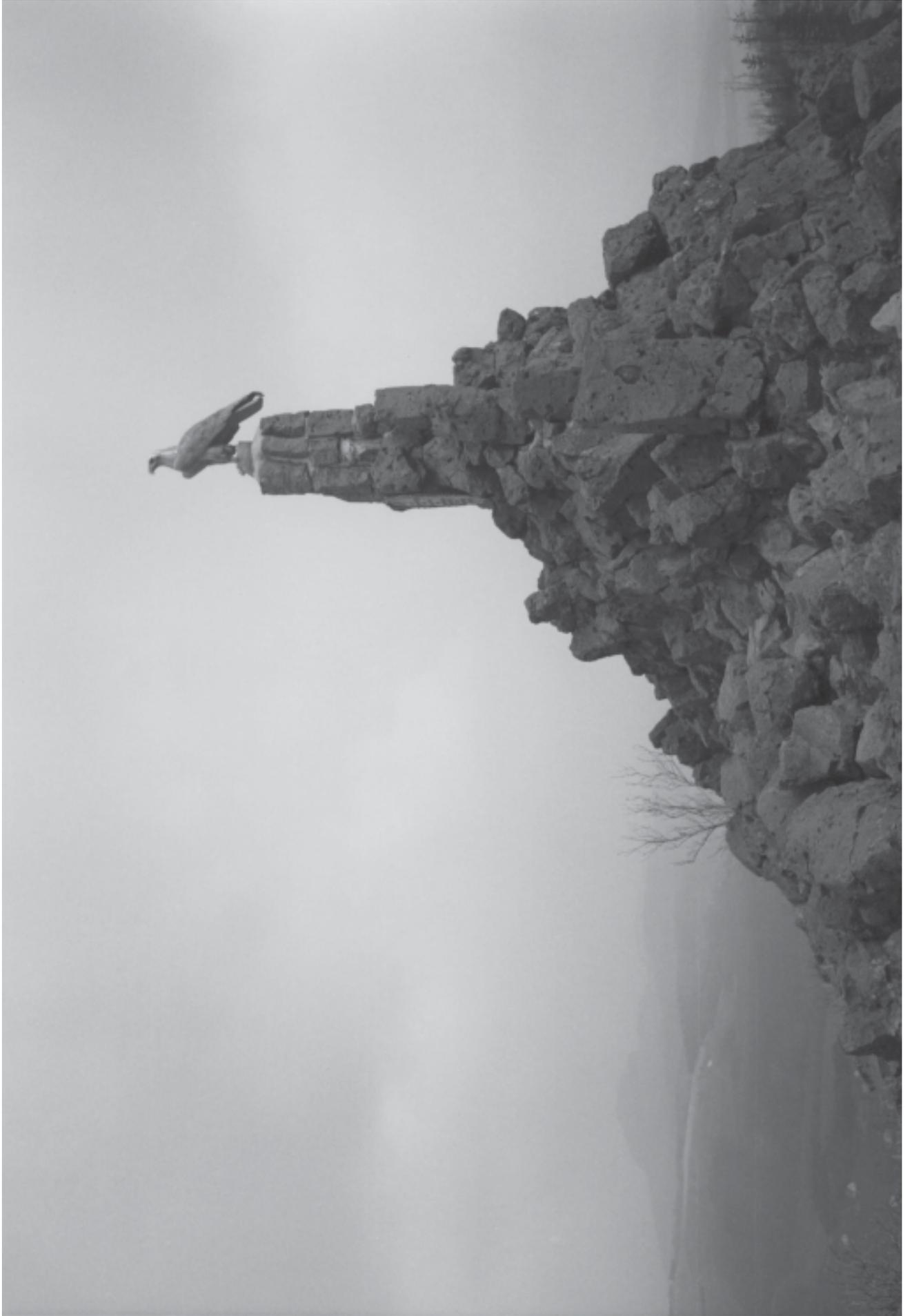
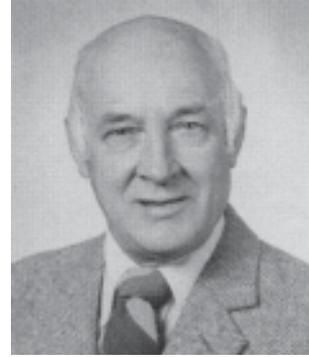


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POTPOURRI



The large and enthusiastic turnout for the AGM in Ottawa should bode well for the year ahead. Any large gathering usually sends out a signal of the mood and attitude of the assembly, which in this case, was one of full support for our Association and an appreciation of the work being done by the various committees and directors. The meeting was over by 3:00 pm not because there wasn't any controversial issues, but because no overtime on presentations was needed. In the shortened program sufficient time was used to spell out that no increase in fees was needed to meet this year's budget (which is actually a 4% decrease). The budget was balanced on the basis of a presumed \$9000 government grant — though we had reason to believe on one hand that, because of our small numbers, Sport Canada would not provide any funds — and on the other hand that our submission for funds, which included a thorough review of the peculiarities of our sport, would win the day. We were successful for so far we have received \$10,000 from Sport Canada with a bit more to come.

The workshops started at 3:15 pm with Glenn Lockhart rearranging the schedule on his feet as he introduced the first speaker. This kind of flexibility was the tenor of the program as Glenn, of Rideau Valley School, and Phil White of Gatineau conducted the arrangements for the meetings and banquet dinner with experienced aplomb. Both clubs were very supportive and all went well thanks to their members' efforts. As a side issue, mention was made by the workshop's coordinator that in future, a fee for the workshops might be needed. A large groan went up from the audience with a few catcalls emphasizing the concern for such heresy. The British charge approximately \$50 and the Americans \$43 Cdn pre-registration for their workshops. The tentative plan for the 1989 AGM is to decrease the SAC formal meeting and increase the workshops' allotted time. Quite obviously this will cost money and a fee will be necessary but naturally lower than our compatriots charge.

A world-wide problem exists in gliding club membership decline. The gliding journals from the British, Americans, Australians, and New Zealanders relate the problem in great detail. We are all faced with the same incredible increase in costs and also the availability of so many more stimulating individual sports to potential new members such as sailboarding, hang gliding, ultralights, hot air ballooning, etc. However, there are areas worse off than ourselves such as light aircraft flying where costs have increased to a greater degree than ourselves and the main manufacturers of light aircraft, such as Cessna and Piper, have closed their light aircraft lines. So here we are, offering by far the cheapest flying and by far the superior way to learn to fly properly, with a too small membership. *Out there are 40,000 private power pilots with nothing to fly of reasonable cost and us with a barn full of superior machines.* Should we not triple our publicity budget and advertise in Canadian Aviation, COPA, small airport lounges, etc. with the opening gambit — “Learn to fly for fewer dollars — learn the elements and how to recognize and use them — learn to fly in the best aerodynamic machines flying — learn to fly accurately and precisely — COME AND SOAR”.

What has SAC done to help you? Our Publicity director has produced and distributed to clubs an imaginative and helpful text, “A Review of Public Awareness and Publicity Within the Soaring Community”, dated 3 September 1987. Being printed at the moment are 10,000 colour posters displaying a Twin Astir in flight with room for club propaganda, 11x17 inches on quality poster paper which should be eyestoppers. Being planned for next year is a three page colour folder for club use for normal advertising handout. A final thought — the fastest growing club in Canada attacks the membership problem with great gusto and keeps at it all year with good results. Most clubs have been able to hold their own in the past three years which is a significant achievement. All we need is a bit more push and slowly we will grow.

Make safety a way of life — have a rewarding summer.

Gordon Bruce

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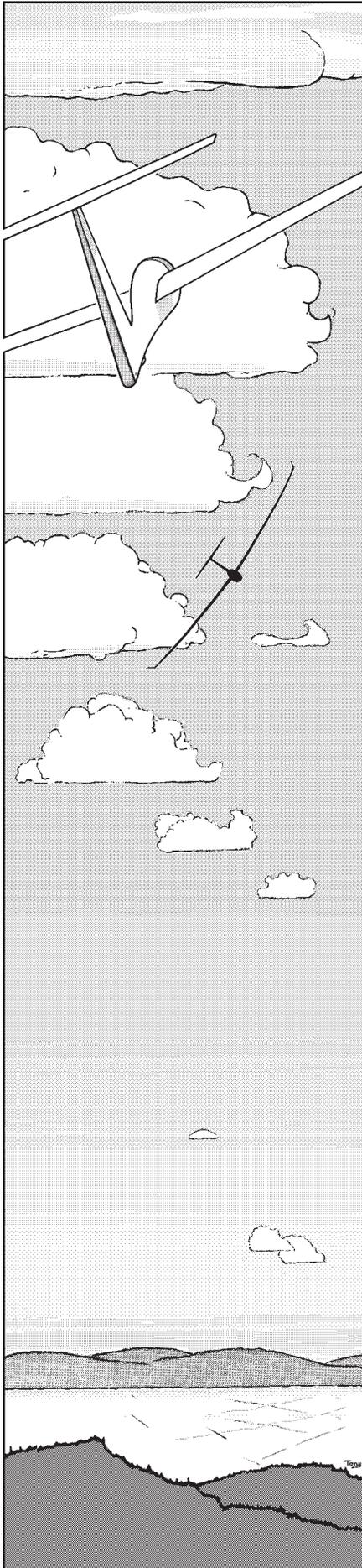
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Cover

The famous memorial to fallen pilots on the Wasserkuppe. The large bronze eagle is erected upon a natural basalt outcropping at the site of the beginnings of soaring as a sport back in the 20s in Germany. The monument is about five metres tall. Photo by Tony Burton.



SOME WELCOME DIRECTION FOR SOARING

— ENDING 10 YEARS OF STAGNATION —

Tony Burton

You will find in this issue of **free flight** three articles which have a major emphasis on the future direction of soaring, something this sport is in desperate need of. Action on the content of these articles can get soaring off dead centre where it has languished for years. From the technical point of view we fly truly wonderful machines, the epitome of the aerodynamic art and the designer/engineer's skills. But because the CIVV, which regulates this sport, lost control of the Standard class not long after the now venerable Ka6 began flying, today everyone must own Porsches because there are no Chevy contests; and this has been the curse of the sport for two generations of glider pilots.

Without a tight definition on configuration, sailplane development focused on L/D and speed in a positive feedback cycle that has been slowed only by the limits of the strength of materials, and more importantly by the inability of most pilots to now afford the results. Furthermore, reaching any consensus on solutions has been hampered by a mind-set, developed of necessity in the serious competition pilot (and highly contagious) which may be simply stated as "performance is everything". The pity is that the pilot who is looking for a place on an international team has had no choice but to operate on this principle — the world's cleverest ASW-15 pilot is unlikely to prevail over the journeyman Discus driver. Let me give you a test: you see a photograph of the winner of the world Nimbus 3 championships and the world 1-26 championships. Now be honest, whose shoes do you wish you were in, and in which contest would you rather have competed? Right!

Sailboaters, our two-dimensional equals, don't think this way. Sailing is largely "skill is everything". The great range of sailboat classes is a major factor. The 12 metre yachts get great press, but competitors pay their respects to sailing skill — and greater respect is usually accorded the crew of the smaller boat — especially in the ocean races. I want to remind club pilots who think our narrow competition class structure doesn't affect them to consider that roughly 75% of the single seat gliders flying in Canada today were designed for the specific purpose of winning world or national contests (if you don't count twenty-two 1-26s, the figure is 85%).

Finally, the troubles in our sport have become so pressing that a sub-committee of heavyweight international soaring pilots were tasked to examine the problems and make recommendations to this March's annual meeting of the CIVV. The sub-committee's findings place a great deal of emphasis on expanding the tiny performance box we have got ourselves into, and a competition is being established to design a glider somewhere between the hang glider and the current 15 metre span ships (in a way reinventing the original Standard class). Having this small glider in world competition is necessary to guarantee a wide market for manufacturers, and it will have extensive beneficial "ripple" effects on all aspects of the sport, especially down at the club level. Also, more emphasis is being directed to a wider range of competition tasks to elicit a greater range of piloting skills than is possible while racing around preset triangular courses.

There has been some adverse comment from the competition fraternity. This is to be expected of course — all current contest pilots have grown up within the existing system and are good at what they do under the present rules, flying the hottest ships, so some will resist change. For example, our AGM competition workshop produced phrases like "the drawback of lower performance" (meaning speed), and "turning back the clock" ... This reaction reminds me of the words of the old song, "How do you keep them down on the farm after they've seen Paree?". As long as every pilot can get to the next thermal and use all his skills to win the day, it's a contest. *Whether it's at 75 or 120 km/h is absolutely irrelevant.* The winners were honoured in the 60s flying the Austria no less than they are now. I expect aerodynamicists and engineers will welcome the challenge of re-exploring a corner of the low speed flight envelope that hasn't been exploited seriously (except by homebuilders perhaps) for over forty years. Given current technology and materials, materials, let's see what pops up. The performance-is-all mind-set must and, I believe, will be broken within the next few years as a result of the current hard examination of the function of world competition in our sport. □



The SOARING ASSOCIATION OF CANADA

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

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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.

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Opinions

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

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MOUNTAIN SOARING

I found the article by Nick Hackett on mountain soaring (*in ff 1/88*) to be very interesting. His flight took place in what has been my soaring back yard ever since I swapped York Soaring for Königsdorf in southern Bavaria eight years ago. The thunderstorm (which features so prominently in his story) is also well known to us in KDF — we call it the "Oberammergau Gewitter". It often builds up over Oberammergau and then moves over Königsdorf, putting an end to our soaring day.

This brings me to the main point of this letter. Mr. Hackett is obviously a very skilled and experienced pilot, and I really don't feel qualified to criticize him. However, I would like to mention Königsdorf's best and most experienced mountain soaring pilot — so good that he still had a commanding lead in the Bavarian decentralized cross-country contest months after we found the wreckage of his plane under a ridge in the central Alps. We don't know for sure what happened. We do know that a large CB was blocking his route home, and that in the past he had often made it home in spite of such obstacles.

I know that I would rather go on an all-night retrieve pulling a trailer over mountain passes than go on another search-and-rescue flight looking for a missing comrade.

Ron Hansen

A MULTIPLE RESPONSE TO COMPETITION & COST CAVILS

With regard to Brian Hollington's letter "Competition The Life of the Sport?", I feel slightly misquoted. My remark a few issues ago about relatively few sailplanes being flown in competition was meant to refer to new sailplanes produced over the past few years and NOT to all sailplanes currently active (few 2-33s will ever make it to a contest, it is safe to say). The paradox is that almost all new production sailplanes (certainly single seaters) are designed to conform to the FAI competition class rules; even aircraft such as the ASK-23 and the Club Astir are right on the Standard class limits which is surely no accident. The question is why? The sailplane manufacturers must know their markets fairly well, so I suspect the reason is that nobody wants to buy anything else (for instance, 13 metre or 17 metre sailplanes). With all the calls for smaller, cheaper gliders, Salto production should be booming, but it is not. Maybe sailplane buyers are just very conservative and want to keep the possibility of competing open even if they have no immediate plans to do so.

Brian is mistaken if he believes that all risks in gliding are foolish and unnecessary. Every glider flight involves a degree of risk just as crossing the street does. Most reasonable people act to minimize these risks by, for instance, looking both ways before crossing a street, keeping in current flying practice, and carefully maintaining their gliders. Wandering across a busy thoroughfare blindfolded, setting off across unlandable terrain at low altitude on a cross-country, and exceeding glider design limits are examples of foolish and unnecessary risks. It is this latter sort of risk that competition rules must be structured to discourage. Contests give pilots no special reason to take risks and the need to fly every day of a competition to have a chance of placing well is surely an incentive to avoid damaging a glider by pressing one's limits of skill and luck. I have seen some very unnecessary risks taken in day-to-day club flying such as scraping home past perfectly landable fields to avoid the trouble and embarrassment (?) of a short retrieve.

The call for a move to cheap (perhaps "affordable" is a better word) gliding is on the rise again I see. Having done some very enjoyable flying in a Ka6 from a winch launch some years ago, I would agree with most of what Len Gelfand has to say (in his editorial). A few cautions are called for, however. The Ka6 is quite a delicate sailplane which will not tolerate well the rough treatment many club 2-33s receive. Also, reliable, high quality winches do not come cheaply; either the money must go in up front or you can pay later in terms of lots of maintenance and frustration. Remember too, it is usually fairly easy to recruit a local pilot to fly a towplane to build flying time, however it is sometimes less easy to get club members to work out on a hot, dusty field driving a winch and cable pullout vehicle. Again, you pay your money and take your choice.

Yes, the hang glider and ultralight movements attracted a lot of attention for a few years with the idea of cheap and accessible flying. However, where are they today? A severe shakeout has occurred in the ultralight industry as many of those "cheap" machines turned out to be quite dangerous contraptions of marginal utility. The successful ultralight designs are starting to look more and more like "real", meaning type-certified, light aircraft with price tags to match. Hang glider pilots, from my experience, are simply a different crowd who prefer their sport for its own pleasures and not because they are "real" glider pilots frustrated by lack of money. The growth of hang gliding has had about as much effect on SAC clubs as the proliferation of sailboards on your local yacht club. If anything, hang glider pilots will become prospective SAC members as they get older and their bones more brittle!

continued on page 23

A MAJOR REVIEW OF THE WORLD GLIDING SCENE AND WORLD CHAMPIONSHIPS

AN INDICATION OF WHAT LIES AHEAD IN THE IMMEDIATE FUTURE

It was decided at the March, 1987 CIVV meeting in Frankfurt that the time was overdue for a re-appraisal of the World Gliding scene, especially as related to World Championships. Under the leadership of Tor Johannessen of Norway, an elected committee met on two occasions during 1987 (taking several days) and the comprehensive report that follows gives readers some idea of the future direction gliding may take.

MANDATE

1. What are the objectives of our championships?
2. How can we best achieve these objectives?

MEMBERS

Vice-President Tor Johannessen was nominated to serve as chairman. The following CIVV members volunteered to serve on the committee:

H. Geusau, Austria
E. Makula, Poland
P. Morelli, Italy
H. Nietlispach, Switzerland
A. Orleans-Borbon, Monaco
A. Pettersson, Sweden
F. Ragot, France
J. Raivio, Finland
M. Reinhardt, OSTIV president
P. Ryder, FRG
T. Savolainen, Finland
B. Smith, USA
N. Visser, Netherlands
C. Wallington, Australia
F. Weinholtz, West Germany
T. Zeally, UK

Valuable written contributions were received from the following CIVV delegates: R. Bradley, South Africa; J. Oke, Canada; and J. Roake, New Zealand; as well as from sailplane designer, W. Dirks, West Germany; S. Leutenegger, Switzerland took part in one of the meetings.

MEETINGS

The sub-committee has held two meetings: September 25-26, 1987 and December 5-6, 1987, in Frankfurt, FRG. Both meetings were well attended: 12 members at the first meeting and 16 at the final meeting . . .

The first meeting was conducted as a "brainstorming session", a general free-for-all discussion with no strict agenda. The second meeting was a sorting-out and summing-up meeting, to hammer out some concrete proposals from the vast material assembled at the first meeting.

DISCUSSIONS

The world of gliding may be briefly summed up as follows:

- The membership of gliding clubs around the world seems to be in a period of stagnation. Other "similar" sports (hang gliding, ultralight flying, paragliding) are expanding rapidly in many countries.
- Few new countries have been added to the gliding fraternity in recent years.
- In gliding, the relationship between time in the air and time on the ground is so low that it discourages many active, impatient, young people. Consequently, the average age of glider pilots is going up.
- Over the years, gliding has become more and more expensive.
- World Gliding Contest (WGC) tasks have become speed races around specified closed courses, emphasizing only a limited number of the skills looked for in the world's best glider pilots.
- Competition pilots constitute only a small minority of the number of glider pilots.
- The WGC classes have a tremendous importance, as the types of gliders available are almost exclusively limited to new or second-hand WGC class gliders.

Having this picture in mind, it was concluded that our championships have a great impact on world gliding, and the championships objectives must therefore be broader than just to select champions. It was agreed upon to define the mandate broadly and discuss a variety of subjects.

OBJECTIVES

From our Sporting Code's Annex A:

A. 1.1 Purpose. *The purpose of the Championships is to provide good and satisfying contest flying in order to determine the World Champion in each Class, and to reinforce friendship and cooperation amongst glider pilots of all nations.*

This is the old "objectives" paragraph in our Sporting Code. It has served faithfully over many years, and served us well. However, it does not go into much detail and might be improved upon.

The objective of our championships is, of course, primarily to select the best pilot(s) according to certain criteria. In order to select the proper champions in a fair competition, the competition must emphasize the knowledge and skills that we look for in the "best" glider pilots.

The venue and its meteorological conditions must fulfill some basic requirements.

Due to the impact of the championships on world gliding and the general public, some additional requirements must be considered:

Championships Requirements

- The championships flying must be safe. The risk of in-flight collisions and other hazards must be avoided through proper rules.
- The period of the championships must be of a sufficient length in order to eliminate the luck factor.
- The meteorological conditions need not be exceptional but should give a reasonable probability of a high number of flying days during the contest.

Pilot Qualities

The competition should be based on the pilots' abilities to fulfill the tasks set, using the following skills:

- piloting skills,
- navigational skills,
- decision-making skills
- application of meteorological knowledge.

Other Requirements

The championships should promote:

- expansion of gliding all over the world
- worldwide participation in the championships
- a positive public image through an interesting contest
- technical development and operational development
- exchange of information between countries
- cooperation and friendship between glider pilots from all over the world.

Conclusion After a lengthy discussion it was decided to propose that the paragraph A. 1.1 be changed. See PROPOSAL A (on page 7).

Whereas the definition of our objectives is quite easy to agree upon, the methods and ways of achieving these objectives are another matter. Several ideas were discussed at length:

Expansion of gliding

In order to stay alive in today's competitive environment and be able to hold on to what we have, gliding needs a stronger base. This includes expansion within each country where gliding is practised, as well as expansion into countries where gliding has not yet been introduced.

It seems that modern gliders need a relatively large gliding club for operations to become self-sustaining. A power plane is necessary for tugging, several gliders including a two-seater are needed for economical and efficient club operations, and the membership needs to be at least in the 15-20 range. This contrasts starkly with other sports where a much less sophisticated operation may become self-sustained, expand, and proliferate.

Public support is necessary for a variety of reasons: we need it in our fight for air-space, in our fight for government subsidies and in a possible fight for sponsorship in the future. Gliding needs a positive image in order to achieve this public support. The image of gliding as play for young boys and a sedate sport for rich, elderly gentlemen, now the impression in many countries by a large part of the population, is not very helpful.

In summing up, gliding needs the infusion of young people, gliding needs to expand within active countries, gliding needs to expand into inactive countries. The sub-committee members unanimously believe that this may be achieved through the introduction of less expensive gliders.

To achieve this goal, it was decided to propose that CIVV introduce a class in World Championships to fill the present performance gap between the Standard class and the best performing hang gliders. We believe that by restricting weight and thereby the necessary speeds, reasonable performance may be achieved at a lower price than for the present gliders.

See PROPOSAL B, and discussion under heading "Technical Developments".

Worldwide participation in championships

The present lack of participation in WGCs from certain areas in the world where gliding is actively practised, may depend on two factors:

- 1 The performance of the glider has a decisive influence on the results. Only the latest equipment is good enough to win. This equipment is very expensive.
- 2 The importance of the pilot has diminished with closed circuit races as the dominating task.

By introducing a less expensive glider in World Championships, we hope to take

care of factor 1. Factor 2 may be taken care of by re-inventing tasks with more emphasis on pilot skills than on glider performance. For suggested "new" tasks, see under heading "Operational Developments".

A development which must be kept in mind is, that as hopefully more and more nations take part in WGCs, the automatic quota that each national aero club has must be reduced.

Conclusion It is suggested that CIVV set up a sub-committee to study this matter more deeply.

Technical Developments

It is recognized that technical development of gliding is a main objective of gliding championships. The technical development over the last 40 years has been quite astonishing and our glider manufacturers have been technical pioneers in many respects. With CIVV a passive consentor, technical development has gone unhaltingly in one direction: heavier, faster, stronger. The emphasis in WGC tasks has been strongly on penetration, consequently our beautiful gliders are excellent penetrators, but also very expensive.

It is our hope that CIVV will be able to break this trend and go the other way, with a completely new concept: lighter, lower maximum speeds, less structural strength needed, even lighter. We believe that this concept will give us a less expensive glider with good staying capabilities, but also admittedly with less penetration.

To increase the usefulness of this class of glider, the possibility of car launches to operational heights should be studied. The modern generation of strong, four-wheel driven cars is excellently suited for this task.

The lower weight of a new glider will probably make the glider less expensive to construct, but also less expensive to operate, due to the possibility of car launches.

A two seater in the same operational regime might be a second important follow-up project for CIVV. Self-launching of such a two seater might be necessary, due to higher weight. In designing this new glider family, a lot of importance should be placed upon making the gliders uncomplicated to operate and easy to fly, rig, handle on the ground, transport, and hangar.

A self-launching two seater together with a car launched single seater might possibly be the smallest "critical mass" to get a gliding "chain reaction" going in a new environment. This setup would probably be at least one dimension less expensive than the present arrangement with a towplane, a two seater, and a single seater.

It is not suggested to abolish our present classes, but to fill the performance gap below the Standard class, which has not been explored with modern materials and technology.

Another development in the opposite direction might also have some benefits: the 17 or 18 m class, although several new designs of smaller motorgliders with reasonable performance seem to counter it. It is argued that this size of glider is the minimum size to be able to carry the extra weight of an engine for self-launching and still have reasonable performance.

If this argument is correct, the introduction of such a class might be of benefit to countries and places where the "critical mass" to launch a conventional gliding club is not present. Admittedly, the glider will be more expensive than the present day 15m and Standard class gliders, but the operation of a self-launched glider would be less complicated and probably less expensive, as neither towplane nor launch organization would be needed.

The discussion around this class of gliders will probably continue.

Conclusion The introduction of one additional class is enough change to the class structure at the present time.

Operational developments

Not only technical development is an integral part of modern gliding; development of piloting skills is a complementary part.

We have seen a tremendous increase in pilot performance over the last 20 years, hand-in-hand with the increase in glider performance. However, heavy emphasis has been laid on the efficiency of thermal centering and correct inter-thermal speeds. Less emphasis has been on other important piloting skills as route selection, application of meteorological knowledge and use of marginal weather.

Task setting

Various methods may be applied to emphasize these other pilot skills, the most easily applied and promising method seems to be the use of "new" tasks. These are not really new, as they are already in our Sporting Code, Annex B from 1981, where they carry the names:

- B.2.1 *Preflight Pilot Selected Task*
- B.2.2 *Airborne Pilot Selected Task*
- B.2.3 *Distance via Designated TPs*
- B.2.4 *Distance via Designated Route*

Experiments with similar tasks have been done in several countries during the 1987 gliding season. The most common response has been pilot enthusiasm. Scoring systems very similar to systems X and Y in the Sporting Code's Annex C have been used in most cases. However, some refinement of the rules seems necessary.

The new tasks should be used in all kinds of weather conditions, not only good or only poor conditions. Development of the above-mentioned additional pilot skills should be a major objective.

A bonus should be given for landing back at base. A reduced bonus should be given for landing on an airfield.

Other tasks

- Short multi-lap tasks
- Minimum altitude loss over a given course
- Maximum altitude gain over a prescribed time
- Ability to stay airborne for a prescribed period at any given time.

It is important that changes in task setting philosophy be done gradually, not abruptly.

Conclusion The committee proposes that CIVV encourage national aero clubs to increase the use and experimentation with alternative tasks with a high emphasis on pilot decision making skills in national and regional contests. See PROPOSAL C.

Other developments

Operational developments into other new areas have been discussed: two seater flying and team flying.

Two seater flying has become interesting again with the development of two seaters which are competitive with single seaters in the Open class. This is opening up a new dimension of gliding and should be encouraged. Seat/kilometre/price of these gliders is roughly half of seat/kilometre/price of single seat Open class gliders which make the operation much more acceptable to a lot of glider pilots, even though only one of the two on board can do the flying.

Conclusion The Open class should remain open to two-seaters.

Team flying has been practised in many championships with varying results, from excellent (Makula/Popiel) to not quite so good. Obviously, a special skill is involved, with heavy emphasis on cooperation and compatibility in ways of thinking and flying between the two pilots.

Team flying is also somewhat controversial. Some say that it should not be allowed because gliding is an individual sport. Others say that it should be encouraged, as it allows pilots to apply a special skill which increases their performance, especially under poor weather conditions. A solution might be to introduce team flying as a special and separate event in the championships.

Conclusion None. The matter might be suitable for a special study.

Positive Public Image

Today's gliding championships are not interesting to the general public. The competitors are unknown, the rules are complicated and the scoring system totally incomprehensible. However, the launch and especially the finish line crossings are spectacular events. What can possibly be done to our championships to make them interesting competitions for the general public, generating the positive public image that we would like to see? Several suggestions have been made:

Tracking

By having a system whereby the competitors' positions are known at all times, interest can be generated. A simple tracking system can be easily introduced by requiring the competitors to report the passing of all turnpoints. Only turnpoints reported and acknowledged by the organizers will be scored.

Simplified scoring

Our present scoring systems have, in the name of fairness, become more and more complicated. A fresh start must be made with simplified systems. With new tasks, a simple addition of kilometres flown will probably be sufficient. (See also Sporting Code, Annex C.3 and C.4.) Care should be taken that we do not end up with complicated systems once again.

Experiments on national and local levels should be encouraged.

Quick results

This is also important. The public and the media do not want to hang around until the next morning to know who the winners are. Even if the official results will have to await the film processing and the protest procedures, unofficial scores should be available immediately when the competitors cross the finish line. This may be possible even with the new tasks, with the introduction of tracking.

Team results, adding of scores

Although the addition of scores from separate classes in order to create a team result may be compared to adding apples and oranges, and has absolutely no sporting value, it should be seriously considered in the context of public interest. The battle between nations on the sports arena is often of more interest to the public than the battle between individuals, especially if these individuals are unknown. How to achieve fairness may be a problem. As the teams vary in size, the best method might be to rate the nations according to the average result of their participants.

Interesting winners

In order to generate interest in our championships and a positive public image, it is important that the competitors are known. This requires that the winners are willing to be interviewed, to talk freely about "How I did it", to answer stupid questions with patience and good grace.

The media conferences after other sporting events are usually rather dull affairs the competitors do not really have much to talk about. On the other hand, a media conference after a gliding competition day with the three best pilots telling about the day's adventures might be a thrilling experience.

The new tasks with return to base before a certain time limit (in time for the evening TV sportscast) will make the organization of such media conferences much easier. Instead of the morning briefing being the highlight of the day, the evening media conference will probably be the day's highlight in the future.

Sponsorship

It seems that gliding has become so expensive that the membership is unable to support the top pilots. This is a common problem in the world of sports, and sports sponsorship is today a business of \$US 2500 million per year. When some of this money starts flowing into gliding, it is important to use it in such a way that it benefits the worldwide development of the sport.

Exchange of information, friendship amongst glider pilots.

This objective is the last mentioned, but not the least important. Gliding championships have always been unique in their genuinely friendly atmosphere with competitors pitching in and assisting other competitors when needed, regardless of nationality. This is an important aspect of our sport and must be protected. Some of us are afraid that the introduction of team scoring may destroy some of the friendliness of our championships. Helping a pilot of another nationality might be construed as treason, as aid to the enemy. We must take precautions that this does not happen. Gliding will not be the same if the friendly atmosphere disappears.

Exchange of information is well taken care of by the OSTIV Congress at each WGC. However, social mixing and personal contacts are also important and special attention should be given to establishing social gathering points in central places during championships.

Conclusion Experiments with simplified scoring systems, tracking and evening media conferences should be encouraged.

NON-OBJECTIVES

Reduced expenses

Although a reduction of WGC expenses cannot be listed as an objective of our championships, it should have a heavy impact on all future CIVV thinking and organization of championships. Several ideas of achieving this have been put forward:

Larger participation in championships

To a certain extent, the expenses in organizing a contest are constant. A case may therefore be made for having as many participants as possible to share the fixed expenses.

Smaller championships

The exact opposite argument is that smaller championships are often happier, run smoother, and are less costly. To organize a WGC for one class and 40 competitors only, might be a much easier affair than organizing for three classes and 100 competitors. Another advantage with small championships might be that countries unable to hold a WGC for three classes might be able to organize it for one class.

Reduction of number of gliders

The expenses for participating national aero clubs are almost proportional with

the number of pilots in the teams. A smaller allowable number of pilots would ease the financial burden for many aero clubs. If more worldwide participation is achieved, a reduction in the number of allowable pilots per NAC must be made.

Reduction of number of crew members

Each competing pilot may now bring along three crew members. When the travel costs are high, a reduction to two would save a lot of money for airline tickets.

With the entry of a lighter and more manageable glider, the number of helpers might even be reduced to one per pilot.

Organizer-provided gliders

If enough gliders of the same type existed in a country, the organizers might be able to provide gliders of this type for all pilots in a class. Instrumentation might be standardized, organizer-provided, or pilot provided. It is cheaper to transport an instrument panel than a whole glider.

If the new proposed class is a success, this might be the normal method at least in this class in the future.

Sponsor-provided gliders

The possibility of having a sponsor providing the gliders for an event instead of cash (or the organizers buying gliders for the sponsoring money) should not be ruled out. The gliders might be sold at a discount after the contest.

Alternative launch methods

Elimination of towplanes and towpilots from the WGC organization would lower the costs considerably. The launch method might be self-launch (motorgliders) or car launch.

More spartan accommodation

A WGC could certainly be made less expensive to take part in if everyone agreed to be accommodated in tents, hopefully provided free by the local branch of the army. It is doubtful whether this step backwards would be accepted by many.

Introduction of handicap factors

This would make even older gliders competitive and de-emphasize the present equipment "rat race".

Qualification contests

Decentralized continental qualification contests might be held to reduce the number of competitors in a WGC. Quotas would have to be established for the various continents. Only the really best pilots from each continent would get to the WGC.

Qualification heats

With organizer or sponsor-provided gliders, qualification heats might be flown during the first half of the championships, in order to reduce the number of also-rans in WGC.

Radios

We have heard from Benalla that some countries needed a large ground organization to give their pilots information about

the start times of other competitors. This obviously counteracts the intentions of CIVV in introducing the "silent start".

The introduction of tasks with more route selection options may increase the value of a large ground organization spreading out across the contest area to give weather information. This counteracts the drive for less expensive championships.

In some countries, a common radio channel has been introduced for safety reasons. Maybe the time has come to do the same in WGCs. On the other hand, we know that many pilots turn the radio off so as to not be disturbed.

CIVV should perhaps reconsider the radio issue. Should one class, as an experiment, fly without radios?

Conclusion None.

Organizational Developments

It seems as if every time a WGC is organized, an even more elaborate organization is put up. Previous organizers of WGCs should get together and agree upon a common model, which has been proven to work efficiently, in order to assist future organizers. There are many details that are special to WGCs, which do not apply at a national level. A diary from a previous organizer with all his problems and solutions would also be a great help for an organizer with no previous experience from WGC organization.

A very realistic project for collaboration of organizers would be to exchange computer programs for scoring and score publishing. A common standard of reasonable sophistication (eg. IBM PC compatible) should be agreed upon.

Conclusion

- CIVV should ask a seasoned organizer of WGCs to make up a WGC checklist, timetable, and organization chart to assist future organizers of WGCs.

- CIVV should set up an international computer expert panel in order to facilitate exchange and standardization of computer scoring systems.

The Clean Slate

As a hypothetical thought experiment, the sub-committee members tried to imagine, if we did not have the present class structure for WGCs, if starting from scratch, what would our suggestions be for a future WGC class structure. Several models were proposed:

- 1 • Maximum performance class (approx. Open)
- Performance/price class (approx. Standard)
- Experimental class (approx. 15m)

- 2 Span-limited classes
12.5 m— 15m— 17.5 m
or 10m — 15m — 20 m

- 3 Weight-limited classes
250 kg — 500 kg — 750 kg

- 4 Span & weight-limited classes
12.5m/250 kg - 15m/500 kg - any/750 kg

- 5 • Novice/youth class (approx. Std)
- A "normal" class (approx. 15m)
- A class for research, poor conditions, and long/special tasks (approx. Open)

- 6 • A class with emphasis on inexpensive gliders, pilot selected soaring tasks
- A class with emphasis on closed circuit racing tasks
- An unlimited class, two-seaters

- 7 • A simple class less costly than current Standard class
- A medium class, 15 -17 m span
- An unlimited class

- 8 Wingloading-limited classes
25 kg/m², 40 kg/m², 55 kg/m²

Conclusion None.

Rule Changes

Several rule change suggestions were forwarded during the sub-committee's discussions of objectives.

Conclusion It was decided to forward some of the suggestions to CIVV as proposals. See PROPOSAL D.

PROPOSALS

The CIVV Sub-Committee for Championships Objectives makes the following proposals:

A PROPOSAL TO CHANGE THE CHAMPIONSHIPS OBJECTIVES

Background The present paragraph, A.1.1 is rather short and does not go into detail. It would be of value to have a more complete list of objectives listed somewhere. Annex A and the objectives paragraph stand out as the logical place to include a list of objectives, somewhat expanded from the present short list.

Proposal The sub-committee proposes that Paragraph A. 1.1 be changed as follows:

"The objectives of the Championships are:

- To select the champion in each competition class on the basis of the pilot's performance in the tasks set.

- To foster friendship, cooperation, and exchange of information among glider pilots of all nations — to promote the worldwide expansion and the public image of gliding.
- To encourage the technical and operational development of the sport."

B PROPOSAL FOR A NEW SINGLE-SEAT GLIDER CLASS

Background Gliding today is performed in about 50 of the world's 175 countries. Active pilots amount to about 120,000, flying 24,000 gliders. These are not large figures: 70% of the countries ignore gliding. Moreover, it seems that in most "gliding" countries a stagnation is felt, and in some countries even a loss of members has taken place.

Although gliding has a much higher percentage of participants taking part in competitions than most other sports, the percentage of competition pilots is estimated to only about 10% of the number of active glider pilots.

A lack of participation in WGCs from various countries with healthy gliding movements has been experienced during the last ten years. The reason may partly be the escalation of entry fees and expenses, partly the inability to participate with competitive gliders. Taking part with equipment other than the latest development in the class gives no chance to win.

Past experience shows that most manufactured gliders have been designed to the specifications of the classes flown in WGCs. This has never been the intention of CIVV and efforts have been made to modify this tendency eg. the Club class. So far these efforts have not been very successful. The effect of the heavy domination of competition gliders in the market is that gliding clubs and other owners of gliders have normally bought second-hand competition gliders. Although this has had the very beneficial effect of having gliders of excellent performance in club use, it must be conceded that these gliders are not too well suited for this kind of use.

A reason, and a consequence at the same time, for the situation outlined above is the high cost of the actually produced gliders. They are expensive not only because of their design requirements and sophisticated technology, but also for the reason that the cost of developing a new prototype has to be charged upon a limited number of gliders produced (usually a few hundred in a few years). In fact, after a few years' time, this glider is superseded by a new one of better performance.

The cost of gliding, however, does not only reflect the price of gliders. In the past years we have also seen a rise in the cost of glider operation. The cost of equipment on board (instruments, radio, computers), trailers, launching equipment (towplanes, winches), infrastructure (large hangars) have risen considerably.

A single-seat glider with a lower weight and wing loading, with a reasonable performance, suitable for production anywhere and unchanged for a long period of time, could be available at a substantially lower price, would suit the general use more satisfactorily and would provide one of the basic conditions for the expansion of gliding worldwide.

Proposal The sub-committee, after studying and discussing considerations and suggestions coming independently from different persons and countries (Paul Schweizer and SSA in the USA, Miguel Conde in Argentina, the Aero Club of Italy), has reached the conclusion to submit to the next CIVV meeting (March 1988) the following proposal: to add to the existing class structure a new single-seat glider class.

The new glider should be light, of substantially lower cost than existing gliders, of good reasonable performance, easy and safe to handle in the air and on the ground.

This glider should be selected after a competition of prototypes designed according to a given specification, based on ground and flight evaluation.

The winner should be a glider possibly suitable to be constructed of different materials (composites, metal, wood, wood/fabric) and/or construction methods in the full respect of the external geometry (including wing and tail sections) and of the empty mass. The low cost should not only come from the reduced size and weight, from the simple construction and ease of ground handling but also from the possibility to manufacture it anywhere and to the restraint that such a type would remain unchanged for a long period of time (eg. 20 or 30 years).

There should be world and continental championships for this class.

The name of the new class could be "World Class". The sub-committee would recommend this name rather than that of "Olympic Class", which has also been suggested: the reference to the Olympic Games might generate confusion at the present time, as the entry of gliding into the Olympics is still undecided. Proposed time scale is:

March 1988 (or later) CIVV decides to create the "World Class", gives the guidelines and asks some suitable technical group of people to propose the technical specifications.

October 1988 (or later) CIVV decides upon the specifications and announces the competition.

Within October 1990 (or later) An evaluation group appointed by CIVV compares the prototypes and makes the selection.

Shortly thereafter Drawings defining the external geometry of the glider are made available to any individual or firm intending to manufacture one or more gliders, or kits.

Within 1991 (or later) CIVV announces Continental and/or World Championships for the new class.

C PROPOSAL REGARDING ALTERNATIVE TASKS

Background Gliding Championships tasks have, in recent years, been mostly closed-course speed tasks. These tasks emphasize a limited number of pilot skills. The sub-committee feels that in the selection of gliding champions, emphasis should be placed on the widest possible spectrum of pilot skills.

Proposal To emphasize a wider spectrum of pilot skills, the sub-committee proposes that CIVV encourage national aero clubs to use and experiment with alternative tasks in national championships and regional contests.

These alternative tasks are:

- The Sporting Code's Annex B.2.1 to B.2.4 tasks
- The Time Limited Speed Task
- The Pilot Optional Speed Task (POST)
- Tasks suggested by the Swiss Aero Club in a paper of 24 Nov 87 and other tasks with high emphasis on pilot decision making.

An additional benefit would probably be a reduction in number and size of gaggles in competitions.

It is essential that the scoring system employed ensures compatibility between the various types of tasks used on different days in the competition. Parallel calculations with various scoring systems should be encouraged.

The alternative tasks may be used in the 1989 WGC, but only if extensive positive experiences at international and/or national levels are gathered in the 1988 soaring season.

D PROPOSALS REGARDING CHAMPIONSHIPS RULES

Background During the meetings in the CIVV sub-committee for Championships Objectives, several rule change and clarification suggestions were discussed. Although lying somewhat outside the committee's assigned mandate, it was considered of value to forward the conclusions as proposals to CIVV.

Proposals:

- A maximum start altitude for photo start may be set at the organizer's discretion.
- A minimum time between start photos (eg. 20 minutes) should be set.
- Multiple start points in a class may be used at the organizer's discretion.
- An early closure time for the start line may be set.
- A penalty guideline scale must be introduced.
- For the alternative tasks, geographically fixed photo sectors (similar to the Rieti method) must be used. □

THE 1988 CIVV MEETING

Excerpts from the report to SAC

Jim Oke
SAC CIVV delegate

The annual CIVV meeting was held this year in Vienna, Austria on 25-26 March at the invitation of the Austrian Aero Club. Both Colin Bantin and myself attended on behalf of Canada. The main points of interest were movement on the introduction of a new glider class and the CIVV's reaction to the FAI's proposal on the commercial sponsorship of aeronautical sporting events. The meeting occupied two full days and could profitably have used more time. Due to those signs of agenda overload and the positive impression of the meetings of the Competition Objectives sub-committee in Frankfurt last fall and winter, interest has developed in the holding of more frequent CIVV meetings and London, England was chosen for a fall meeting in October this year. The next full CIVV plenary meeting will take place in Paris in a year's time.

Mr. Bill Ivans of the United States was again in the chair assisted by Dr. Cenak Kepak, the Director General of the FAI. Mr. Ivans has held this position for some time now; apparently he has suffered from some health problems in the past year as he expressed an interest in seeing a First Vice President appointed to assume his duties in the event he was unable to continue his duties in the future.

Tor Johannessen reported on the proceedings of the FAI General Council in Stockholm in October, 1987. He had attended a meeting of the Chairmen of the various FAI Technical committees where one point of discussion was a recommendation to adopt simpler scoring and rules to aid in the grasp and understanding of aerospots by the public at large. This was felt to be of importance for the possible entry of gliding in the Olympic Games. At the main Council meeting, it was decided that the Technical committees should use more descriptive titles, such as "International Gliding Commission", vice French language acronyms such as CIVV. The FAI Statutes are under revision and various drafts have been circulated with approval of a final version possible later this year.

Tor Johannessen then continued with the Rules sub-committee report. The proposal made a year ago that altitude records be based on a fixed increment above the old record vice a percentage had not been acted on by the CASI sub-committee. The Bureau was opposed to this proposal citing input from OSTIV that present barograph technology could not support

such an approach from a technical standpoint. The Russians again had several proposals forward for consideration, namely, a change in the class structure, a set of pilot experience "on glider type" requirements for world contest entry, several new world record classes consisting of two laps of 100, 300, and 600 km courses, a proposal to limit the entries allowed per country in a world contest, and a proposal for a new FAI gliding badge. These proposals were all either rejected by the Bureau or referred to other sub-committees for action.

In view of the controversy over the rejection of certain record claims by the FAI last year, a set of standard record claim forms has been adopted and will be distributed to the national aero clubs in the near future for local reproduction. Although specifically intended for world record claims, there is an obvious application for these forms in handling national record claims. A set of standard FAI Badge claim forms is also under development. Last year, a special CIVV sub-committee had studied the documentation submitted on behalf of several speed record claims by a Swiss pilot flying in South Africa and had recommended rejection of the claims. Since then, the Swiss Aero Club has entered an appeal over the rejection of their pilot's record claims; an FAI Appeals Tribunal will meet in the near future to consider this appeal.

There was some controversy over class definitions for the 1989 Feminine Championships in the USSR, the Russians proposing to have the usual 15 metre class and an effective "one design" Standard class using the Polish Standard Jantar. This was opposed by all of the western European countries as a ploy by the eastern bloc to keep out modern Standard class gliders. Eventually, after much discussion, the Russians agreed to the usual Standard and 15 metre class rules.

Finally, a new edition of Section 3 (Glid-ers) of the FAI Sporting Code has been prepared. Preliminary copies were distributed for inspection with comments to be submitted by 31 July. Copies will be sent to Russ Flint, Larry Springford, and Tony Burton for their evaluation; Colin Bantin will collect these comments and prepare a consolidated Canadian response to the Rules sub-committee.

A major agenda item was expected to have been CIVV action on the recommendations of the Competition Objectives sub-committee which had been formed by the previous CIVV meeting. This sub-committee had met informally several times during the year and produced a lengthy

report recommending, among other things, that a new single design glider class be created in addition to the existing class structure, surely a highly significant development for the future of gliding. However, upon returning from a leisurely lunch after a morning of miscellaneous business, the meeting was informed that Tor Johannessen (the author of the committee's report) had to leave very shortly and so debate on this very important topic was effectively to be limited to some twenty minutes or less!

The most significant proposal from the sub-committee was for the creation of a "World Class" type of glider to become eligible for competition along with the existing classes. Gliders designed to this specification are supposed to be lightweight, substantially cheaper than current competition sailplanes, and be safe and simple to fly. The concept of a single design class was discussed in the report but not stated as a distinct goal. The proposed timetable called for the rules for a design contest to be established by October 1988 with the evaluation of entries to be done about October, 1990 and initial competition in the new class to begin after 1991.

Discussion and debate of this proposal was cut short by the chairman in order that a decision might be taken before Mr. Johannessen's departure. The point was made that this proposal had been put together in the course of several lengthy meetings with quite wide attendance and that further debate was "not required". A vote was called for and a general motion to support the content of the sub-committee's report passed. Pierro Morelli of Italy is a member of the OSTIV Sailplane Development Panel and was asked by the Bureau to head the group drawing up the rules for the "World Class" design competition. These regulations will be approved at the October CIVV meeting (although at this point in the proceedings, the fall CIVV meeting was just a proposal and had not been confirmed). In my opinion, this was a most unsatisfactory way to introduce an idea which carries with it considerable potential to influence the development of gliding for the next few decades. A stronger motion expressing support for the idea of the "World Class" would have been more desirable.

Subsequently, two other portions of the sub-committee's report dealing with amendment of the wording of the Sporting Code section stating the goals of gliding competition and alternative contest tasks received some perfunctory debate and were adopted. Another debate on certain details of world contest rules petered out with no decision being taken.

The gathering was then briefed on the preparations underway for the 1989 World Championships. The May '88 pre-world contest (actually the Austrian Nationals with some foreign participation invited) is expected to be a valuable proving ground both for the organizers and visiting pilots. Of special interest was news that the Hungarian government has consented to the use of up to a dozen turnpoints in Hungary for the actual contest (with some airspace restrictions to apply). The organizers stated an interest in and capability of accepting up to 120 entrants in the Championships. This made last year's motion limiting World Contest entries to a total of 90 rather a nuisance so it was decided to reverse last year's ruling as a premature reaction to the Benalla contest and allow entries to the maximum acceptable to the organizers. There was no discernible discussion about the distribution of the available entry positions amongst the participating aero clubs, so my recommendation would be that up to six Canadian entries (three in each of the 15 Metre and Standard classes) be actively pursued. There was no mention of South African participation during the meeting and I was not able to gain any fresh insight into this sensitive subject in informal discussion outside the meeting. François Ragot warned again of the dangers of flying in the Austrian mountains by recounting the story of a very experienced French pilot who had written off an Open class ship in an outlanding. This seemed to attract no special interest from the meeting this time around.

The 1987 Hitachi-sponsored "Masters of Soaring" competition was held in Arizona with good weather and a high standard of flying (as might be expected from an invitational event with 18 entries including all three current world champions). A similar event will be held in Florida in May, 1988. There was no mention this year of the issue of CIVV sanction or recognition for the event.

The popular Barron Hilton Cup competition continues with the biannual prizes to be awarded this summer. Attention was drawn to the need for a high standard of flight documentation for entries to be eligible. To produce a better "mix" of winners, a rule has also been introduced limiting the maximum number of winners per country to three.

The Europeans are developing quite an interest in lengthy cross-country expeditions. In the 1987 Trans-European Glider Trek, two pilots actually completed the full course of 2300 kilometres. A similar event is planned in 1988 beginning in Belgium.

The topic of gliding in the Olympics received only cursory interest this year. The International Olympic Committee has funded the production by the FAI of an attractive brochure explaining the basics of the three Olympic Aero Sports, limited copies are available from the FAI for official purposes. It was announced that, despite the positive indications given last year, sport parachuting will not appear as a demonstration sport in the Barcelona Games in 1992. A strong effort had been

made by the parachutists to have their sport included but to no avail. There was no discussion of what approach or position might be taken by the FAI for the 1996 games (or beyond). The only really substantive development was the appearance of a representative of the Glider Aerobatics sub-committee of the International Aerobatics Committee (CIVA) of the FAI. The glider acrobatic pilots see their sport as particularly suitable for inclusion in the Olympics from a visual impact and audience interest point of view and effectively served polite notice that they intend to pursue such a proposal on their own initiative. Since CIVV relinquished all interest in glider aerobatics to the CIVA some years ago, there seems little that CIVV can do other than be obstructive which seems hardly sporting. The next glider acrobatic championships will take place in Yugoslavia this fall.

It is not suggested to abolish our present classes, but to fill the performance gap below the Standard Class, which has not been explored with modern materials and technology.

France has taken the initiative for the organization of a first European Junior Championships in 1989 and will submit a detailed proposal to hold this competition at the fall CIVV meeting. France will also repeat the "Grand Prix de Luchon", a short closed-course race at a ridge site staged for television broadcast, and invited CIVV observers to attend.

Bernald Smith reported on the activities of the Advanced Soaring Badge sub-committee he had been asked to lead. Various proposals for a follow-on badge based on such performances as a 750 km triangle flown at a speed of 130 km/h or greater had been submitted. Another alternative was to have a floating badge based on a certain percentage of the current world's record for speed or distance. One rather different proposal would have a special symbol added to the existing badge when a pilot has flown a cumulative distance (perhaps counting only flights greater than 300 km in length) of 40,000 kilometres which approximates the circumference of the earth. One drawback is that this award would require about one hundred and thirty 300 kilometre flights to be recorded for each pilot which would create a significant paperwork burden. The sub-committee is still assembling ideas and had no formal proposal to put forward. It was mentioned that re-evaluation of the current badge performance levels was considered and firmly rejected.

The agenda item dealing with the FAI's financial administration proposal was, in contrast to the definition of a new glider class, rather fully debated. Essentially, the FAI Council is seeking new sources of funding to increase the FAI's profile in the aviation community. A previous attempt to increase the dues payable by the national aero clubs was rebuffed and so the FAI Council is now pursuing com-

mercial backing of selected sport aviation events as a source of funds. A conflict arises in that the FAI intends to claim all revenues that may arise from commercial sponsorship of an event for distribution as the FAI Council sees fit which may or may not include the organization directly involved in hosting the event. Bill Ivans, as head of the CIVV, has decided to speak out against this move as he considers it contrary to the best interests of the gliding movement. One suspects that the Soaring Society of America has worked very hard to cultivate commercial sponsorship for the 1991 World Championships (eg. the Hitachi Company) and would likely be the first to suffer an effect on its funding should the FAI's plan come to pass. Bill Ivans is doubtless close to the SSA's organizational efforts for the 1991 World Contest which may explain his strong reaction as CIVV President.

Knowing the interest of Mr. Ivans in this issue, the FAI President, Peter Lloyd had prepared a speech for presentation to the meeting. Briefly he defended the sports marketing proposal as being a positive move towards revitalizing the FAI and promised no ill effects would befall the organizers of any gliding event. He noted that the Presidents of the various FAI Technical committee's (such as Bill Ivans) had been granted additional powers and indirectly claimed the FAI Council to have been instrumental in gaining access to Hungarian airspace for the 1989 World Gliding Championships (this was not independently confirmable however). Thus, the onus was on the CIVV to respond in kind and cooperate with the FAI proposal. If the gliding movements in certain countries (the United States was specifically mentioned) were not on good terms with their national aero clubs, that was regrettable but should not be allowed to stop progress for the FAI as a whole.

After the meeting was given time to digest Mr. Lloyd's speech, discussion began with a series of delegates speaking in opposition to the sports marketing proposal. Most saw it as an unwelcome intrusion into CIVV activities for no apparent benefit to the gliding movement. It is apparent that the FAI regards the sports marketing proposal as a *fait accompli*, for instance, the (draft) revised FAI statutes specifically claim promotional rights to all FAI sporting events for the FAI as a whole. It was clear too that, as Mr. Lloyd had alluded to, many national gliding organizations have little use for their national aero clubs (the relationship of SAC to the Aero Club of Canada is indeed fortunate in this regard). In my view, the pursuit of commercial sponsorship would be a large step down the road to professionalizing the sport of gliding which most would likely see as undesirable; I spoke briefly to this effect at the meeting. Regrettably, gliding has developed in such a fashion that participation at a high level (ie. world competition) has been priced out of reach of the average glider pilot, making some form of sponsorship (government or commercial) almost mandatory; whether CIVV action could have forestalled this situation is debatable.

After much discussion, John Roake of New Zealand framed a motion stating the CIVV to be strongly opposed to the sports marketing proposal and requesting that the proposal be put in abeyance for at least a year. This was passed by a large majority. John Roake was then asked to chair a CIVV subcommittee to examine the situation and report upon the available courses of action to the fall CIVV meeting. What the FAI Council's reaction is to this largely political statement from a "technical" committee remains to be seen. The diversion of effort from other pressing concerns to a confrontation with the FAI Council is obviously regrettable. The position of the other FAI Technical committees or commissions will obviously influence how far the CIVV's opposition will go.

With regard to airspace matters, the subject of priority right of way for gliders over power traffic was raised again. The ICAO airspace panel has solicited views on this subject with a deadline of 30 June 88. We were asked to be certain that our national aero clubs had indeed provided some comment by that date. In response to the previous French objections to this proposal, a compromise was put forward that would give gliders the right of way over power aircraft below perhaps 2000 feet above ground, reverting to equal status above this figure.

The OSTIV Flight Training and Safety Panel has met several times to discuss aerotow safety problems and spin training. Approximately three fatal aerotow upset accidents are reported each year; new training methods, glider design changes, and mechanical safety devices are thought to be the necessary ingredients for a solution. The Sailplane Development Panel has cooperated in the technical analysis of the aerotow problem and has done some initial thinking about the upcoming "World Class" design

competition. The OSTIV investigation of flight verification methods has explored the available barograph technology and will be proposing a method of barograph certification in its report. One of their findings is that current barographs are not sufficiently precise to allow use of a one percent rule for new altitude records.

Justin Wills was an invited observer at the meeting and was doubtless present as a consequence of the critical paper on competitive gliding and certain perceived deficiencies of the CIVV which he wrote last year. He was invited to address the meeting but chose not to proceed from his earlier comments. Instead, he gave a very eloquent talk on his view of the nature of competitive soaring emphasizing the qualities of individuality, freedom, and egalitarianism and calling for action to preserve these qualities in the future (see text on pp 14).

There were three offers to host the 1989 CIVV or rather, "International Gliding Commission" meeting. The Netherlands offered relatively inexpensive accommodation at their national sports training centre in rural Holland, France offered to organize suitable hotel accommodation in Paris, the traditional FAI meeting place, and New Zealand promised to organize several days of sightseeing in that country in addition to the meeting if it were held there. When put to a vote, France was selected. I suspect that most CIVV delegates are European business travellers who cannot afford the time to travel to the southern hemisphere and have little interest in the joys of the Dutch countryside and Spartan living. The dates of 17-18 March were set tentatively.

The matter of a fall CIVV meeting was never actually put to a vote, but seemed to have been adopted almost by osmosis. A British offer to host a meeting near London on 21-22 October was accepted. The terms of reference for the fall meeting were not announced although the implication was present that binding decisions would be taken only at the spring meetings. Where this leaves action on the "World Class" design competition, for instance, is unclear. If extensive discussions are to take place at the fall meeting to be simply "rubber stamped" at the spring meeting, the introduction of the fall meeting has serious implications for countries who are less able to send delegates to Europe regularly for reasons of time or money. On the other hand, and in view of the agenda overload seen at the last several meetings, the introduction of an additional working session may well prove to be a desirable thing.

Thus, the meeting ended with positive action being taken towards the introduction of a new glider class, although the lack of serious debate on this important step was quite disappointing. The development of the rules for the "World Class" design competition will essentially set the guidelines for the new class and this process needs to be watched carefully to ensure that a reasonable course is set. The debate over the FAI Sports Marketing proposal took up a lot of valuable time. This development may fade fairly quickly or it may be around for years to come depending on the reaction of other concerned parties. The reversal of last year's position on the number of permitted entries to World Contests is probably a good thing, but does not show the CIVV in a very strong light as decision-making body. The introduction of an annual fall meeting will hopefully allow more issues to receive appropriate attention in the future. □



Hard at work at Environment Canada

WOOD IS (STILL) GOOD

A VISIT TO THE K-13 WORKS

Tony Burton

During an early spring visit to Germany, Ursula and I were staying an hour's drive away from Oerlinghausen, the site of the largest gliding operation in the world and the factory which now produces the venerable K-13 trainer under licence from Schleicher. (For more details on the gliding at Oerlinghausen, see the *Hangar Flying* page.) Having previously visited the Schleicher factory, the original designers and builders of the K-13, we knew that they had ceased production of the trainer when they switched over to glass ships, but still built the steel tube fuselage and other welded components for the licencees, Sportflugzeugbau Jubi.

I did much of my early gliding training in a K-13 in 1968, as have many others since then, and I was curious how wooden gliders are put together and why there is still a strong market for this glider today in a training environment shifting to glass and higher performance. We visited the Jubi gliderworks on 5 May and were granted an interview by the owner, Herr Krane, and given the run of the place for photos. The interview, with Ursula translating, follows:

free flight Herr Krane, how did you come to build the K-13?

Krane The company began with the repair of wooden gliders, particularly the Swiss "Elfe", and repair is still our major occupation; however, it has a seasonal cycle. I was looking for new business to fill in the slack periods when Schleicher stopped production of the K-13 in 1979 (to concentrate entirely on glassfibre production). When I approached them to continue the production here, they were pleased for me to do so. I was hoping to build about three to four a year in order to keep my skilled workers fully employed, but today we are making eight to nine a year, and export many of them to Japan, Great Britain, Austria, and Switzerland.

ff Why is the K-13, a 25 year old design, still marketable today?

Krane Because it is still an excellent trainer which has lower purchase and repair costs than current fibreglass two-seaters. Clubs can still do a lot of their own minor repairs on wood and fabric. It is not used for extensive cross-country, and most clubs can support this use by a simple (cheap) open trailer. Also, it is about 50–60 kilograms lighter than the glass trainers and is therefore easier to winch launch. (Although he didn't mention it, even clubs which are converting to glass fleets are keeping a glider such as the Blanik or K-13 for spin training because the current glass two-seaters have "reluctant" spin characteristics while the new single seaters that pilots will graduate into do not.) For these and other reasons for which the age of the design is not important, I believe that the K-13 will have a place for some time.

ff What does the K-13 cost?

Krane DM55,800 (Cdn 41,300 today) at the factory, no instruments or trailer. This compares with DM66,000 for the ASK-21, for example.

ff When you compare the performance of the two, that doesn't seem to be much of a difference?

Krane But these are the bare factory prices, you realize. After a club has added the instrumentation appropriate to the use the two gliders will be put, trailers, etc. the price difference of the total system is greater; furthermore the cheaper operating costs of the K-13 will increase the overall cost difference even more.

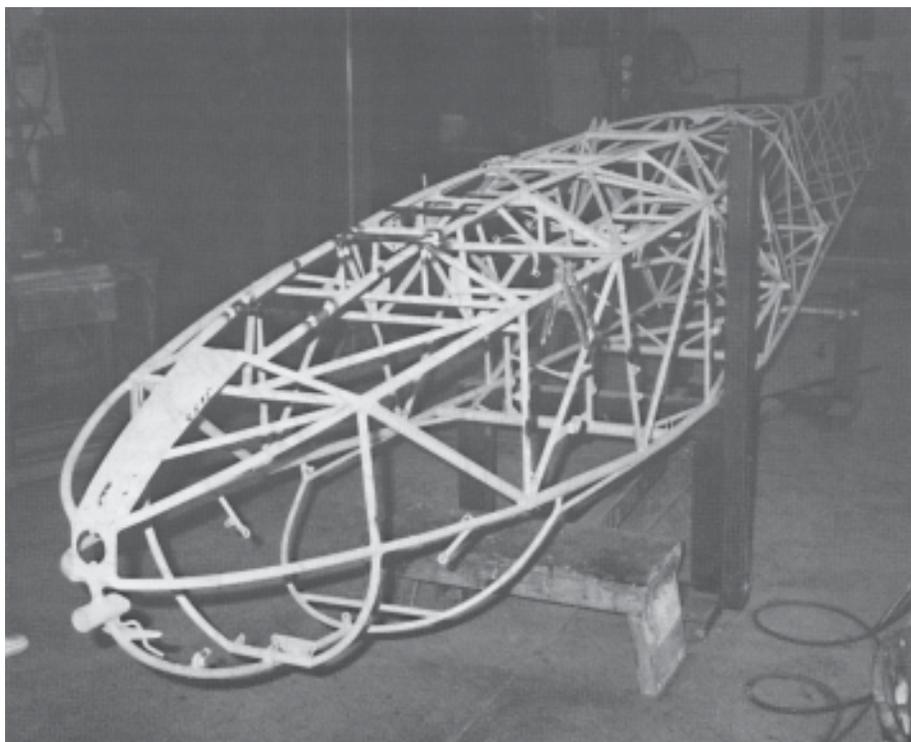
ff How many K-13s have you built?

Krane 50 have been delivered and we have ten more in production and on firm order.

ff How long does it take to build?

Krane Our production time is about 600 hours and Schleicher's is about 200 hours on the fuselage frame, control system, and fittings.

ff What modifications have you made to the original design?



The K-13 fuselage frame, as received from Schleicher, is being modified for a nose wheel installation.

Krane We can supply the customer with any skid/wheel combination desired with a hydraulic brake, although the recent nose/main/tail wheel system is popular. The major "cosmetic" change is covering the fuselage to the position of the wing trailing edge with a non-structural fibreglass skin. This eliminates the maintenance and fabric repairs produced by mishandling and minor accidents by pilots in the cockpit area. We also use fibreglass wingtips now, and include a VHF antenna in the vertical stabilizer. There have been no structural or aerodynamic modifications; it is a good design, so why change it.



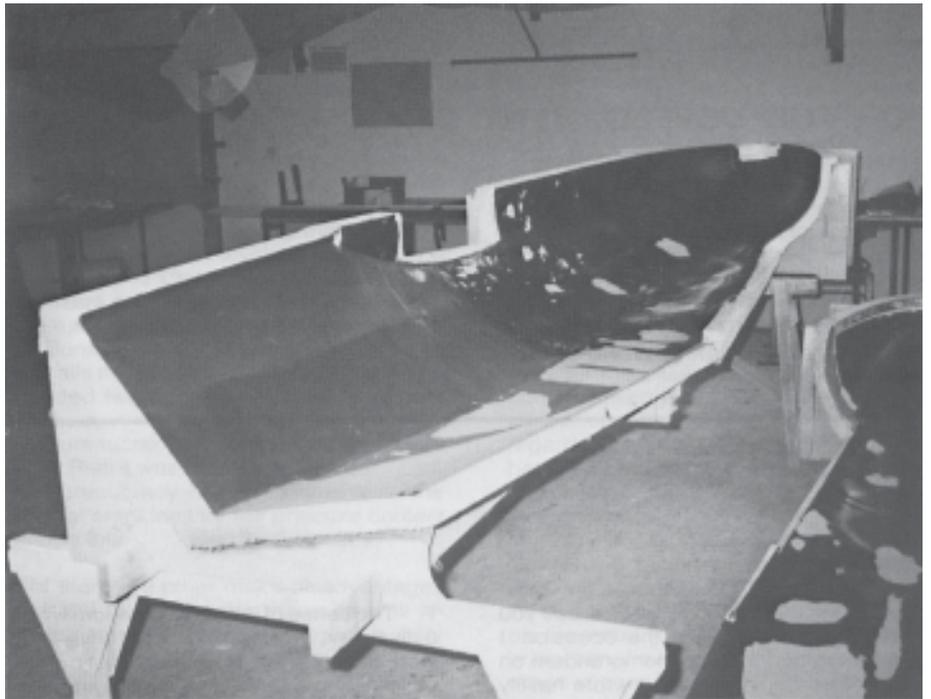
The massive wing spar is shown in the jig prior to the second shear web being glued on. Many spacers between the spar caps relieve compression loads from the web.

ff Do you have any problems in getting good wood and other materials today?

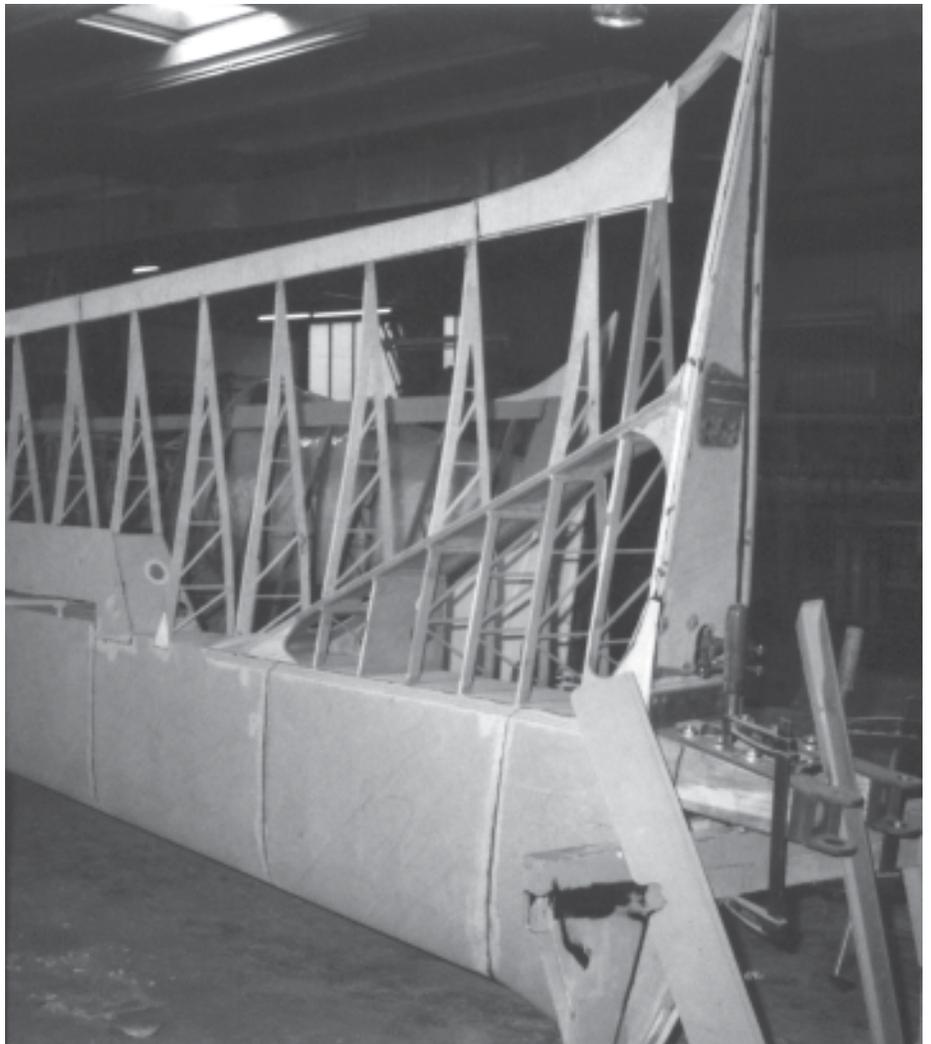
Krane The aircraft grade plywood comes from Finland and there is no problem there. The timber used is mostly Polish spruce, and its quality is good, although there are delivery delays at times. Sweden is a reliable source for spruce and it is cheaper but the quality is poorer, so by the time the unacceptable portions have been cut away, there is no real saving. It is a problem. We use the best glues currently available for wood and we still use cotton fabric — the synthetic fabrics we have tried are more difficult to use with wood, but we will use what the customer orders.

ff How long do you think clubs will be interested in buying K-13s?

Krane Well, we are staying busy. We're six weeks behind right now, and we have spent nothing on glossy advertising — all our business has been through word-of-mouth. As I have said, the glider fills a needed niche in club training, and the price is competitive. As I see nothing better coming to replace it, I think it will stay popular for some time yet. □



The empty mold for the fibreglass front fuselage shell is being cleaned and rewaxed in preparation for the next lay-up.



The last stages of the structural work progresses on the wing. Aileron and spoiler controls to be installed, and plywood skin in the triangular area between the main and drag spars.

A PHILOSOPHICAL FRAMEWORK

FOR THE DEVELOPMENT OF COMPETITIVE GLIDING

Justin Wills
printed with permission

Text of the closing address to the 1988 CIVV Conference on 25 March.
Justin Wills is a leading World competition pilot on the British team.

Mr. President, members of the Bureau, and international Delegates, I am most grateful for the invitation to address you all, and am honoured by the occasion. I never imagined that my memorandum on competitive gliding, which I wrote hastily for my team manager on our return from Benalla, would result in my being here today. In view of some of the remarks I made about the CIVV perhaps I should say at this point, as a measure of self-protection, that I am not going to make any further comments on the structure and constitution of CIVV now!

Having played some part in initiating a debate on the future direction of competitive soaring, I have read with interest the reports of Tor Johannessen's (CIVV) sub-committee, and have followed the initiatives taken in Norway, Switzerland, and the USA. They confirm the view expressed in my paper that the gliding movement has all the necessary energy and imagination to continue to shape its own future.

As a current competition pilot, I naturally have views on topical subjects such as the redefinition of classes, alternative types of tasks, improved start line methods, and so on, but provided there is a clear understanding of the overall objectives, I am fully confident that a satisfactory consensus amongst the international soaring community can be reached on all these matters. It is the establishment of a *philosophical* framework that I would like to suggest today.

I think there is a general acceptance of the view set out in my memorandum that competitive gliding has an enormous influence on the whole gliding movement, and therefore, a responsibility towards it. Accordingly, the underlying objectives of competitive gliding should embrace those of gliding generally, or at very least not run counter to them. This begs the most fundamental question of all: "What are the special qualities of gliding which make it such a distinctive and appealing sport for all its participants?"

There are probably as many answers to this question as there are glider pilots, but I believe they can be condensed into the following three areas:

1 The sense of individual freedom within a discipline imposed by natural laws. In an increasingly crowded world, full of correspondingly greater regimentation and conformity, gliding offers the individual the freedom of the sky, to pilot his machine, and exploit atmospheric energy as he thinks best within the natural laws of gravity and elemental forces. This essential quality of gliding gives rise to other important aspects, including:

- the sense of self-determination and self-responsibility. Possibly the obvious responsibility of pilots for the outcome of each flight has contributed to the remarkable tradition of the gliding movement being administered by glider pilots, and is evidenced by the great concern regarding developments at FAI which we discussed this morning;

- the sense of egalitarianism. Gliding appeals to a wide spectrum of people. Natural laws do not discriminate between individuals on the grounds of race, colour, creed, political outlook, sex, wealth, or age. You cannot buy a thermal, nor can you seduce one, although many of us often pray for one!

2 The belief in the intrinsic good of the sport that its beauty and the special fascination of flight enhances the lives and spirits of those who participate in it and encourages the best of their human characteristics such as initiative, flair, energy, enterprise, and intelligence.

I think glider pilots genuinely believe in the expression: "If there were more glider pilots in the world it would be a better place", and this helps explain their wish to communicate the enjoyment of the sport to others.

3 The extraordinary degree of cooperation, friendliness, and goodwill that exists within the gliding community at all levels: club, national, and international. This arises partly from the small size of the movement, from sharing the "evangelical" quality and the love of flight described earlier, and also from the considerable degree of cooperation that has to exist to enable a glider to fly at all.

I believe that the objective of competitive gliding should be to preserve and encourage these essential qualities of the sport.

I would now like to apply this approach to some of the current discussions regarding the future development of competitive gliding.

I described earlier the individualistic quality of the sport. I think this is irreconcilable with a team approach, and that therefore team prizes should be avoided. Likewise, situations that give rise to formalized pair flying should be discouraged, and information from external sources to pilots during flight should be as limited as possible consistent with safety. Gaggle flying transgresses the qualities of individuality, self-determination and initiative, so it is hardly surprising that the majority of pilots dislike it so much. All possible steps should be taken to avoid it.

The quality of freedom suggests that pilots should be able to demonstrate their skills over the widest possible spectrum within the natural constraints of the laws of gravity and elemental forces. Contests should be devised accordingly: venues should be chosen to provide a variety of conditions, and different venues should be selected in succeeding years. The tasks themselves should be varied, and alternative types should be introduced.

At the risk of being thought to be deliberately controversial, I would add my belief that those countries which have retained the right for gliders to fly in cloud have preserved an aspect of the sport without which it is greatly impoverished. In the UK we can and do regularly fly in cloud during competitions under conditions which competitors regard as safe and effective. I urge those countries where such flying is still permitted to exercise this freedom so that it may be preserved.

contribute either on a regular or rota basis. This, coupled with smaller entry lists, will contribute enormously to cheaper, more friendly contests without necessarily any loss of competition quality.

This brings me finally to the discussion regarding the Olympics. As will be guessed from my remarks about contest organization, I am totally opposed to soaring becoming an Olympic sport. Apart from the sheer mechanistic difficulties of arranging championships at the same time and location as an Olympic Games, I believe participation would conflict with practically all the essential qualities of cross-country gliding. It would raise a host of distinctions that the gliding community regards as irrelevant, such as those between amateur and professional, male and female, and supposed political convictions, whilst involving misplaced conceptions of national pride, and the whole Olympic bureaucratic juggernaut.

To those who advocate joining the Olympic movement on the grounds that it would bring beneficial publicity to our sport, I would suggest they are mistaken. At best, it would provide a public spectacle of soaring totally alien to the true nature of the sport, at the risk of debasing the fundamental qualities on which it depends together with the loss of its control. Furthermore, I believe the public is no longer so impressed by the Olympic spectacle. It is significant that the participant who received the most media coverage at the recent Winter Olympics was 'Eddie the Eagle' — the British ski jumper whose obvious inexperience was so great that he aroused the sympathy of the crowd who could identify with his efforts, to the substantial exclusion of the other slicker automatons who gained the medals. If I were on the IOC I would advocate restricting future Olympics to the original Grecian sports of running, jumping, and throwing.

I am conscious of having subjected you all to my views based on my innermost beliefs. I feel I should apologize — at least for the un-British nature of this approach, but there are times when an individual or an organization should nail its philosophical colours to the mast. I will therefore end with two personal observations.

The word freedom for me is a positive concept, implying that everything is permitted unless specifically proscribed. All too often regulatory bodies proceed from the opposite perspective.

The word discipline has two meanings: the discipline imposed by the laws of nature is the discipline of retribution if the laws are transgressed. If a glider is flown near the ground with inadequate airspeed it will crash. At school, we called this the discipline of the cane. But discipline exercised by mature intelligent people amongst themselves comes from the word disciple, one who follows his leader because he believes in him and trusts him. It is this leadership by example that the gliding movement needs from the competition community, and ultimately from those of you gathered here charged with governing that community. □

I believe the most disturbing aspect of modern world championships has been the enormous growth in the size of the championship's organizational bureaucracy. It has been reported that up to 130 people have been involved in running a recent world championships — 1.25 organizers per contestant. Everyone knows the rules of bureaucracy:

- Bureaucracy begets bureaucracy — at Benalla the British team manager found he needed two additional deputy managers to cope;
- Bureaucracy is not necessarily efficient — at Rieti it was, in Benalla less so;
- Bureaucracy is very expensive — the cost of entry fees for the principle contest shows this.

But there are other major disadvantages of large bureaucracies, however well intentioned, when applied to gliding contests.

- Bureaucracy is divisive — a feeling springs up of 'them and us' which is completely foreign to gliding, with its history of pilot involvement in every aspect of the sport.
- Bureaucracy produces a sense of formality and inflexibility — pilots lose their sense of self-determination and individuality.
- Bureaucracy can appear self-serving leading the pilots to question for whose benefit the competition is being held.
- Bureaucracy has a tendency to promote pomp and ceremony unconnected with the sport itself. At both of the recent World Championships I have marched around an arena preceded by a girl dressed in white — although what quality of gliding she is supposed to represent other than my inability to carry a plaque bearing my country's name I cannot imagine! — and variously listened to demands for workers' rights, good wishes from politicians and observed, whilst melting under the Australian sun, the extraordinary sight of mini-kilted majorettes strutting to the accompaniment of bagpipes!

Seriously, I believe there is a real need for World Gliding Championships to provide a public spectacle to those who are interested enough to come and watch. But this should be aimed at presenting gliding as it really is. I would like to suggest that a special type of new task is devised which would enable a commentator to provide spectators with both interesting reports and sightings of gliders as they performed the task, together with the results as they finished. The organizers should declare in advance that specific days during the contest will be open days to the public, and on at least one of these such a task should be set.

But above all, my plea is for simpler, cheaper, less formal contest organizations, to which the pilots themselves may

The perceived egalitarian quality of gliding has led to the current discussions regarding the redefinition of competition classes, and the possible introduction of a new class, with the objective of reducing the complexity and cost of the aircraft themselves. It was precisely this excellent intention that led to the introduction of the Standard class in 1958. I would argue that it has been the failure to monitor and direct the development of the Standard class over the last thirty years that has led it to no longer meeting these objectives, but rather developing into a serious rival for the 15 metre class, whose own validity is therefore now in question. The outcome of the design studies for the fourth class will be interesting, but I also believe the definition of the Standard class should be urgently reconsidered.

The strong feeling of comradeship that exists among gliding enthusiasts needs a method of mutual recognition. This is admirably fulfilled by the distinctive gliding badge, although nobody today can regard the various badge awards as a meaningful comparison of pilot skills. To do that would require a complex handicapping system to take into account both the type of aircraft used and the country, or even location within a country, where the flight was made, and even then would have obvious imperfections.

I think the long established badge requirements should stand. However, I am convinced the CIVV made a grave error when it introduced rules permitting the use of multiple turnpoint tasks for various badges and diplomas. This reduced the difficulty of such flights at a time when improved aircraft performance was making them easier, and destroyed the continuity of the badge achievement by creating a distinction between those who obtained it "the old way" versus "the new way". Perhaps most seriously of all, it provided a public perception that the most meritorious award in gliding, namely the 1000 km Diploma, could be obtained without the pilot ever straying more than 150 km from his starting point. I strongly urge the CIVV to withdraw this damaging amendment. (*An earlier opinion on this subject by the author may be found in ff 5/86 pp 2.*)

So far I have attempted to show the possible consequences of applying criteria based on individual qualities of our sport to specific topics. However, when considering a matter as complex as the organization of a world championships, one has to apply them collectively.

AN ALTERNATE VIEW

Bob Weien
from SOARING

We have a problem with soaring safety, I think we'll all agree. And we are contributing to the problem by our single-minded insistence that better flight training is the cure to the problem

"Wait a minute," most of you are saying, "what kind of heresy is this? The pilot is the one responsible for aircraft accidents, so better flight training will prevent accidents by getting to the source of the problem, right? And all these wimps that want crash-survivable cockpits should just realize that if they don't have the accident in the first place, then they don't need a crash-survivable cockpit. So, just train them better!"

As you may have guessed, I don't agree with this philosophy, and will try to show you why in the course of this article. But before I leap into this any farther, I want to make one thing very clear: *I am in favour of improved flight instruction.* I am a CFG, and am very aware of the benefits of good flight instruction. This must continue, but we must not put all our safety eggs into any one basket, whether it be labelled "flight instruction" or "crash-survivable cockpits".

How did I get interested in all this? I had the good fortune to be able to attend a CFI Revalidation course given last February by one of the leading instructors in our sport. I would recommend it to anyone. It was a full twenty-four hours of classroom instruction, and was uniformly superb, with the exception of about two minutes.

Early on the first day, the instructor reviewed the accident data for the previous couple of years, making occasional comments along the way about how specific accidents occurred and could have been prevented. When he finished, he sat back and said something to the effect that better flight training was the only way to reduce the accident rate in soaring, and that we, as instructors, need to work harder to make sure our students were better pilots.

The rest of the class murmured assent, but I raised my hand and made a comment to the effect that flight instruction wasn't enough, and that perhaps we need to consider doing other things. I specifically mentioned cockpits as an area which could be improved. The instructor gave me a paternalistic smile, and asked me if I didn't think that we wouldn't need safer cockpits, if only we had safer pilots.

I responded in a less-than-organized fashion, I'm afraid. He had caught me off

guard, because I thought that some of the ideas I am about to explain to you were self-evident, and required no defence. Consequently, I was not well prepared to defend those ideas to one of our sport's leading flight instructors. I made a few statements about the three phases of the crash sequence, and how there are things which can be done in each to reduce the injury burden, but my classmates did not appear to be very interested, so I let the issue drop.

What I had assumed to be the common wisdom about aviation safety was not acknowledged as such in at least part of the soaring community. Many in our sport, I now believe, have not considered some of the ideas which I am presenting here.

What is it we're really trying to do with soaring safety programs? If I went to a soaring convention and asked 100 people that question, I'd be willing to bet that at least 90 would say "prevent accidents".

I do not believe that all accidents are preventable. People are just too different from each other and too difficult to communicate with to make sure everybody gets the message about how to prevent accidents. Even if you could get the message to everyone, there are some people who'll try something simply because they've been told not to. We all know pilots like that.

I would submit to you that what we are really trying to do is *prevent injuries*. (For the purpose of this article, "injuries" will also include fatalities.) I would much rather see a glider destroyed than to see someone injured, even a little bit, or killed. I would not want to share a thermal with someone who cares more about his ship than either himself, or me. Dr. Whitehead summed it up well in his October, 1987 letter to SOARING, when he quoted: "... Good judgement is based upon experience, and experience is the result of bad judgements." Our goal should be to protect people while they're gathering that experience.

Public health professionals who work in the safety field are now using the term "injury control" to describe what they do, instead of the previously popular "accident prevention". This term more accurately describes the objectives that I believe are the true goals of soaring safety.

Why do I say that more and more flight instruction is not the answer to the problem?" Economists have a concept that they call The Law of Diminishing Marginal Returns. Simply put, it says that for each additional unit of any given input (read "flight instruction"), the amount of output it generates (read "safe soaring") gets smaller. In the soaring environment, it can be assumed to mean that the first hour of flight instruction is much more effective than the tenth which is much more effective than the thirtieth, and so on. At some point the return on the effort expended by the instructor and the student has diminished to virtually zero. If, at this point, the pilot remains one with poor judgement, or is unsafe in any other way, further flight instruction is not going to help. If your goal is to protect him from injury, you must do so some other way.

Anecdote When I was flying gliders out of Jack Frost's strip in Robert Louisiana, there was a middle-aged gentleman who flew there. He had lots of flight instruction, had his commercial rating and was talking about getting his CFG. He was also sponsoring the flight instruction of a young boy who had just turned fourteen. The man seemed to be something of a father figure to the boy, at least at the gliderport. This boy had been flying with an instructor for about two years, and actually had been ready to solo for months. On his birthday, of course, he was soloed and rapidly transitioned into the 1-26.

Soon, the boy began to be slightly overconfident of his abilities as many post-solo students will be. One Saturday he landed quite long and brought the aircraft to a rapid, but not spectacular halt just short of the barbed-wire fence at the end of the rollout area. He seemed quite pleased with his ability to control the aircraft so well. The middle-aged gentleman took him aside and counselled him about showing off. He explained that we should all set good examples for each other. It was a very reasonable discussion, demonstrating good judgement on the part of the middle-aged gentleman clearly setting a good example for the boy.

I'll bet you can guess what happened next. The middle-aged gentleman took the same 1-26 for a flight and, when he landed, had to make a screeching, nose-skid-in-the-dirt stop in order to avoid running into the same barbed-wire fence. When he got out, he was not embarrassed by the series of bad decisions he had made to get himself into that situation, but was proud of his ability to bring it off so masterfully. He seemed particularly proud that he thought of doing a deliberate ground loop, then realized it wasn't necessary. The middle-aged gentleman obviously knew what proper judgement was; he had just explained it to the boy. Whenever he flew with an instructor, he did an excellent job and demonstrated good judgement. So, would more training have resulted in increased safety? I think not.

THE MORAL If you want to protect this pilot from injury, you would have to do it with something other than more training. More rides with an instructor just wouldn't have much effect on someone like him.

We are today in soaring where the automotive safety movement was about thirty years ago. During the 50s, virtually all auto accidents were assumed to be "driver error". In fact, the California Highway Patrol accident reports of that era listed 18 possible causes for accidents, 16 of which were some variation on "driver error". So how did the improved automotive safety situation come about? Where did collapsible steering columns, breakaway sign posts, guard rails that work properly, and airbag technology come from?

During the 50s and 60s, many people began to look at the problem and realized that a lot of people were being injured on the highways, in spite of excellent education programs. They realized that no matter how well you train people, somebody will do something stupid and get into an accident. If you don't do something to protect them, then you're saying that, if they're dumb enough to get into an accident, they deserve what they get.

Consequently, many of these people began to develop ways to limit the number of injuries resulting from vehicle accidents, other than by attempting to alter driver behaviour. One of the tools they have found useful to organize their thinking about possible ways to intervene is to take a single crash and divide it into *pre-crash*, *crash*, and *post-crash* phases. The questions asked then revolve around what can be done during each of those phases to reduce the injuries resulting from the crash.

They borrowed a concept from public health: an epidemic of an infectious disease is often studied from the standpoint of the *Agent* (the bug), the *Host* (the human with the disease), and the *Environment* (which often helps to transmit the disease). Aircraft accidents and the injuries associated with them can be considered a type of disease, and therefore can be approached in a similar manner. In this special case, the three factors are called the Human (the persons on board the glider), the Vehicle (the glider itself), and the Environment (everything external to the other two).

Combining these two approaches results in Haddon's Matrix, named for the automotive injury specialist who devised the concept. On the vertical axis are *pre-crash*, *crash*, and *post-crash* phases. On the horizontal axis are *human*, *vehicle*, and *environment* factors (see figure). This produces a matrix with cells numbered from one to nine. Each cell represents an approach to reducing the injury burden resulting from a glider accident.

Filling in the cells is an excellent exercise for glider clubs to perform at safety meetings, or for flight instructors to do with their students. Doing so will start people thinking about what can be done, and will allow the peculiarities of one's particular environment to be considered.

I'll give examples for each cell. These are not to be considered complete in any way, and should be augmented by all who read this article.

Most people's old favourite, improved flight instruction, would belong in Cell One. This is because the goal of improved flight instruction is to alter human behaviour (the pilot's), in the *pre-crash* phase. This leaves eight more areas in which the injury burden can be reduced, which is why I say we need to think about other ways of approaching soaring safety.

An example of something else that might be done in Cell One would be to ensure that we don't go flying unless we are physically prepared for it: no drinking, and no flying while sick.

Cell Two opens up possibilities for interventions relating to the human tolerance of crash forces. How might we intervene? The FAR's concerning seat belt use would have their effect here: human tolerance of crash forces is improved by the proper use of seat belts and shoulder harnesses. How else? How about helmets? Many Army aviator's lives have been saved in low-speed crashes because they were

inspection is crucial to this, as well as the annual inspection, with a checklist and uninterrupted, belong here.

In Cell Five would go all those things about the glider which could cause or worsen injuries during the crash phase. Knobs on the instrument panel, and a non-crashworthy design are examples of points in this cell. Interventions could include rounded nonprotrusive control knobs, airbags, and energy absorbing materials in the nose.

Cell Six relates to those aircraft factors which could make injuries worse after the dust settles. The ability to get out of the wreckage is important here. Are the edges of the fractured materials sharp? Have the oxygen fittings broken away in a safe manner (without leaks)? In a mid-air, could the pilot get clear of the cockpit, or would he have difficulty getting his legs out from under the panel?

Cell Seven concerns how the environment could be improved during the *pre-crash* phase. Airfield maintenance is important here. Did that last big thunderstorm leave an erosion ditch on the grass runway? Don't tell the pilot he should try to miss it on his landing: simply repair the damage.

	HUMAN	VEHICLE	ENVIRONMENT
PRE-CRASH	1	4	7
CRASH	2	5	8
POST-CRASH	3	6	9

wearing helmets. The motorcycle experience is well known to be an emotional issue with some, but the evidence is clear: head injuries are less severe with helmets. Since typical glider speeds are similar to motorcycle speeds, it follows that the forces involved are similar. Wearing helmets is an idea worth considering.

In Cell Three, the crash is over, so this one is concerned with how to reduce the degree of damage done by the injuries already sustained. First aid training would be useful, so a pilot could attempt to slow or stop his own bleeding, or know what to do if he suspects that his neck has been injured. Placing survival gear onboard the aircraft during preflight is an example of how to reduce injury in the *post-crash* phase.

Cell Four concerns itself with insuring that the glider is ready to fly. The preflight

What about the obstacles on either end of the runway? Trimming back the trees, or removing the telephone lines could help make the approaches and takeoffs safer.

Cell Eight refers to those aspects of the environment which endanger the pilot during the *crash* phase itself. If obstacles are essential such as an airport fence, runway signs, or VASI lights, do they have break-away mounts or are they set in concrete?

Cell Nine is about how the environment responds during the *post-crash* phase. How prompt and competent is the emergency medical response system? Does anyone at the field have first aid training? Even if someone has training, are adequate first aid supplies available?

As I said before, I did not attempt to make this chart complete: that would be a good exercise for individual pilots, gliderport

operators, students and instructors, club safety meetings, contest pilot meetings, convention seminars, and anywhere else people gather to discuss soaring safety and how to improve our safety efforts.

Anecdote When I began flying at Stennis International Airport, outside Bay St. Louis, Mississippi, we had a near-ideal field off of which to fly. There was an 8000 foot long, 200 foot wide, concrete runway, with a taxiway joining it at about the middle. There were wide, flat, smooth, grassy areas on either side of the runway which were used for the bulk of the soaring activity. Takeoffs, regardless of direction, began at the taxiway and had long, clear areas without obstruction for at least 4000 feet. Landings, by convention, were ideally to end up near the taxiway, to make positioning easier for the next take-off. All one had to do was to pull the aircraft across the taxiway, and you were ready to go.

There were no signs, lights, or other obstructions near the taxiway, so an inadvertently long landing merely involved rolling across the taxiway. Even if there was an aircraft present, waiting to takeoff,

The sign sat exactly in the middle of the rollout area for a south landing (naturally, the most frequently needed on the Gulf Coast). It was end-on to the landing gliders, sitting like a blunt knife waiting to crumple some fibreglass or aluminum, and the softer contents therein.

How did the glider operation respond to this threat? Surprisingly, few people questioned the safety aspects of the sign's installation. Those who did were told not to hit the sign: make sure your landings are short enough to avoid it. An alteration of pilot behaviour was proposed as a cure for an environmental problem which could have been solved in other, better ways.

What could have been done? Mounting the sign on breakaway supports would have helped, but moving it a few feet farther from the main runway (off the glider runway entirely) would have been even better.

As of when I moved away, there had not been any accidents involving the sign. I never felt comfortable flying there after that, knowing how great the potential for serious injury was. A couple of years after

I left, the FBO changed hands and the glider operation ceased.

Conclusions When one is discussing how to make something safer, one has to consider the question of active versus passive safety measures. An active measure is one that the person being protected must take it upon himself to do, such as buckle a seat belt. You must actively do this, or you won't be protected. A passive measure is one which will operate whether you want it to or not, such as an automatically inflating airbag. It just sits there unnoticed until you have a car wreck, then it inflates and prevents injury. Obviously, a passive measure is better than an active one.

Let me draw an analogy which I hope will make this clear. Suppose your concern was to prevent people from getting sick from drinking contaminated water. If you go the active route of trying to alter the people's behaviour, you could teach people what bad water looks and smells like, and give them test kits to check the water before they drink. I would guess that you would still have people drinking bad water, and getting sick because of it. It is simply human nature to do things like that.

On the other hand, you could take a passive approach to preventing this kind of illness. You could, as a municipality, provide a water treatment plant to purify the drinking water for your town. People don't have to know anything other than how to turn on the tap, and they'll be protected from the diseases associated with bad water.

The sign at Stennis Field is an example of this. The passive approach of altering the sign would have been better than the active approach of trying to alter the behaviour of every pilot flying there. Only one pilot would have to make a mistake and a disaster would occur. Moving the sign would eliminate the problem, in a passive manner.

Soaring safety is a lot more than good flight instruction. It involves looking at the pilots, the aircraft we fly, and the environment in which we fly them. It involves reducing the risk in ways other than by saying, "Don't do this!" and "Don't do that, either!" It involves looking at our operations, and seeing if they can be altered in such a way so that it is impossible to do "this" or "that". It involves making sure that, if "this" or "that" happens anyway, nobody gets hurt as a result of it.

Changes in the environment have an effect on soaring safety, and we need to consider them when we evaluate the "big picture". Attempting to alter pilot behaviour is a possible cure for an environmental problem, but it is not necessarily the best one. Mostly, soaring safety involves the willingness to spend some time thinking about things from a safety standpoint, and then being willing to act on the ideas that are generated. Soaring safety is in our hands. Let's not botch the job, just because we're not looking at all the possibilities. □



WHT rests in a slough 100 metres short of the airfield. Why?

there was usually enough room to maneuver to one side without a problem. Since there was nothing to run into, this was highly unlikely to result in bodily injury (although you were guaranteed verbal injury from Andy Ewing, the airport operator, if he saw you roll across the taxiway).

Shortly before I left that part of the country, airport expansion began. One of the first things the FAA required was a prominent sign on the taxiway announcing that you were about to enter the only runway on the airfield (or in the county, for that matter).

The specifications were rather rigid. Naturally, it had to be a certain distance from the runway. Also, of course, it had to withstand the hurricanes which frequent the area. This meant that it was firmly planted in concrete, with thick support beams. That sign wasn't going anywhere!

ABOUT THE AUTHOR

Bob Weien first soloed a glider in 1975, but has done most of his soaring since he got back into the sport in 1981. He holds the ratings of Commercial Pilot, Helicopter and Glider, and is a CFIG. He got his start flying helicopters for the US Army, and is now an Army Flight Surgeon. He is a graduate of the Aircraft Crash Survival Investigators School in Tempe, Arizona, as well as USC's Aircraft Mishap Investigation Course. He has a Doctor of Medicine from LSU, and a Master of Public Health from Harvard University. Currently, he is a Resident in Aerospace Medicine at the US Air Force School of Aerospace Medicine at Brooks AFB, Texas.

Safety

A TOWING INCIDENT

Roger Brewer

from Seattle Gliding Council "Towline"

This is a story of how not to fly. I made a series of mistakes while flying the towplane recently that could have resulted in a very serious accident. It was just pure luck that little damage was done (a popped rivet and some new wrinkles in the towplane's cowling). I realize that most of you wouldn't do something this dumb, but am writing to show how many things affect the outcome of a flight.

I was towing a Blanik ... and everything was normal until an altitude of about 50 feet when I saw the right side of the cowling move. In that split second I knew exactly what I had done wrong, and the main thought was how stupid I was to let this happen and now involve the glider pilot also.

My first priority was to get the glider to a safe altitude. At about 200 feet the cowling came loose and started flapping. The flapping stopped very quickly when the latch or something caught again. The glider pilot was aware of a problem already, and when I started to wave him off at 1000 feet, he released immediately. The rest of the flight was uneventful until I turned base and the cowl came loose again. I found an attitude combination that kept the airflow from that side of the cowl and landed without doing any more damage. I was lucky, the cowl could have ripped off and damaged the airplane or glider.

So what caused all this? Very simple — ME. After a few tows, the engine had

begun to run hotter than normal and I thought the oil may be a little low. I checked it and found it a quart down and asked someone to go to the hangar to get me some. I put the cowling down while I was waiting but didn't latch it. Then I helped push the Blanik into takeoff position and found it was going to be a low tow. That wouldn't get the engine very warm, so I hopped into the towplane and flew the tow I just described.

It's very easy to find the big mistake, but there were others. The reason the engine was overheating was because an exhaust manifold stud had fallen out. Maybe this happened the day before and I didn't find it because I didn't do a thorough preflight — it took another towpilot to find the problem. Another mistake was that I was tired. Not unsafe exactly, but because I was tired I should have been more careful than normal. Also, another less obvious thing could have contributed to this incident. I fly a lot more than the average weekend pilot and the Super Cub is very easy to fly compared to my own aircraft. I had been flying in some rather difficult weather the weeks previous, and this day was sunny and smooth. I think this made me complacent — I just didn't have that edge of fear or respect for the airplane that I normally have. Flying a lot may keep you current, but it presents you with another set of potential problems.

My conclusions and lessons are many, but the main one was that I had the wrong attitude toward flying that day. I accept this is a very lucky warning that my flying is less than it should be. If I ever do anything close to this stupid again, I will quit towing. Towing is one of my favourite forms of flying, but like all flying it is also serious business and should be treated as such. □

PROCEDURES, PROCEDURES

Why do we bother with them?

George Eckschmiedt

Flight Training and Safety Committee

The Flight Training and Safety committee is very concerned by the number of accidents in 1987. The accident reports indicate that 16 out of 42 accidents or incidents reported could be attributed to the inadequate use of check and procedures.

Having made my living for the last couple decades by confirming that procedures and specifications are complied with, the subject is close to my interests. The concept is simple; yes or no, doing it right or doing it wrong. Yet we keep on doing things wrong.

Just what do we mean by procedures? The dictionary defines it as:

- a mode of conducting business;
- a particular way of accomplishing something or of acting;
- a step in a procedure;
- a series of steps followed in a regular definite order;
- a traditional way of doing things.

Safety pins not installed, canopy open just after take-off, take-off with dive brakes open happens with regularity, year after year. It is not that we do not know that these things should not happen, they keep happening anyway. Ann and Lorne Welch in their book "Flying Training in Gliders"

(my Bible; I have the fourth edition, printed in 1964) say:

No Instructor wants accidents to happen to his pilot, or his gliders to get broken, but with the best will in the world it is impossible to eliminate them. All that can be done is to anticipate the situation which result in accidents and take all possible precautions. Some of the causes of glider accidents are:

- (a) Poor operational procedures resulting in ...

Then they proceed to list almost a dozen more conditions, all can be related back to their first hypothesis: not following the established good procedures or the procedures followed are not good.

There is an incredible resistance in our society to accept any procedures simply because they are called procedures. The word itself evokes the idea of reams of books with fine print that nobody wants to read. Procedures could be thought of as formalized habits. Habits are activities that we all do regularly, often without any conscious thought. The no-effort aspect of all habits aids all activities, good or bad.

One particular aspect of any habit is that the actions involved are usually continuous — break the continuity and the habit is broken. Our everyday life is full of patterns and habits. If the continuous pattern is disrupted we often feel amazed and wonder where the chain of events got disrupted, where do we have to pick up the thread? This is a major cause of accidents: in a chain of known and controllable events an unforeseen interruption occurs with which we are either unprepared to deal with, unable to deal with, or if dealt with, an important event in the chain is by-passed or a superfluous event is added. Either way, we have lost control over the situation.

So, a key to "accident free" anything seems to be keeping the procedures, the *process* of our activities, under control.

The astute reader would say now, what if the procedure is wrong? The question is valid and worthy of consideration. I would be concerned too, if I did not know that many of the procedures used in soaring are twice as old as some of our current contest pilots are. I enjoy picking up L. B. Barringer's book, "Flight Without Power", written in 1940, and finding the so-called "latest" discoveries in soaring already in the book. Time has already proven most of the procedures advocated by the responsible authorities and, unfortunately, time is often the only thing that will prove out an inadequate procedure.

So how do we keep procedures under control?

Putting a shoe on or piloting the Concord are just procedures. The basic difference in these activities is reflected by the importance and complexity of the procedure. Could you imagine having to follow a set of written procedures for putting on your shoes? Could you imagine flying the Con-

cord *without* written procedures? Each of us has to assign a scale of importance to every one of our actions. If that action has to be repeated thousands of times, it does not diminish the importance of the action. The control necessary for the action must be directly proportional to its importance, regardless of its frequency. Once the level of importance is realized, the appropriate control becomes self-evident.

The best known tools for this control are the checklists.

For most soaring operations, the reciting and the execution of simple mnemonics based on written checklists are often adequate. The importance of the rote recollection of mnemonics of some of the procedures cannot be emphasized too much. How many open dive brakes take-offs would have been prevented if CISTRSC was recalled from memory and performed uninterrupted? How many gear-up landings resulting from a short downwind could have been prevented if SWAFTS were recalled from memory, instead of from the neat red sticker on the instrument panel, and executed rapidly?

The procedures used do not have to be the same for everyone. Other countries use different steps to perform the same thing, invented different mnemonics and they are just as good as ours; usually time has proven them out. Many years ago one of Canada's top competition pilots had a check flight. The pilot proceeded to do his pre-cockpit check without words. After about the third step, it was evident that he was using the British cockpit check: CB SIT CB. He now knows and uses CISTRSC, but he admits that under stress he reverts back to his old mnemonic. As long as there is a proven procedure that works, it is better than none.

It must be stressed, that procedures and tricks to follow them will never replace good judgement, but good judgement would include the use of proper procedures.

Complex and/or seldom-used procedures should be carried out using a *written* list. The scope of these checklists is endless. I would not dare to arrive at the airport without my paraphernalia of paperwork, clothing, food, and water, etc. Yes, I do have a checklist for this. Another pilot I know has a formal checklist for towing a trailer, for preparing a barograph, and for preparation for cross-country flights.

SAC currently advocates the CISTRSC, the CALL, and the SWAFTS mnemonics. Transport Canada published the "I'M SAFE" checklist. There are checklists prepared for the various steps of the training program. There are checklists for rigging a sailplane and for its daily inspections. The Flight Training and Safety committee is on the verge of issuing the Soaring Instructors Guide, and the Soaring Instruction Manual is going to be revised next.

There are opinions that CISTRSC should be put to rest, and a more universal "rotary approach" used. This is a fine idea especially if one is accustomed to using it dur-

ing flying other aircraft types; however, remember the Law of Primacy — in times of stress, we all revert back to the first thing we learned. The rotary approach may be fine when there is ample time to perform the check, but try it when you are on a 500 foot downwind with a 30 knot tailwind! You do not have the time to check all the things included in this approach, because when you are done you are already on the ground. But a quick SWAFTS could save you from a gear-up landing. Furthermore, one of our aims is to have a uniform method of flying training throughout Canada. We have already achieved this, so changing the established procedures now seems to serve no useful purpose.

It cannot be said that we don't have the tools for safe flying. Therefore, most of the accidents can only be attributed to our failure to use these tools as effectively and regularly as we should.

The approved Canadian flight checklists are reproduced here for your use. If you do not know them, please feel free to copy them, cut them out, or prepare them any way you wish. Then use them. You will be glad you did. □

References

1. free flight, 3/86, Mnemonics.
2. free flight, 1/85, Teaching old dogs new tricks.
3. free flight, 2/80, Maintenance

CISTRSC

- C Controls** Check for freedom of movement over full operating range.
- I Instruments** Set altimeter, check instruments, radio on.
- S Straps** All seats, tighten lap first then shoulder straps.
- T Trim and ballast** If any, are pilot weights within limits.
- R Release** Check it now from both seats, then disengage (radio can be done now if desired).
- S Spoilers and Flaps** Open spoilers, check for freedom of movement, then close and *lock*. Set flap for takeoff.
- C Canopy** Close and lock both (if applicable) canopies. *Push up* on canopy or its frame to confirm closing.

CALL

- C Cockpit** No loose articles, straps tight, canopy and windows locked.
- A Altitude** Must be sufficient to recover above specified minimum.
- L Location** Not over airfield, farm buildings, or populated area.
- L Lookout** Make sure no other aircraft are around by doing "clearing" S-turns.

SWAFTS

- S Straps** Tighten for landing.
- W Wheel and Water** Lower the wheel, check it is locked *down*, dump water ballast.
- A Airspeed** Observe or estimate the wind direction and speed, then select approach speed. Adjust speed and retrim as necessary.
- F Flaps** Lower or set for approach if used for landing.
- T Traffic** Check for other aircraft in circuit including power aircraft; also check for traffic on ground.
- S Spoilers or Divebrakes** Unlock, check operation and be ready to use.

CB SIT CB (from BGA)

- C Controls** Check that elevator, ailerons, and rudder work freely, fully, and in a correct sense.
- B Ballast** See that the aircraft is correctly ballasted for the cockpit load.
- S Straps** See that the harness straps are done up (both occupants).
- I Instruments** Check that the altimeter is set as required (at zero or airfield height) and that other instruments are serviceable. Start barograph.
- T Trim** Check operation and position of trim lever. For winch launch normally in middle of range, for aerotow further forward.
- C Canopy** Check that it looks fully closed, locked, and secure, that bolts and catches are fully home, and that it does not yield to upward pressure.
- B Brakes** Check that airbrakes or spoilers work freely and together, and that they are shut and locked.

I'M SAFE (from MoT)

- I Illness** Do I have any symptoms?
- M Medication** Have I been taking prescription or over-the-counter drugs?
- S Stress** Am I under psychological pressure from the job, worried about financial matters, health problems, or family discord?
- A Alcohol** Have I been drinking within eight hours? Within 24 hours?
- F Fatigue** Am I not adequately rested or tired?
- E Eating** Am I adequately nourished? Am I dehydrated?

Hangar Flying

AIRCRAFT AND EQUIPMENT SAFETY NOTICES

MORE BATTERIES

The 6/87 free flight report on the discontinuation of the two volt Globe "Gel-Cel" caused concern throughout the land for our battery packs supply 14 volts. (More concern for the radios needing the 14 volts.)

Firmal Electronics prudently perceived the need for a 12 to 14 volt converter and brought one to the market. Notwithstanding the excellent idea, (the VSA has placed an order already) 2 volt batteries are available, although they are cylindrical, not rectangular, as we are used to. The price is reasonable. Thus, an alternative to John's magic box is available, although your battery space may have to be redesigned. The battery manufacturer is "Gates", and most battery wholesalers in Canada carry them, and will make up battery packs to order. The two sizes of interest to pilots are the X Cell at 5 Ah (about \$10 each), and the J Cell at 12.5 Ah (about \$24 each).

One company is C D NOVA Ltd., Burnaby, BC (604) 430-5612, Ottawa (613) 592-5468, Toronto (416) 731-6043, Calgary (403) 255-2017. I am in no way associated with this firm; the information supplied here is from their catalogue and from phone calls to them.

George Eckschmiedt
Vancouver Soaring Association

GLIDING AT OERLINGHAUSEN & ASH BEATS BORDER CHOPPERS

Oerlinghausen is a large airfield about 45 minute's drive east of Dortmund and about 30 km north of Paderborn (which hosted the world glider contest in 1981). Oerlinghausen is situated at the foot of a long ridge running NW-SE on the windward, sunny side and on very sandy soil so soaring conditions are very reliable. Ursula and I visited it on 1 May during a trip to Germany (missing Wilf Krueger of SOSA by one day as we found out by chance).

The airfield is the largest gliding operation in the world. About 18 clubs fly off the field on weekends (not necessarily all at once) with up to five double-drum winches launching continuously, and a big gliding training school runs on weekdays. We were told there were 55,000 takeoffs in 1987. Besides winches, there is also a short paved strip for powered traffic and motorgliders, and the field is also used by microlights, so it's a busy place. There were bus tours arriving to watch the action.

The big news at the field while we were visiting was the adventure of an ASH-25 pilot from the Gütersloh club who strayed into East Germany the previous week (the ASH-25 is the latest and best of the super multiplace sailplanes — max L/D about 55:1 and a 25 m wing). The pilot got lost in poor visibility while flying east of Oerlinghausen, and was 50 kilometres over the border before he discovered his position. While heading back he was intercepted by two helicopters and given the thumbs-down signal. At first the pilot chose to misinterpret the message to land, and waved while continuing for home, whereupon the helicopters moved over and above the ASH-25 in an attempt to force it down. At this point, the glider pilot put the ASH into full negative flap and max cruise and *outran* the border patrol to safety, landing less than five kilometres inside West Germany. My informant from the Gütersloh club said that the ASH top speed was about 20–30 km/h more than that of the type of helicopter involved in the chase. Shades of "Smokey and the Bandit"!

Tony Burton

TOWPILOT QUALIFICATIONS

For insurance policy purposes, the Flight Training & Safety committee has made recommendations for the minimum qualification for towpilots which are approved and are as follows:

The hours as published in Chapter 3A of the Pilot Licensing Handbook, are acceptable provided that;

- chief towpilot minimum qualifications will be that of an experienced towpilot as defined in para 1 of the above chapter,
- all towpilot candidates are approved by the club's chief towpilot,
- all towpilot candidates are subject to a suitable checkride by the chief towpilot or a designated experienced towpilot as defined in para 1, Chapter 3A.

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Grob G102, 103, 109

On the basis of a history of failures and cracks in various bellcranks, torque tubes, and control linkages even in low-time (300 hour) aircraft, Grob has issued a Service Bulletin TM 315-33 on G103s after serial number 3730 recommending the inspection and replacement of rudder bellcrank assemblies (new part No. 103B-4430/1), and that owners pay particular attention to all welded steel components throughout the fuselage of all their sailplanes.

The National Transportation Safety Board in the USA notes it would be prudent to perform a directed, detailed, and periodic inspection of the welded steel primary control system components, particularly in the fillet-weld "heat affected zones", and around mounted bearings for evidence of cracks, control deformation, or widened or cracked bearing rings, and replace defective parts before the next flight, and is recommending that the FAA issue ADs requiring this inspection, and requiring the above rudder bellcrank replacement.

The NTSB further recommends that the FAA conduct a design-engineering investigation of the primary control system of these gliders, including a stress analysis of critical components and a metallurgical evaluation of Grob's welding and material/heat treatment standards.

2-33 and 2-33A

MoT has received four reports of severe corrosion in the lower longerons of the aft fuselage of 2-33s, and has issued a Service Difficulty Alert recommending careful inspection for corrosion at each 100 hour inspection. The corrosion of these longerons is internal from trapped moisture and hence is difficult to detect. Schweizer is revising its Service Bulletin 102-33-1 to extend the inspection to 2-33 serial no. 424 (the tubing of 425 and higher was coated internally with linseed oil and should be less susceptible). The Air Cadet League, in an inspection of its 2-22s and 2-33s (using X-ray in some cases) has found evidence of corrosion in the lower longerons of 30% of its fleet. Defects detected should be reported via a Malfunction or Defect Report to the Regional Airworthiness Office. For further info contact your District office or Mr. Paul Fortier, Ottawa, (613) 990-5468 or 952-4361.

Security Parachutes

The FAA has issued an emergency AD 88-05-88 permanently grounding GQ Security Parachutes model no. 79A1684 - () canopies approved under TSO C23b. The fabric in these canopies has been experiencing accelerated deterioration which could result in their failure in use. These canopies are to be immediately removed from use and TSO markings obliterated. Alternate means of compliance with the AD which provides acceptable safety of the canopy must be submitted to and approved by MoT. For further info contact your District office or Mr. J. E. Hurley, Ottawa, (613) 990-5467.

Club news

LONDON SOARING

It has been quite a while since our last report, the mediocre weather of the last couple of seasons did not inspire anyone to record our progress. We exceeded 1000 flights in 1987 — first time this has happened for several years, the average flight time was, however, down from other years.

Our AGM in March brought a mix of old and new to our Board of Directors. Chris Eaves was re-elected as President and Kurt Hertwig was roped in for yet another year as CFI. Membership fees were increased to \$375 this year, this includes free glider time, tow fees were left at \$8. We are barely covering expenses at these figures, however, as membership has remained static, we were reluctant to take any action which would discourage prospective members.

We had been looking for a new towplane to replace our Champ Challenger, but soon realized that there was not much out there that we could afford. OHJ was therefore sent to the repair shop over winter for an extensive overhaul. She has now reappeared looking prettier than ever; it is a pity that we shall soon be splattering bugs and mud over the new paintwork.

An Open Cirrus and an ASW19 have joined us since I last wrote, and the Skylark II has been completely refurbished, it looks as if it will be good for another 30 years now. The Diamant has left us and seems to have found a good home at SOSA.

The first weekend in April brought beautiful soaring weather to Southern Ontario. We are hoping that this will be the harbinger of an above average season.

Dave Miller

EN THERMIQUE DU SAGUENAY – LAC ST-JEAN

Le Club de Vol à Voile Mont Valin 02 Inc., basé à l'aéroport de St-Honoré, possède quatre planeurs dont un biplace Lark, un monoplace Lark de performance et deux autres biplaces.

L'aéroport de St-Honoré a aménagé une piste de 5,500 pieds exclusivement à l'usage du club qui opère au trenil. Ces opérations sont indépendantes du camp-école des cadets de l'air qui forme une soixantaine de pilotes par été à l'aide de neuf planeurs et quatre avions remorqueurs. À cela s'ajoute une école de formation en aéronautique du Cégep de Chicoutimi, les CL-215 de la société de conservation du Saguenay, etc. bref près de 100,000 mouvements par année dans une zone de contrôle voisine de l'aéroport militaire de Bagotville.

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Les conditions de vol sont excellentes, les thermiques se développent à partir de l'aéroport même, nous montent jusqu'à 10,000 pieds (exceptionnellement) et le Mont Valin, situé à 15 km des pistes, nous attire inmanquablement.

Le club est encore très jeune, ses origines remontent à 1981, ses pilotes au nombre d'une douzaine ont encore beaucoup d'efforts de recrutement à faire auprès de la population régionale (300,000 personnes) et les visiteurs sont toujours les bienvenus. Le planeur biplace motorisé est pour nous une expérience très intéressante dont nous vous feront part dans un prochain communiqué.

Jean Vallée
from the newsletter
Fédération de vol à voile du Québec

BRUCE NICMANS FLIES HIGH

When last seen, Bruce Nicmans was flying high on cloud nine and wasn't expected back on the ground for some time. He recently took home \$100,000 from the Pacific Express Lottery and has been busy fulfilling his wish list. He had his mortgage paid off within 90 minutes of picking up his winnings, and treated all of those worthy souls who helped raise the hangar on April 9 to a cool beer at the end of the day.

from the Vancouver Soaring Scene

Hey Bruce, do you really need all that lottery money? — I heard another Air Canada pilot recently broke his leg when he fell off his wallet! I'll be curious to find out what you'll be flying for fun soon. Best regards, Tony.

NEW FACES



CHRIS EAVES

Director-at-Large

Age 31, two Diamonds and waiting for the 500 km flight. Member of the London Soaring Society for 14 years. Began as a tow-pilot before getting hooked on soaring. He operates, with his father, an aircraft maintenance and repair shop and is an A and B aircraft mechanic. Chris flies a Grob G103 with his wife Sue, who is also a glider and power pilot.

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WORLD CONTEST
Al Schreiter
3298 Lone Feather Cres.
Mississauga ON L4Y3G5

Mbrs: Hal Werneburg
Bruce Finlay

Nobody can reasonably be against reducing the cost of gliding, so hopefully the recent decision of the CIVV to conduct a "World Class" design competition will receive widespread support in the gliding community (see page 9 CIVV Report for more details on plans for this competition). However, designing a glider is only part of the equation; it must then be produced and marketed properly if real cost reductions are to be found. It is not that the designers have failed to take up the challenge of designing suitable novice glass ships as Al Schreiter claims, but rather that their bosses who run sailplane manufacturing concerns must take a hard look at whether they can stay in business producing such designs. (The Club Libelle and the Club Astir are now history, for one indication.) The CIVV is placing a lot of its hopes in specifying a competition class in hopes of stimulating demand for the "World Class" sailplane. Yet I would refer back to my "paradox" that many present day sailplanes never get close to a contest and Brian Hollington's letter which questions competitions as we now know them.

As Ulli Werneburg suggests, why not select a popular, safe, sailplane with good handling and performance characteristics such as the LS-4 or ASW-19 (or one of several others) and turn the production specialists and finance experts loose to produce it in quantity. If a large production run could be guaranteed would this not have the same potential as a brand new design? If anyone feels strongly that a "fresh look" sailplane design is needed to bring the cost of gliding down, why not send your thoughts and ideas to Dave Marsden who is surely Canada's most prolific and successful designer of gliders. Hopefully he can be persuaded to produce a Canadian entry for the World Class design competition.

Jim Oke
past Sporting Committee Chairman

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CONNECTIONS

I'm writing this letter from Florida, and am a member of the Rideau Gliding Club during the summer and the Tampa Bay Soaring Society in winter. The small item about the first aerotow in Hangar Flying in the 6/87 issue caught my attention as the glider pilot's name was Espenlaub, which is the same as one of the members of the Tampa Bay club. Sure enough, it turned out that Peter Espenlaub, who tows for us here, is the nephew of that first aerotowed pilot!

DG Brett

1989 CALENDARS

The SAC office will be ordering a limited number of the excellent German gliding calendars for 1989. Individuals and clubs wishing to order are requested to submit their name, address, and quantity required to the National Office by 1 September.

Nancy Nault, SAC Secretary

SAC INSURANCE PROBLEMS

We have reviewed our 1987 insurance policy and would like to make the following comments. Item 3 of the declarations names the insured in a manner which is entirely satisfactory to a member club. Item 5 of the declarations however introduces an unreasonable and impracticable requirement that coverage shall only apply to individuals who are members of SAC. We are committed to enrolling our members in SAC, but item 5 gives us problems in two areas.

One problem arises when an experienced pilot re-joins our club after the start of the season. At the present time it appears that we could not allow him to fly solo until all paperwork has been processed by us and by SAC. This is a waste of our short flying season. If any club lets a non-SAC member solo and an accident occurs, it could bankrupt the club, undoubtedly this would lead to an errors and omissions suit against SAC and our broker.

The other problem we have is the requirement that towpilots be SAC members. We have difficulty attracting good towpilots and this is compounded by requiring them to pay SAC fees. We generally have three or four non-glider pilots towing; however, there is a fairly high dropout rate and the names may change as the season progresses. We do not wish to suspend our operations for a weekend because a SAC member towpilot is not available. We are agreeable to paying SAC fees for them at the start of the season, however flexibility is required to substitute pilots and, as they do not require any SAC services, we feel that a reduced fee should be payable.

The premiums are paid by the member clubs and it is important that policy should accommodate their best interests. We are looking forward to (SAC's) reply.

Treasurer, London Soaring

Coming Events

28 June-3 July, **Ontario Regionals**, Pendleton, ON.
Warm-up for Nationals using many of same turnpits. Contact: R. Mercer, Box 636, Hudson, PQ J0P 1H0. (514)458-4627.

16-28 July, **Canadian Nationals**, Hawkesbury, ON
Contact: George Couser, 735 Rivière aux Pins, Boucherville, PQ J4B 3A8. (514) 655-1801 (H), 647-7322 (B).

1-8 July, **Western Instructor Course**. Hosted by Winnipeg Gliding Club, Starbuck, Manitoba. Clubhouse and campground available. Applications to National Office. WGC contact: Harvey Bachman, Box 1255, Winnipeg, R3C 2Y4, or Ian Oldaker (416) 877-1581.

23 July - 1 Aug, **Cowley Summer Camp**, Cowley airfield, AB. Come to Canada's biggest annual soaring gathering. Large campground on field. Wave, thermals, XC, a lot of fun. Contact: Kevin Bennett (403) 949-2589 (H), 260-2935 (B).

Du 6-13 Août, **Cours d'Instructeur**. Club de Vol à Voile de Québec, Saint Raymond, PQ. Clubhouse et camping disponibles. Renseignements auprès de l'ACVV, ou Denis Gauvin, 4510 Boul. des Cimes, PQ G2A 3K3, (418) 842-6456.

STILL A GOOD DEAL

If you bought a lifetime membership in the SAC prior to 1988, its after-tax cost depended on your marginal tax rate. In 1988, it will cost you \$740 after taxes no matter what tax bracket you are in. That's right, it costs the same amount whether you are rich or poor. This is no doubt some socialist plot but, what the heck, why not take advantage of it before the folks in the tax department discover their mistake and change the rules again.

Unless you plan to be a Junior Member until you are fifty or so, it seems to me that these lifetime memberships are still a good deal. Why don't you send your cheque for \$1000 to Nancy with a snivelly note requesting that your new lifetime membership begin in 1988. Nancy is a soft touch for snivelly notes.

Dixon More, Ontario Zone Director

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FAI Badges

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

The following Badges and Badge legs were recorded in the Canadian Soaring Register during the period 1 January 1988 to 30 April 1988.

DIAMOND BADGE

72 Peter Masak York

GOLD BADGE

239 Lewis "Buzz" Burwash Edmonton

DIAMOND DISTANCE

Peter Masak York 1007 km ASW-20 Julian, PA

GOLD ALTITUDE

Rodney Crutcher	Cu Nim	4370 m	Astir	Cowley, AB
Lewis "Buzz" Burwash	Edmonton	4673 m	ASW-20FP	Cowley, AB
John Webb	Edmonton	3962 m	Std Libelle	Cowley, AB

SILVER DURATION

John Kenyon	Rideau	5:21	Pilatus B4	Gananoque, ON
Rodney Crutcher	Cu Nim	5:30	Astir	Cowley, AB
Claude Dostaler	Gatineau	5:01	1-26	Pendleton, ON
Rudolf Froschl	Kawartha	5:54	Cobra	Omeme, ON
Keith McKenzie	COSA	5:34	Std Cirrus 75	Chemong, ON
Jean Louis Labarre	Quebec	5:29	Pilatus B4	St Raymond, PQ

SILVER ALTITUDE

Rodney Crutcher	Cu Nim	4370 m	Astir	Cowley, AB
Chris Herten	SOSA	2887 m	Astir	Maricopa, AZ
Jean Louis Labarre	Quebec	1010 m	Blanik L-13	St Raymond, PQ
Rick Dawe	Edmonton	1677 m	2-33	Chipman, AB
John Webb	Edmonton	3962 m	Std Libelle	Cowley, AB

C BADGES

2102 Toni Lindschinger	York	1:29	2-33	Arthur, ON
2103 Duncan Clarke	Rideau	1:11	1-26E	Gananoque, ON
2104 John Kenyon	Rideau	5:21	Pilatus B4	Gananoque, ON
2105 Werner Lindschinger	York	1:16	1-26	Arthur, ON
2106 Rodney Crutcher	Cu Nim	5:30	Astir	Cowley, AB
2107 Claude Dostaler	Gatineau	5:01	1-26	Pendleton, ON
2108 Fernand Villeneuve	Air Cadet	1:30	2-33	Mountainview, ON
2109 Rodger Bouchard	Montreal	1:17	1-26	Hawkesbury, ON
2110 Rudolf Froschl	Kawartha	5:54	Cobra	Omeme, ON
2111 Keith McKenzie	COSA	5:34	Std Cirrus 75	Chemong, ON

ACCIDENTS

STD JANTAR, C-GGEA, 7 May, SOSA. Struck rock on an outlanding. Damage to nose and front canopy. Est. \$7,000.

LIBELLE, C-FQJS, 8 May, Beaver Valley Soaring. Glider impacted ground heavily on landing. Turbulence or windshear possible factor. Fuselage broken in two places, possible write-off. \$27,000. Pilot sustained back injuries.



SPORTING LICENCES: NEW PROCEDURES

As you know, sporting licences are issued by the Aero Club of Canada (formerly RCFCA) on behalf of the Fédération Aéronautique Internationale. In the past, SAC has acted as an intermediary. In the interest of providing faster service and cutting down on unnecessary paperwork, it has been decided to cut out the middle-man. Thus, to obtain a licence, send \$10.00 to: Aero Club of Canada, Suite 209, 485 Bank Street, Ottawa, Ontario K2P 1Z2. One will speedily sent to you.

Gordon Bruce, SAC President

IMPORTANT MESSAGE TO ff READERS

You will note that this issue had no Canadian flight stories and no photos (except those I took myself!). I'm hoping that many of you will have had soaring experiences this spring worth writing about by now. Please contribute — that includes you beginners, too. free flight depends on you for the quantity of Canadian soaring stories and news — the quality I'll work on — and my in-basket is frighteningly low.

I'm also very low on soaring photos of any kind, especially for fill and as pleasing graphic material to enliven the visual image of the magazine. You will note that this issue has more the look of a textbook — not what you want to be reading, I'm sure.

Photos may be B&W or colour, any size, negatives not required if print is sharp and clean (no dust or hair marks on the image). Try to keep the subject simple, with a minimum of background distractions — and it helps if there is some space around the subject so that I can trim the image as necessary with more freedom. (There are lots of good photo tips in ff 3/85 pp 13.) The important thing for me is for you to get your old albums out of the back of the closet, take a roll or two of the current scene, and send a variety of your best my way.

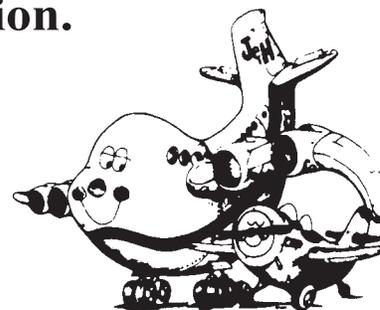
Write and shoot for 4/88. Regards.

Tony

RECORD CLAIMS — Russ Flint

Speed 100 km triangle, 146.1 km/h, 23 April 1988, Kevin Bennett, Ventus B, C-GIJO. Flown from Black Diamond, AB with turn-points at Blackie, AB and Winters Air Park, AB. Exceeds previous territorial record of 111.3 km/h by Dave Marsden in 1982 and citizen's record of 141.4 km/h by Peter Masak in 1985.

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