy gentle work
And use the rudder to keep the string
From sloppy, needless wandering.

And now for landing spot descent,
Hold it 'til the height is spent
Keep the speed, don't lose or gain
Hold it off; there, down again.

Now go and relax, we'll go again
And fly this lovely glider plane
And though ten lessons may be short
You'll have the basics of acroport.

Tom Schollie

CLUB NEWS

INVERMERE MOUNTAIN SOARING

The annual spring mountain soaring camp held in Invermere for two weeks in May by the Vancouver Soaring Association was joined this year by pilots from three clubs in Alberta, some of whom had decided to pass up the Innisfail May Meet over the Victoria Day weekend. It was just as well they did, since the Innisfail event had to be postponed following the monster spring blizzard which shut down large areas of central Alberta for several days prior to the long weekend. Three pilots from Edmonton Soaring Club stayed a week or two, and several from Cu Nim arrived for the May 24 weekend, accompanied by the Alberta Soaring Council towplane to help out the VSA L-19, which was getting close to inspection time. Bob Sturgess of Medicine Hat brought along his club's Blanik for an introduction to mountain soaring.

Good conditions on 19 May gave Don Hill of VSA a 500 km flight (the first to be accomplished in BC) and also gave a 300 km flight to Danielle Lyon of VSA in her Libelle, but they were not carrying barographs. The next potential cross-country day was the 23rd, and this time several pilots were busy taking care of badge formalities for a 304 km Invermere-Golden-Canal Flats Diamond goal flight. The first 200 km to Golden and back towards Invermere was a breeze with continuous cu along the valley ridges (Andrew Jackson of ESC said he only stopped to turn in a 10 kt thermal because it would be a sin not to), but by mid-afternoon, a drier and more stable airmass was moving in from the southwest and the south turn-point became too blue for Danielle and Andrew to reach. Tony Burton of Cu Nim and Don Hill, who had started the task informally somewhat earlier, were able to get into the turnpoint with care and completed the flight.

The weekend stayed scratchy and only local soaring was done, but "only" is a poor word, doing little justice to the flying one is able to experience in this beautiful locale.

Wednesday, 28 May turned out to be the most productive day. Weather conditions were 1/10 cumulus beginning at 8200 feet rising to 11,500 with 4-6 kt thermals and the odd eight knotter. Convection was late starting though, and no one could get started until 1430. Nevertheless, Jim Feyerer of ESC in a Std Jantar and Danielle Lyon flew their 300 km goal flights with Golden and Canal Flats as turnpoints; and Joe Gegenbauer (ASW-19) and Chuck Wilson (Astir CS) flew the Invermere-Golden-Elko 504 km task for their Diamond distance flights. This course is in danger of becoming a "milk run"! Congratulations to all. Joe and Chuck landed within minutes of

each other around 2045 hours (soaring in this valley doesn't get started until at least 1230-1300 when the sun comes around to the south and west-facing slopes — but it certainly does last well).

The valley was also very good to Randy Haney, a top Canadian hang glider pilot, who, on 2 June, completed a 321.5 km flight from Golden to Trego, Montana, about 35 km south of the border. He is claiming the world Open distance record and Canadian endurance record. He launched from Golden at 1200 hours and landed at 2130. His highest altitude was 13,000 feet near Radium Hot Springs and the low point was 1000 agl near Canal Flats at a time when the weather was cycling. The entire flight was conducted in thermal lift. It was an extraordinary effort — one of the very few 300 plus flights achieved in the world with hang gliders.

WINNIPEG STARTS SLOWLY

Anyone watching CBC TV news sometime ago will have seen why soaring at Starbuck barely got underway in late May with some check-out flights. The fields were nearly underwater from heavy spring rains that wouldn't go away. This has been frustrating, especially to those who worked hard to prepare equipment and organize programs. But let's keep the problems in perspective though; we have very worried neighbours with flooded fields, mired equipment, and forlorn livestock.

An open house was held 26 March and a wine and cheese welcome on 19 April to attract new members. Both were successful and some members joined after some time away.

The club purchased and overhauled a '68 Chevy half-ton pickup as a retrieve vehicle for members both on the field and on the road, and for general purchase hauling.

The Manitoba Soaring Council has received a "Gaming Fund" grant from the Manitoba Sports Federation, and the portion allotted to WGC will be used to help defray fleet maintenance bills.

WGC has established an aircraft upgrading committee which has considered the status of the present club fleet and tow-planes, and is recommending priorities for the future. The long term goal is for a fleet consisting of a Standard class ship, two glass two-seaters, and a high performance single seater, together with a primary and backup launch system.

Dick Metcalfe
WGC President

SAC DIRECTORS & OFFICERS

PRESIDENT & DIRECTOR-AT-LARGE

Bob Carlson (1986)
57 Anglesey Boulevard
Islington, ON M9A 3B6
(416) 239-4735 (H)
(416) 365-3558 (B)

VICE-PRESIDENT & PACIFIC ZONE

Harald Tilgner (1986)
90 Warrick Street
Coquitlam, BC V3K 5L4
(604) 521-4321 (H)
(604) 263-3630 (VSA)

ALBERTA ZONE

Al Sunley (1986)
1003 Keith Road
Sherwood Pk, AB T8A 1G2
(403) 464-7948 (H)
(403) 453-8330 (B)

PRAIRIE ZONE

Jerry Dixon (1986)
Box 124
Sintaluta, SK S0G 4N0
(306) 727-4917 (H)

EXEC SECRETARY

Jean Matheson
485 Bank St.
Ottawa, ON K2P 1Z2
(613) 232-1243

ONTARIO ZONE

Dixon More (1985)
27 Roslin Ave South
Waterloo, ON N2L 2G7
(519) 886-2424 (H)
(519) 824-4120 ext 3296 (B)

QUEBEC ZONE

Alex Krieger (1985)
1450 Oak Avenue
Quebec, PQ G1T 1Z9
(418) 681-3638 (H)
(418) 656-2207 (B)

MARITIME ZONE

Gordon Waugh (1985)
5546 Sentinel Square
Halifax, NS B3K 4A9
(902) 455-4045 (B)

DIRECTOR-AT-LARGE

Gordon Bruce (1985)
154 Shannon Park
Beaconsfield, PQ H9W 2B8
(514) 697-1442 (H)

TREASURER

Jim McCollum
Box 259, R.R. #3
Manotick, ON K0A 2N0
(613) 692-2227

COMMITTEES

AIRSPACE

Dave Tustin
581 Lodge Avenue
Winnipeg, MB R3J 0S7

FLIGHT TRAINING & SAFETY

Ian Oldaker
135 Mountainview Road N
Georgetown, ON L7G 3P8
Mbrs: G. Eckschmiedt
John Firth
Denis Gauvin
Alex Krieger
Chris Purcell
Manfred Radius
Ed Sliwinski
Al Sunley

FREE FLIGHT

Tony Burton
Box 1916
Claresholm, AB T0L 0T0

FINANCIAL

Gordon Bruce
Bob Carlson
Jean Matheson
Jim McCollum

HISTORICAL

Christine Firth
542 Coronation Avenue
Ottawa, ON K1G 0M4

INSURANCE

Bryce Stout
2244 Belfast Crescent
Mississauga, ON L5K 1N9
Mbr: Al Schreiter

MEDICAL

Dr. Wolf Leers
#201, 3271 Bloor St. W.
Etobicoke, ON M8X 1E2

METEOROLOGY

position
currently
vacant

PUBLICITY

Joe Somfay
442 Union Street
Salem, ON N0B 1S0

SPORTING

Jim Oke
551 Bruce Avenue
Winnipeg, MB R3J 0W3
Mbrs: Robert DiPietro
Wilf Krueger
Al Sunley
Hal Werneburg
Ulli Werneburg

FAI AWARDS

Boris Karpoff
14 Elmwood Avenue
Senneville, PQ H9X 1T4

FAI RECORDS

Russ Flint
96 Harvard Avenue
Winnipeg, MB R3M 0K4

STATISTICIAN

Dennis Miller
108 Midcrest Cres. SE
Calgary, AB T2X 1B5

TECHNICAL

George Adams
12 Hiawatha Parkway
Mississauga, ON L5G 3R8

TROPHIES & CLAIMS

George Dunbar
1419 Chardie Place SW
Calgary, AB T2V 2T7

WORLD CONTEST

Al Schreiter
3298 Lone Feather Cres.
Mississauga, ON L4Y3G5

THE SURVIVAL OF GLIDING

continued from page 2

Let us try to visualize the year 1995 — only ten years from now. The best glide angles will increase to about 40 for the two-seaters and a bit more than 60 for the top quality gliders of the Open class. Ex-works, new gliders will cost between \$40,000 and \$150,000. Of course, gliding itself will be more expensive than today. It is a rule of thumb that a glider "in normal use" costs its owner per year approximately 20% of its value. Everything is included in this 20%, from hull insurance to launching charges, from instrument repairs to transport by road, from amortization to BGA membership. If you cannot believe me, just ask your club treasurer to divide the yearly club expenses by the number of your gliders and you will be astonished at the result. And, if you divide the yearly cost of the gliders by the number of hours they have flown, you will arrive at approximately \$50 on average in the BGA. This is the price of one gliding hour in spite of all the honorary work that is done in the clubs. And if the development continues as in the last 30 years, the value of one gliding hour will be about \$80 in ten years' time. On no account will the development of general income be able to compensate, I suppose.

Thus, the number of active glider pilots will have greatly decreased in 1995 because of the high costs. We all know enthusiastic pilots who have thrown in the towel because they cannot afford their sport any more. But other figures too should provide cause for reflection. If we follow statistical calculations, we must expect a decrease of nearly 20% in the number of youths up to 18 years of age in the next decade. On the other hand, the number of pensioners will increase by about 15% over the same period of time. This will have a considerable influence on the income rates, and this development will automatically have a strong effect on the membership structure of sports in general and in particular on that of gliding.

Today, the average age of members is rising in all the gliding associations in the western world.

When I try to imagine a gliding site in the year 1995, I must paint a horror picture. The precious gliders are seldom in the air. Only a few incredibly rich youngsters, enabled by father's wallet or by a fortunate inheritance to carry out their elitist snobbish sport, wait for thermals. A group of outdated pilot, whiskey glasses in their hands, sit in the clubhouse dreaming and talking of better times in the past. Let us hope that this will never come true. But as crazy and exaggerated as all this may sound to you, gliding is in danger of becoming a leisure activity for only a small number of privileged people, and so lose its present high reputation as a sport. We must try to find at least a few answers to the question: "What can we ourselves do to secure the sound survival of gliding as a popular and attractive sport in the next century?"

First, we must establish a model that we can follow. This model must be fixed and clear, but flexible too, because the unpredictable influence of the future will certainly compel us to react and, therefore, adapt to the situation. I myself visualize sound gliding in the year 2000 as follows, and I hope you will at least in the essential features — share my opinion;

- The man in the street must be able to afford gliding. One flying hour must not cost a club member more than his net income for two working hours with all extras included.
- We must see that the number of glider pilots compared with today does not decrease but possible — increases.
- Gliding must arouse public attention and be regarded as the great sport that it is.

If these three basic goals are fulfilled, we should have not too much cause for concern about the future of gliding.

Let me say a few words about the national associations now. I must admit that, as a West

German, I sometimes glance a bit enviously at the opportunities and activities of your association. But the national associations in general must be on their guard against the danger of a centralistic spoon-feeding of the sport, because they are not an end in themselves but are merely the sum of the interests and the dedication of their members. Thus, I see the main task of a national association is taking care of its clubs. For example:

- Working as partners with the state and the national airspace authorities in order to make work in the clubs possible and to promote them.
- Integrating the different spheres of interests such as top class sport, competitive sport, popular and recreational sport, instruction, and general club life.
- Having responsibility for the quality of the sport and therefore for safety of gliding in clubs and among individual pilot by training first class all-round instructors and setting up optimal guidelines for instruction.
- Offering interesting and challenging contests on all levels.
- The interest in gliding of all classes of society must be kept alive and stimulated by sensible public relations work.
- Last but not least, it is one of the most important tasks of our national associations to keep up a permanent discussion through which the experiences and the interests of the clubs are brought together into one channel. In this way, an informed opinion and a jointly and resolutely represented view can be guaranteed.

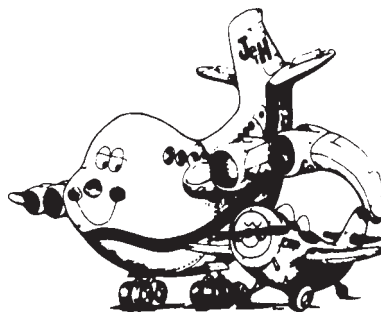
All this will only prove to be successful, if the clubs share their thoughts and collaborate with their associations, and if they are willing to participate uncompromisingly in majority decisions, even if these decisions are contrary to their own opinion. Without the clubs, nothing would go on in gliding in the western world. If there were no clubs, the number of glider pilots all over the world would certainly never be about 150,000 but about 20,000 at the most, if gliding existed at all.

The clubs are the basis of our sport — at least in Europe north of the Alps, and therefore, for more than half of all glider pilots. If the clubs are sound, gliding is sound too. They have the most promising opportunities to create the prerequisites for gliding to secure its future. They are all in a position to offer to those interested in gliding that which is good value, top quality, and fascinating at the same time. The clubs manage gliding and preserve and promote its idea, and are the native soil of our sport.

Let us talk about the clubs now, their duties and their possibilities. Firstly, there are the costs, which must be decreased or at least preserved for a long time. To achieve this, our gliders must spend more hours in the air. The average yearly flying time in your clubs is rather low at 83 hours per glider, although you had good gliding conditions during the last season. I am well aware of the fact that club-owned gliders average about 50% more flying time than privately owned ones. We will work on the assumption that your club gliders fly about 100 hours a year. This value — equivalent to the one of the German Aero-Club — is exact enough for our purpose.

Returning to the figures I quoted before, it costs a club about \$5000 to operate a glider. If we subtract the launching fees of approxi-

We're big and small in aviation.



Johnson & Higgins Willis Faber Ltd. handle a major percentage of the world's aviation premiums. We cover them all — from fleets of jumbo jets to classic Cubs. And our list of aviation clients continues to grow, as a measure of our ability to handle complicated insurance of any kind.

Big or small, in the air, on the ground, or on the ocean, complicated or straightforward — whatever your insurance problems are, we'd like a crack at them.

For the finest, most complete coverage possible, come under our wing.

Johnson & Higgins Willis Faber Ltd.

Box 153, 595 Bay Street, Toronto, Ontario M5G 2G9
(416) 598-1877. Tony Wooller direct: (416) 595-2842

mately \$1000 that still leaves \$4000 fixed costs on the glider, or \$40 per flying hour. But if we could succeed in doubling the flying time per glider, we halve the hourly operating cost. I think there is a large saving, especially for the member who (according to your statistics) averages 14 hours a year — \$280 should be quite a lot of money to a glider pilot. Although most club committee members are real magicians when it comes to keeping the costs for their clubmates low, the first principle must be: “more flying”. There are many opportunities for the clubs to meet this demand:

- Well-organized flying operations must be offered regularly, even if the weather does not look very promising in the morning. Prerequisites for this are a sufficiently large group of beginners (they are always eager to fly), enough devoted and persistent gliding instructors, and a loyal core of experienced pilots.
- Gliding in clubs must be great fun for the members. Rules should promote gliding and not hinder it. Having visited a lot of gliding fields in the world, I have met a great number of super gliding fellows; but a revision of the rules and regulations concerning “fun” would have done some clubs a world of good.
- For every glider pilot it is a challenge to fly for a change from another airfield over an unfamiliar area. The clubs should arrange gliding holidays for their members. A year ago for instance, I met the military club “Bannerdown” at Aosta in the Italian Alps. What these fellows flew there during their short stay was really heart-refreshing and — I am sure — not performed by some clubs in the course of a whole year.
- The flying time charges must be limited reasonably. “No charges after the third — or maybe the fourth — hour of a flight” is a tried and tested rule. It supports cross-country and weekdays flying and moreover, it encourages the pilots to attempt longer distance on slow days too. The income from three hours of flying time is far more than if the glider had been left in the hangar.
- Club members should always have the opportunity to fly on weekdays.

An average of 200 flying hours per year per glider can be easily achieved if intelligent rules are made and followed, and if the club and its members are full of good intentions.

A lot of money can be saved by clubs that pursue clever equipment policies. I think it is absolutely wrong if a club provides instruction gliders only, and leaves it up to its members to join a syndicate of glider owners after they have got their C badge.

It is also of great importance for the club to buy gliders that fulfil their intended purpose. Many take the view that only the glider type that won the last world championships can be the right one for them, regardless of what it costs. What nonsense. A good second-hand glider of the preceding generation will do. The club can save about \$10,000 on the purchase price and another \$1000 or more a year on comprehensive insurance. And does anybody really believe it would be a disaster if the top pilot of the club stayed in the air ten minutes longer to complete his 500 triangle?

My next subject is the winch. Even in France with its long tradition of aerotowing, more and more clubs are switching over to winch launches. Aerotows are simply too expensive nowadays. One only has to look at the rise in

price of a towplane. A kind of framework — blueprints and general construction directions — could be provided by the BGA, so that the clubs do not have to reinvent all the details. A truck chassis and a 200 to 300 horsepower engine from a crashed car should be easy to obtain as gifts. Only a few parts that the club members cannot produce themselves must be bought. Under these circumstances a winch launch can cover its costs for one or two dollars. A 1500 foot release altitude at this price is certainly an alternative compared with the cost of an aerotow. Winches need not be bought. Most of the many winches in Germany are self-made by the clubs.

All gliding clubs have a wide range of opportunities available with which to satisfy their members. A wise club policy is indispensable. It can achieve a lot regarding social club life, member's rights at club meetings and especially flying operations. As mentioned before, it is my opinion that a club should provide gliders for all its members according to their capabilities. We, in Germany, do so on principle. I know very well that many British clubs take another view. Just because of this, I invite you to follow my idea of good care of club members with regard to flying.

In Germany, youths may take up gliding and fly solo as soon as they are 14. The teenagers learn quickly and fly skilfully and safely. In addition to this, as they are growing out of their childhood, young people seek a purpose in life and look for aims and objectives for the future. Very often they desire something “special”, something out of the ordinary, which they could, to a large extent, find in gliding. Naturally, there is a considerable number of young people who only spend a few years gliding before they leave us for many different reasons such as their careers, studies, marriage, and so on. We should not be angry about this occurrence. Some of them will return later anyhow. Others may hold respectable positions in society, and if they look back on their gliding time with pleasure, they will be only too willing to help us if they get an opportunity.

The instruction of beginners in the clubs must be of prime quality. Let the young people experience the fascination of our sport. Let them become a little bit addicted to it. Consequently, longer and enjoyable thermal flights belong to instruction from the beginning. We must be careful not to overtax the student, but our beginners must be faced with a challenge, they must be set tasks. It is not the time they are airborne that is important, it is the way in which they spend this time. The words of George Moffat, “One minute in the air without making a decision is a lost minute”, should apply even to beginners. Show your young clubmates that you have confidence in them. It is a common bad habit to base the requirements for flying new and better types of glider solely on flying hours or even on the length of club membership. Ask yourselves who really deserves more help and encouragement. Is it the pilot who has barely flown the necessary hours over a span of many years? Or is it the youngster who has shown great skill in a relatively short but successful career?

Lastly, let me say a few words about the extremely important public relations work in the clubs. I mean PR in the broadest sense, going far beyond pure press work. Unfortunately, it is fairly underdeveloped in the gliding world.

Right at the beginning, something very fundamental. I can only suspect the reasons, but for the last 20 years I have been able to make out a world-wide tendency toward exaggerated modesty in gliding. Everywhere glider pilots present their sport — if at all — as “absolutely normal”, as “nothing unusual”. I am sure we are not doing ourselves a favour in being modest to such a degree. We should say — loudly and clearly — that gliding is definitely something special, in what it demands of us and above all, in what it gives us. I am sure the public would appreciate it ... remember what I said before concerning the picture of the “typical pilot”.

It may sound curious to you, but accident prevention and air safety are effective means of good PR work. They substantially influence our reputation. But when an accident happens, we must not evade the reporters. We must give them clear and correct information, and let them know what dangers can be hidden in gliding if carelessness, lack of discipline, or even bad luck occur. Honesty always pays off in the end.

Contented members are excellent PR. They talk enthusiastically to their families, among friends and at work about everything we do and achieve an excellent effect.

Active cooperation in local politics and in local and regional sports associations is of great importance for our reputation. However, I know quite well that gliding folk prefer to stay among themselves, if only because their sport is so different. But we should try to force ourselves to mix with other people. The contacts and the relationships which we can establish on local and regional levels will sometime and somehow bear fruit.

We must be careful not to develop our gliding sites into impregnable fortresses. They must be welcoming to visitors, so that those interested — and there are many of them — can come to the launch area on safe paths. There we get them as near as possible to the scene and talk to them. We will make additional friends, and we can never have enough of them. Also, it should be a truism that our airfields must be pleasing to our family members.

I hope I have been able to make my thoughts clear: the most important task of public relations work in gliding is to increase our already large army of “silent friends”, to inform them, and to increasingly win their favour for everything we do. One day we may need them to support us in our fight for survival. More friends mean more approval, more young gliding members, more support and more power. All are basic requirements for achieving our aim.

This was only a small part of the enormous range of possibilities we have got to use to secure the future of our sport. However, I have also tried to point out that glider pilots everywhere have got the same problems, but also the same chances to do something about them. The future of our sport is not certain if we let things slide. We must do something positive ourselves, be well prepared, be dynamic. I conclude with the slightly modified words of Johannes Eulerling, the top sports official of North Rhine Westfalia in Germany: “*The future of gliding is far too important to entrust it merely to the future.*”

FAI BADGES

Boris Karpoff
 14 Elmwood Avenue
 Senneville, PQ H9X 1T4 (514) 457-9707

The following badges and badge legs were recorded in the Canadian Soaring register during the period April 1 to May 31, 1986.

DIAMOND BADGE

58 Colin W Tootill	SOSA
59 Kurt Moser	Windsor
60 Dale M Goulin	Erin
61 Derek Kirby	Erin

GOLD BADGE

223 Cedric Greenhill	SOSA
224 Kurt Meyer	Air Sailing

SILVER BADGE

728 Wolfgang Thiele	Rideau Valley
---------------------	---------------

DIAMOND ALTITUDE

James Feyerer	Edmonton	5638 m	Jantar Std	Cowley, AB
André Pepin	Champlain	7320 m	Jantar Std	North Conway, NH
Gerhard Schaefer	Edmonton	5029 m	ASW-15	Cowley, AB
Bill McKnight	Kawartha	5364 m	Jantar Std	Grand County, PA
James Beattie	Kawartha	5029 m	Jantar Std	Grand County, PA

DIAMOND DISTANCE

Colin Tootill	SOSA	521.3 km	ASW-20	Ridge Soaring, PA
Kurt Moser	Windsor	524.0 km	Ka6CR	Ridge Soaring, PA
Dale Goulin	Erin	506.4 km	Cirrus 75	Ridge Soaring, PA
Derek Kirby	Erin	506.4 km	Phoebus B	Ridge Soaring, PA

GOLD ALTITUDE

James Feyerer	Edmonton	see Diamond altitude		
André Pepin	Champlain	see Diamond altitude		
Gerhard Schaefer	Edmonton	see Diamond altitude		
Bill McKnight	Kawartha	see Diamond altitude		
James Beattie	Kawartha	see Diamond altitude		
David Frank	Rideau Valley	3670 m	Pik 20B	Lake Placid, NY
Cedric Greenhill	SOSA	4855 m	Jantar Std	North Conway, NH
Kurt Meyer	Air Sailing	3566 m	Ka6E	Marion, NC

SILVER DURATION

Wolfgang Thiele	Rideau Valley	7:14	Pik20B	Kars, ON
Mark Marin	—	5:09	Ka6CR	Sisteron, France
Keith Crawford	Edmonton	5:44	1-23	Chipman, AB

SILVER DISTANCE

Elliot Coltin	Montreal	62.0 km	1-26	Hawkesbury, ON
Wolfgang Thiele	Rideau Valley	59.5 km	Pik20B	Kars, ON
Lawrence Dobranski	Rideau Valley	60.0 km	Jantar Std	Pendleton, ON

FAI RECORDS

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

RECORD CLAIMS

Straight Distance Feminine, 607.0 km, 12 June 1986, Ursula Wiese, Ka6CR CF-URK, flown from Chipman, Alberta with a remote start at Lamont, Alberta to Dilke, Saskatchewan. This claim exceeds the previous territorial record of 209 km and citizen's record of 305 km set by Antonia Williams in 1973 and 1975.

Straight Distance Multiplace Open, 495.2 km, 12 June 1986, Chester Zwarych and Reg Adam, Blanik CF-TVV, flown from Chipman, Alberta to Elbow, Saskatchewan. The claim exceeds the previous record of 406 km set by Zwarych/McColeman set in 1984.

Speed 500 km Triangle Multiplace Open, 90.3 km/h, 12 June 1986, John Firth and Dan Webber, Gemini C-FTKC, flown from Chipman, Alberta with turnpoints at Marshall, Saskatchewan and Alliance, Alberta. This is a new record as no 500 km triangle has previously been flown.

SILVER ALTITUDE

Wolfgang Thiele	Rideau Valley	1390 m	Pik20B	Kars, ON
James Feyerer	Edmonton	see Diamond altitude		
James Beattie	Kawartha	see Diamond altitude		

C BADGES

Marc Rougeau	Quebec	1:35	2-33	St. Raymond, PQ
James Feyerer	Edmonton	—	—	—
Wolfgang Thiele	Rideau Valley	—	—	—
Dugald Stewart	Rideau Valley	3:43	1-26	Kars, ON
Alexandru Popa	York	1:40	1-26	Arthur, ON
Keith Crawford	Edmonton	5:44	1-23	Chipman, AB

Campbell

Printer ad,
Ottawa

CROCODILE CORNER

Grob Std 3, C-GFRL, Air Sailing, 1 June. Premature tow release. Aircraft struck power lines on attempted return to airfield. Pilot OK. Write-off, \$20,000.

Duster, C-GZBK, Regina, 7 June. Groundloop on takeoff, fuselage broken. Write-off, \$7,500.

HP-11A, CF-RNN, York Soaring, 8 June. Groundloop on landing, some nose and wing damage. Claim open.

2-22, CF-URE, Aeroclub des Outardes, 9 June. Glider overturned in windstorm when tiedowns broke. Wingtip damage. Claim open.

ASW-20, C-GBDJ, Gatineau, 15 June. Stall/spin event on final during out-landing. Pilot OK. Write-off, \$30,000.

