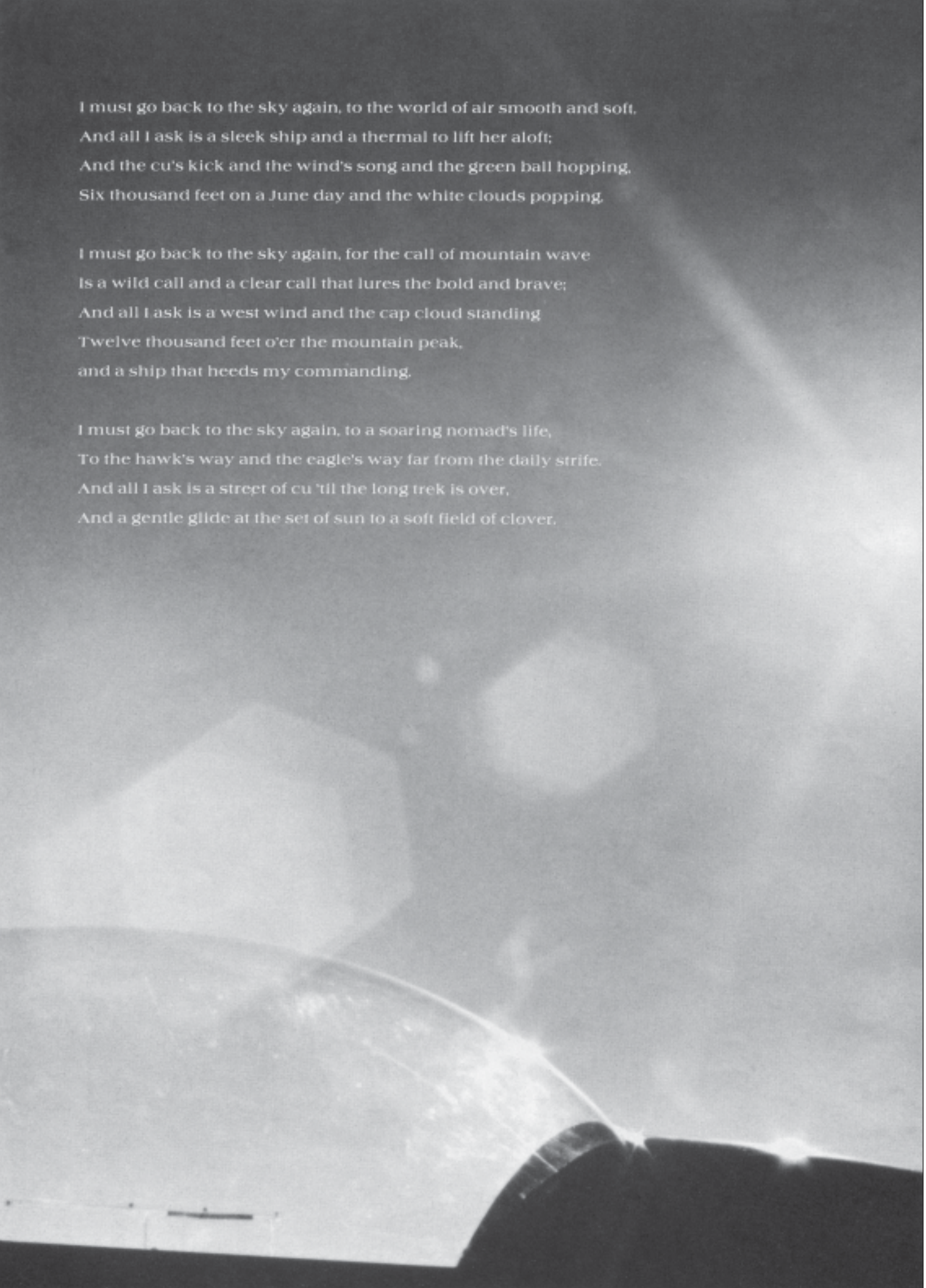
free flight

6 Nov-Dec 81

vol libre



I must go back to the sky again, to the world of air smooth and soft.
And all I ask is a sleek ship and a thermal to lift her aloft;
And the cu's kick and the wind's song and the green ball hopping.
Six thousand feet on a June day and the white clouds popping.

I must go back to the sky again, for the call of mountain wave
Is a wild call and a clear call that lures the bold and brave;
And all I ask is a west wind and the cap cloud standing
Twelve thousand feet o'er the mountain peak,
and a ship that heeds my commanding.

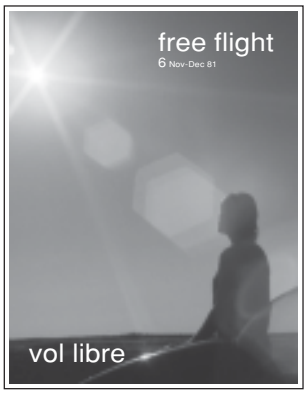
I must go back to the sky again, to a soaring nomad's life,
To the hawk's way and the eagle's way far from the daily strife.
And all I ask is a street of cu 'til the long trek is over,
And a gentle glide at the set of sun to a soft field of clover.

S.A.C.

free flight

6 Nov-Dec 81

The Journal of the SOARING ASSOCIATION OF CANADA
Le Journal de L'ASSOCIATION CANADIENNE DE VOL À VOILE



Cover and frontispiece photos: Tony Burton

Cover
The sun is a star. The long starry nights of winter are a time for most glider pilots to dream of their soaring aspirations for the coming year.

Total circulation of the Nov-Dec issue was 1700

PRESIDENT'S MEMO

Occasionally, an issue arises which affects the conduct of our sport in rather fundamental ways. One such issue which has surfaced recently is that of the "Expertise" requirements for a Glider Pilot Licence.

The present Canadian requirements (in part) are 3 hours of flight time in gliders including not less than 2 hours solo time. As you know, the Soaring Association of Canada has for some time considered this to be insufficient time for a student to learn and become proficient in all of the techniques and skills required to fly today's aircraft safely in today's airspace, and in fact we recommend 8 hours flight time, of which a minimum of 6 hours shall be solo.

Early this year the SAC Instructors Committee recommended to the Directors that the increased hours requirement, together with some other changes, be submitted with a brief asking Transport Canada to amend the Glider Pilot Licence requirement. The Directors considered the proposals thoroughly and referred the matter back to the Instructors Committee for reconsideration of certain items. Over the summer, the Committee and the Directors have reviewed the matter on paper, on the telephone and in their minds, and at the Board meeting on October 3rd, the Directors were unanimous in their decision to recommend to the membership at large that the proposals be forwarded to Transport Canada.

Coincidentally, in March of this year the CIVV (International Gliding Committee – see 5/81) agreed to a number of recommendations to be made to ICAO (International Civil Aviation Organization) through the FAI regarding glider pilot licensing. One of these recommendations is a total of 15 hours flight time of which not less than 5 hours would be solo. (This was reduced from the 30 hours originally proposed in 1980, and preferred by some European countries.) ICAO makes recommendations to the governments of all its member countries on such matters, including our own Transport Canada. It will clearly not be long before Transport Canada is asking us (Soaring Association of Canada) why the present low requirements should not be increased to a figure more in line with the ICAO recommendations.

Historically, the Canadian soaring movement has been particularly favoured in its relationship with Transport Canada regarding licensing. This is the result of initiatives taken about twenty years ago by SAC in developing instruction manuals and training procedures and setting standards for instructor training and classification. It is imperative that SAC preserves its credibility with Transport Canada and keeps the initiative in developing instruction and training criteria and programs.

Thus at the Annual General Meeting in March, 1982, your Board will be asking you, the members (in accordance with the By-Laws) to support our resolution that the proposal for increasing flight time requirements be forwarded to Transport Canada. If you or your club wish to get more information about this matter, please talk to your Zone Director or me.

Russ Flint
President

The SOARING ASSOCIATION OF CANADA

is a non-profit organization of enthusiasts who seek to foster and promote all phases of gliding and soaring on a national and international basis. The ASSOCIATION is a member of the Royal Canadian Flying Clubs Association (RCFCA), the Canadian national aero club which represents Canada in the Fédération Aéronautique Internationale (FAI, the world sport aviation governing body composed of national aero clubs). The RCFCA has delegated to SAC the supervision of FAI-related soaring activities such as record attempts, competition sanctions, issuance of FAI badges, and the selection of a Canadian team for the biennial World soaring championships. free flight is the Association's official journal.

Material published in free flight is contributed by individuals or clubs for the reading 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, opinion, reports, club activities, and photos of soaring interest. Prints (B & W) are preferred, colour prints and slides are acceptable. No negatives will be used.

free flight also serves as a forum for opinion on soaring matters and will publish letters-to-the-editor as space permits. Publication of ideas and opinion in free flight does not imply endorsement by SAC. Correspondents who wish formal action on their concerns should contact their SAC Zone Director. Directors' names and addresses are given elsewhere in the magazine.

All contributions to the magazine will be acknowledged on receipt. We will endeavour to say when it will be used. All material is subject to editing to the space requirements and the quality standards of the magazine.

Subscriptions rate to non-SAC members $15.00 per year. Contact National Office.

SAC National Office
485 Bank St., 2nd Floor
Ottawa, Ont. K2P 1Z2
(613) 232-1243

free flight is printed by M.O.M. Printing

L'ASSOCIATION CANADIENNE DE VOL À VOILE

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

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

vol libre est le journal officiel de l'ASSOCIATION.

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

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

L'exactitude des articles publiés est la responsabilité des auteurs et ne saurait, en aucun cas, engager celle de la revue vol libre, ni celle de l'ACVV, ni refléter leurs idées.

Toute correspondance faisant l'objet d'un sujet personnel devra être adressée au directeur régional dont le nom apparait dans cette revue.

Pour chaque article reçu, nous retournerons un accusé de réception et donnerons la date probable de sa publication. Les textes et les photos seront soumis à la rédaction et, dépendant de leur intérêt, seront insérés dans la revue.

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

Pour changements d'adresse et abonnements aux non membres de l'ACVV ($15.00 par an) veuillez contacter le bureau national.

free flight PERSONNEL

EDITOR
Ursula Burton (403) 625-4563
Box 1916
Claresholm, Alberta T0L 0T0

ADVERTISING & STOP-THE-PRESS
Jim Leach (613) 822-1797 (H)
(613) 232-1243

EDITORIAL ASSISTANT & GRAPHICS
Tony Burton

ASSISTANT LANGUE FRANÇAISE
Pierre Lemaire

PROOF READING
Phillip White

Deadlines for contributions
5th day of every 2nd month
Limite pour publication
le 5 chaque deux mois

5

Letter from Ursula

free flight — one year later

One more deadline is here — it's for the last *free flight* issue of this year. Looking back on the past 9 months, it has been a year of pleasant surprises for me. The magazine gets richer with every issue, thanks to your enthusiastic contributions. Many of you have expressed your appreciation of its content and appearance, so I am rushing to pass on these encouraging words to you who helped to make it possible. I am happy to rely on such fine authors. Special thanks must go to certain persons who have made regular contributions:

Eric Newsome, Chairman Safety Committee, deserves a big hand. This year, *free flight* has published probably the best series of safety-related articles to be found in any soaring magazine world-wide. I know because I get the chance to read many in this job. I think that the "confessions" from pilots that were prompted by Eric are most valuable lessons. We all get sloppy at times and we need to be reminded of the consequences. I hope stories for the Safety Column keep coming in all the time.

Also thanks to Ian Oldaker for his series on instruction. There are more good ones to come!

Christine Firth is breaking new ground in historical research. Very little knowledge remains of Canadian gliding efforts prior to WWII, and what does exist is scattered piecemeal across the country in photos, newspaper articles, diaries and log books jammed in attic boxes or maybe museum collections associated with powered flight. Chris, as SAC Historian, is now actively working to put the jigsaw together before the pieces are lost forever. I look forward to seeing more "old-time" stories coming out of this hard work.

The "Opinions" column is slow to grow but getting there. There is certainly no lack of opinion amongst all you pilots — any group of three or more will quickly bring out something like, "The trouble with SAC is ..." or "Why doesn't someone . .." with considerable volume. Ladies and gentlemen, *free flight* is the best vehicle we have to establish a cross-country forum of ideas and opinions. Get a load off your mind and WRITE.

Thanks to Danny Webber, the CFI at Lahr, for a well thought-out critique on the choosing of instructors (4/81 page 3) and equipment (this issue). Any rebuttals out there?

With many of you, I also want to see every big event sanctioned by SAC to be announced in *flight flight* early enough to be news — not history — and enable you to plan well for your next summer's time-off. Yes, we have a problem. With the lead time of about three months to get *flight* from "dummy" paste-up to your door, plus the time required for clubs to bid, and be accepted for hosting events, you can see that it takes a half year at least to let the member of "Boondocks Soaring Association" read what's happening. So all you club directors out there, the ball is always in your court first — get your bids in NOW for next year's happenings — not sometime in March when the possibility of flying again in the spring soaks back into your consciousness. Give the SAC Directors something to work with in time! By the way, bids mean work of course, so to every club member out there sitting on the sidelines, what will you contribute to your club chores in 1982?

I would love to have *flight flight* printed near Claresholm in order to have better and easier artistic and production control over the magazine, but for several reasons, SAC will keep the printing in Ottawa. So I will just hope that you are forgiving of the typos and other "funnies" which creep into each issue (5/81 centre page has one of the strangest compass roses I have ever seen).

I have faith that with all your help I will meet the challenges to come in 1982, so to all of you this season:

Merry Chrismas, Joyeux Noël,
Gesegnete Weihnacht
&
Happy Soaring in 1982

OPINIONS

CORRECTION

Dear Madam,

I recently came across a copy of the issue of *free flight* with its account of the world championships. It was interesting to see an account of the proceedings from another viewpoint.

I was somewhat perturbed however to read some remarks attributed to myself near the end of this article. One of the reported statements is an outright fabrication made in defiance of rather than in accord with answers I gave in an interview with our reporter at Paderborn.

No credence should be given to any statement attributed to myself in that article.

Yours sincerely,
Paul L. Sears

I will be happy to correct any statements I attributed to you. Just let me know which "outright fabrication" you are referring to.

Ursula

PENSER DISTANCE

Excerpt of a story by Denis Gauvin (Quebec Soaring) following his participation in the Eastern Regionals (from *Le Pingouin*):

"C'est toujours la même marotte qui revient, mais notre club est rendu a cette étape, ou l'on doive axer nos efforts vers la distance, PENSER distance, et favoriser cet aspect du sport. Ceux qui ont gouté à la compétition comprennent ce que cela signifie, et ils devraient encourager les autres à voyager. La meilleure façon à mon avis est de donner l'exemple. Alors messieurs (et mesdames) sortons nos appareils photo, nos cartes, et ALLONS-Y".

… one should now put every effort into distance flying, THINK distance, and learn to admire this part of our sport. Those who have tasted some competition flying understand its importance and they should encourage all the other pilots to 'travel'. The best thing is of course to be a good example. Now, ladies and gentlemen, take your cameras out, your maps, and GO …

MORE ON BETTER TRAINERS

I very much enjoy the columns by Mr. Ian Oldaker and Mr. Eric Newsome; always read them most keenly.

I would like to reply to your invitation on ideas to upgrade our trainers from the low-performance strutted, utterly docile barges like the 2-22, 2-33, etc. The gap to what pilots end up flying is just too wide and greatly damages their preparation. The lack of most clubs to have at least one high performance two-seater results in some training problems, among them:

1. Difficulty for instructors with no performance experience to advise or develop rapport with private owners in high performance ships.
2. Instructors in poor performance sailplanes do not recognize the need to change philosophy to:
   a. speed control by monitoring ASI,
   b. precise approach speed — too slow opens door to laminar flow separation with little warning and a fast-developing spin, *and* too fast means a float into the far perimeter fence,
   c. psychological one of approach speed be ing lower than cruising speed,
   d. sensitive and light handling qualities,
   e. poor glide path control airbrakes on most glass ships *and* trying to use them to compensate for poor approach planning.
3. *Slow* advancement in general to safe, skilful high performance flying.

I have only touched on a complex subject, but we will stay 20 years behind Europe if we do not soon see the need for fast trainers. Let's keep talking — I've flown the Twin Astir, watched the results with this and other super two-seaters — it's absolutely amazing the difference. Safe, competent glass pilots in one-third the time.

Danny Webber
CFI Lahr Gliding Club

Is there anyone who would like to comment on Danny's ideas? Please also read his letter in 4/81 page 3. Would these (and hopefully other) concepts open doors for valuable arguments pro and con today's sturdy (Schweizer) club equipment?

Ursula

NATIONAL CONTEST SITE

I was letting my mind roam on the subject of contests this afternoon. The Nationals are now so big that only a few clubs are able and willing to bid to host them — and the people who do the work will eventually get tired of always being put on the spot.

About 10 years down the road I can visualize a National Contest Site at Rivers, Manitoba. Oodles of space, plenty of accommodation, meals provided, all sorts of recreational facilities, interesting country — and best of all, it's in the middle of this great country of ours.

If SAC developed a package of contest equipment, like the Alberta Soaring Council has done, but including scoring facilities and a few other things as well as start gate, radios, etc., it would become quite easy to put on a contest there. Especially if each Provincial Soaring Council would cooperate by loaning one towplane for a Nationals.

For anyone who doesn't know, Rivers was a military base, and has now been turned into a Conference Centre.

Hazel Flint
Contest Manager
Western Regional Championships 1981

MoT SAFETY THANKS

Having just read the May/June *free flight*, I would like to express my appreciation for your kind remarks about the Aviation Safety Letter. In my previous liaison with the SAC (Mr. Nancarrow) I discussed the possibility of sending accident reports relating to gliders to your organization for dissemination in *free flight*. Although this didn't prove a continuing relationship, certainly feel free to call upon us about any aircraft accident or safety assistance.

I would also like to commend Eric Newsome and Ivor David for the excellent articles on safety. I was particularly struck with Mr. David's "Some thoughts on Safety"; it echoes the ideas we built into our latest motion picture, "To be a pilot..." From our statistics, I'm convinced that behaviour modification of this sort is the most promising approach to accident prevention.

Should you need any assistance in your safety work, please do not hesitate to contact me.

John T. Richards
Chief, Aviation Safety Promotion
Aviation Safety Bureau

SAC BOARD OF DIRECTORS' MEETING

by Dave Collard

HALIFAX, NS — 2-4 OCTOBER 1981

After checking in at our hotel and catching up on some "shut-eye", we all met with Jim Leach and were given the latest correspondence updates, together with the Agenda for the meeting. I could see immediately that it would be another packed session ...

Thankfully, it was not all work, Friday evening, we hosted members of the Bluenose Soaring Club and the New Brunswick Soaring Association in the Duffin Room of the Barrington Inn. With our common interest in the gliding and soaring movement, conversation was brisk, and before we knew it the bartender was calling for the last round. A delicious spread of seafood was enjoyed by all. A highlight of our meeting in Halifax was a social organized by the Bluenose Soaring Club at Dalhousie University Faculty Club. That Saturday evening will long be remembered for its warmth and talented performance of song and verse. If it wasn't so far to commute it sure would be fun to belong to the Bluenose Soaring Club.

… The meeting adjourned at 4:30 pm Sunday, and everyone scurried to catch their flights home. So ended another busy Directors Meeting. Beginning 9:30 Saturday morning, the following major items were considered:

SAC MEMBERSHIP
As of 15 Oct 1981, the records show us as having 1608 paid members, 14 more than in 1980. By provinces, Alberta had the largest increase, 29% overall. In spite of the state of the economy, it would appear we are holding our own.

SAC INSURANCE AND BUDGET
The insurance report was most encouraging, approximately $50,000 in claims to date. Let's all make a special effort to end the year on a happy note. The detailed review of the budget found everything well in hand. Unless something unforeseen develops, we should have a balanced budget at year end. It was unanimously agreed that we should strive for the same in 1982/83.

GOV'T GRANT APPROVED
Fitness and Amateur Sport advised SAC by a letter dated 30 September 1981 that we will receive financial support to the tune of $7000 for seven directors and seven provincial representatives to travel to the 1982 AGM. They also are providing $1500 for SAC block administration. All very good news, with thanks going to the work of the Provincial Organizations and our National Office to help bring this about. Fitness and Amateur Sport also had asked SAC if we agreed to and saw any benefit in proposed changes in the tax laws allowing provincial sports organizations to register for charitable donation purposes. The Board agreed unanimously to support such a recommendation for change.

PILOT LICENCING STANDARDS
There was considerable discussion regarding upgrading licensing standards. This is presented by Russ Flint in his President's Memo on page 2 of this issue.

SAC ADMINISTRATION
With the 1982 SAC year, our membership card will be mailed directly to you from SAC upon their receipt from the club(s) of your monies for membership. Hopefully, this will speed up the date you receive your membership card. Also, a notice will be in the May/June *free flight* advising that it is your last issue unless you have received your SAC card. If you don't get your card, it means SAC did not get your money.

- An 8% salary increase, effective April 1, 1981, was approved for the Executive Director. A full-time secretary is now working at the National Office, and we welcome Linda Essex to the SAC.
- SAC will submit an entry for the 1985 Summer Games at Saint John, New Brunswick. We may not be selected, but an interest shown could prove helpful in future years.

MEMBERSHIP DEMOGRAPHIC PROFILE
In order to improve, hopefully, the arrival of your *free flight* from the printer it was agreed that it should be mailed Second Class. It was agreed that, because of the improvement in *free flight*, an effort should be made to solicit advertisers. This could eventually make the magazine self-sufficient from revenues earned.

WORLD CONTEST PARTICIPATION
After all the bills are paid, it looks as though the World Contest fund will have $1500 left to go towards the 1983 World Contest in Argentina. It was agreed that SAC should support a team for the 1983 Contest. At the National level, the Sports Class will be eliminated unless amended in the future. The goals and objectives of SAC concerning our participation at the world level was discussed. Dr. Karl Doetsch will gather the necessary information and opinions for presentations at the Jan 1982 Directors meeting.

NATIONAL AERO CLUB CHANGE
We were advised that the RCFCA wishes to terminate its responsibility as the representative for FAI. A re-activated organization called CANAERO SPORTS appears the most likely replacement for the Royal Canadian Flying Clubs Association role with FAI, SAC will be sending a representative to the CANAERO SPORTS meetings in order to ensure that our interests are looked after.

82 SAC CALENDAR
There will be no 1982 SAC Calendar. This decision was made as a direct result of the limited number of good slides or photographs on file. It was felt that in order to make the calendar self-supporting, more and better photos would have to be available. Time did not permit this to happen for the 1982 calendar. We need photos, slides immediately if we are to plan a calendar for the 1983 year. Also, do you want to be known as an official *free flight* photographer in your Zone or club? If so, get your photos in.

NEW SAC CLUBS
The Caledon Gliding Club, Caledon, Ontario with 21 members, has joined our ranks. The Camrose Soaring Club, Camrose, Alberta, was given temporary approval pending completion of the necessary paper work. We welcome the new members and look forward to hearing more from you in the future.

ZONE DIRECTOR MOVES
The question of a Zone Director moving from the Zone was raised and the procedure is for the Director to offer to resign and the Board will rule based on feedback from clubs within the incumbent's Zone. This matter was raised due to the Prairie Zone Director moving from Regina to Vancouver.

COMMITTEE CHAIRMEN CHANGES
- After many years of yeoman service to SAC and its members, Mr. Jim Henry is stepping down as Chairman, Technical Committee. We owe Jim a hearty thank you for all he has done for soaring. Jim's replacement is another very capable person, Mr. George Adams.
- We are losing another Chairman due to scholastic demands, namely Mr. Dave Belchamber, covering FAI Awards. Anyone wishing to take on the challenge, please advise the SAC National Office as soon as possible.
- A volunteer is needed for the position of Chairman of the World Contest Committee. Any takers?
- Our Publicity Chairman seat is still vacant. Hopefully, an incumbent will be found soon for this most needed area. Any volunteers?
- Also vacant is Chairman for Provincial Soaring Associations, as Mr. Lloyd Bungey is stepping down.

If anyone would like to help in any of the above positions, we need you. Contact your Zone Director or the SAC National Office.

SAC COURSES WHO IS BIDDING?
SAC reiterated its favour for Advanced Instructors and Cross-Country Courses, but no bids have been received for 1982. The Eastern Instructors Course will be at Gatineau — no Western bid is in. □

Practical Considerations of Atmospheric Convection

by Robert Dorning

reprinted from Australian Gliding, July 1981

This is the third in a series of four articles on the fair weather convection process. The first two dealt with the diurnal variation of both convection and the vertical distribution of temperature in the lower atmosphere. They covered the more theoretical considerations of the atmospheric convection process. This and the final article will examine the more practical questions which are of direct interest to glider pilots, but which could not be explained adequately without the background theory.

It was shown in the first two articles in this series that it is differences in air temperature which is the driving force of convective air movements. Therefore, factors affecting air temperature will have an influence on the strength and duration of convection. In a study of fair weather convection it is necessary to look at things which influence the heating and cooling of the atmosphere.

INSOLATION

The heating effect of the sun's rays is the fundamental cause of atmospheric convection. The intensity of solar radiation falling on the earth's surface varies in a regular pattern which is primarily a result of two things — the annual movement of the earth about the sun and the daily rotation of the earth on its own axis. We shall not discuss the former as it is generally well understood. By far the most decisive determinant of atmospheric convection is the flight of the sun between sunrise and sunset. The daily heating cycle caused by this can be seen by considering Fig. 1.

Soon after sunrise the sun is sitting low in the sky and the incoming sunlight contacts the earth's surface at a shallow angle. This spreads the beam of sunlight over the surface and distributes the radiant energy over an enlarged area.

At midday the sun is overhead and a similar beam of sunlight falls on the earth's surface directly and the area illuminated is not enlarged by an angling of the beam. The radiant energy is not dispersed over a larger area.

In the early morning case, the radiant energy has to warm a larger area of ground and thus the rate of heating is less than at midday. Late in the day, as the sun sinks back towards the horizon the situation is similar to the morning.

It can be seen that there is a diurnal cycle which follows the elevation of the sun where the heating rate of solar radiation increases from zero at sunrise to a maximum at midday, decreasing to zero again at sunset. The solar radiation received at the earth's surface is known as *insolation* and is a *variable* quantity.

TIME OF MAXIMUM SURFACE TEMPERATURE

One should not expect that the time of maximum heating would coincide with the time of maximum temperature (or maximum thermal strength). After the time of maximum heating (midday) the earth continues to receive solar radiation, even if at a rate which decreases steadily throughout the afternoon. This will continue to warm the surface until it decreases to a value where it is balanced by the outgoing radiation emitted by the earth.

The earth not only receives solar radiation, it also emits radiation itself. Compared with the reception of solar radiation, however, the emission of terrestrial radiation is relatively constant. As the reception of radiant energy from the sun falls off in the afternoon the earth still gains energy and the temperature at the surface will continue to rise as long as the absorbed radiation is greater than that emitted by the surface.

As the sun sinks, a point is reached where the outgoing terrestrial radiation equals the absorbed incoming radiation and this will be the time of maximum temperature. After that, as insolation decreases further, more energy is radiated by the earth than it receives and the surface temperature begins to fall.

As was noted in the previous article in this series, thermals do not stop after the time of maximum temperature, although they do decrease in strength. Convection will continue, on average, until an hour or so before sunset and on some occasions even to sunset.

As the energy source, insolation is the primary factor which determines the onset, strength and duration of convection, although the pattern of convection throughout the day does not directly follow the rate of heating as determined by the height of the sun in the sky.

This variation in the rate of heating must be taken into account (in flight and before take-off) when assessing convection prospects. So too must other factors which either enhance or diminish heating of the surface layer. We will discuss the more important of these in the remainder of this article.

INTERPRETATION OF TEMP-TRACES

The early morning temp-traces can provide more information than just the expected maximum thermal height. Such things include: the time thermals may become reliably useable; the likelihood of cumulus occurring and if so the height of cloud base; and with experience the development of a feel for the factors which shape the temp-trace giving one a firmer ba-

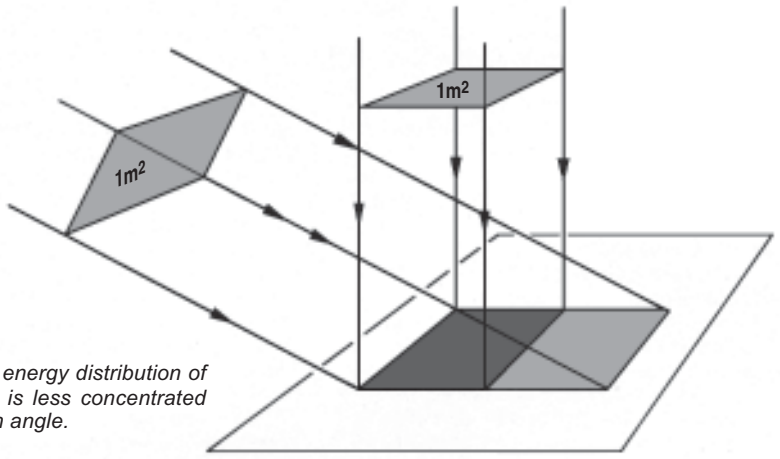


Figure 1: The energy distribution of solar radiation is less concentrated when it is at an angle.

sis for predicting the likely conditions of the following day. These will be discussed in order.

In the first article of this series it was described how, as thermals rise, heat is carried upwards which warms the layer through which thermals are penetrating (the convection layer). As convection progresses, the early morning temp-trace is modified to a dry adiabat up to the top of the convection layer, remaining essentially unchanged above.

In Fig. 2 the ELR at say 1100 hours is shown by the full dark line, if the light line had been the early morning trace which had been flown at say 0830 hours. At 1100 hours thermals were not far from breaking through the nocturnal inversion.

As is shown by the modifications of the ELR, in the 2-1/2 hours between the two soundings thermals had deepened the convection layer by warming it by an amount which can be represented by the hatched area enclosed by the modified and the earlier ELR. This hatched area is in fact a measure of the heat required to be mixed into the convection layer by thermals so that they can grow to the height that they have.

The hatched area is also a measure of the *time* that it will take for thermals to grow to a given height. The source of the heat energy taken up by the convection layer is the solar radiation absorbed by the ground.

As explained above, after sunrise insolation increases from zero to a maximum at midday, This will gradually raise the temperature of the ground which in turn will warm the surface layer. Thermals will mix this heat into the convection layer causing its depth to gradually increase. Because insolation increases from zero at sunrise, the heat available to generate thermals and warm the atmosphere builds up with time.

In theory it is possible to determine, for a given latitude and time of the year, average rates of heating at the surface for each hour after sunrise. These can be used to estimate the time for thermals to reach a particular altitude.

The amount of heat required to be mixed into the atmosphere for thermals to reach this height can be estimated from the size of the area enclosed by the temp-trace and a dry adiabat drawn from the altitude on the temp-trace. How long it will take for this amount of heat to become available and be mixed into the convection layer is then determined by adding the hourly heating rates until a large enough figure is obtained.

In practice, what we are usually interested in is when thermals will break the nocturnal inversion or when they will reach a height which will make soaring moderately reliable, say 2500 feet. A dry adiabat drawn from either of these points on the temp-trace shows the area of required heating.

Elaborate procedures for forecasting the growth of thermals have been presented (Bradbury and Kuettner, 1976; Reichmann, 1978) for northern European latitudes (50°N). However, the heating rates aren't applicable to our latitudes (15° to 40°) because insolation increases towards the Equator.

Allan Woolley (1980) suggests that tables of heating rates for other locations can be developed by keeping accurate records of temp-traces and surface temperature movements. However, even in the absence of such a guide, with very little experience quite useful estimates of how early or late the day may start by reference to the area under the temp-trace.

ADVECTION

In meteorology, there are three major heat transport mechanisms — radiation, convection and advection. Insolation has been discussed above and is a form of radiation. Convection is the vertical transport of heat due to buoyancy and is the subject of this series of articles. In general, advection is the *horizontal* transport of heat by wind.

A major failing of using the area under the temp-trace to determine the timing of usable thermals is that the heating and cooling effect of wind is not taken into account.

In the above discussion it was implied that the sole source of the heat transported upwards by thermals is the solar radiation absorbed by the ground in the immediate neighbourhood. In reality, however, the wind can bring in hot or cold air which will increase, or slow down, the rate of heating by the surface.

In most parts of Australia, air brought in by northerlies will have travelled some distance over a warm countryside and will transport heat from these areas. On the other hand, air brought in by southerly winds will have come from colder regions and its temperature will not rise as much with an equal amount of insolation. It is very difficult in the field, to say exactly how much this effect may be, even though it must be taken into account.

On days with northerly winds air temperatures will rise more quickly, but convection may not develop till later depending on the morning ELR. However, as there aren't cool winds to dampen convection, thermals should work late.

On days with southerly winds the effect of cold air advection can be quite startling. Thermals can sometimes reach workable heights quite early, but later in the day when you're on track they may suddenly deteriorate and finish soon after.

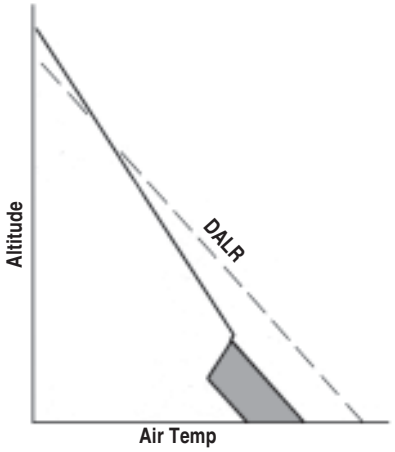


Figure 2: A late morning temperature sounding (dark full line). The grey area between the two is a measure of the heat transported upwards from the surface by thermals in the time between the soundings.

As the heating effect of the sun's rays falls off with the sinking of the sun, a point is reached where the rate of heating by insolation falls below the rate of cooling by the southerly wind. The result is that thermals can suddenly weaken, and even finish, very much earlier than would otherwise be expected.

TRIGGER TEMPERATURE

The surface temperature which will cause thermals to break the nocturnal inversion or reach reliable altitudes has become known as the 'trigger temperature'. It is obtained by simply drawing a dry adiabat from a *desired height* on the temp-trace and reading off the required surface temperature where it intersects the horizontal axis.

The time the trigger temperature will occur can be estimated by the above described technique and the actual temperature rise can be monitored on the field by taking regular measurements with a thermometer.

When the trigger temperature is reached, thermals will go to the desired height although they may not always be easy to work. It should not be thought, however, that the term 'trigger' implies that thermals don't happen before this time and somehow are triggered at this temperature. Rather it means simply that thermals have grown to an altitude *considered* reliable for soaring flight.

FORECASTING OF CUMULUS CLOUDS

When telephoning a flight briefing service for a meteorological forecast you may be told the forecast dew point temperature in your area. This can be used to assess whether cumulus will form on that day and if so what height cloud base will be. For our purposes the term 'dew point' refers to the temperature at which the water vapour in the surface layer of the atmosphere will condense and form water droplets, ie., the temperature at which it would form dew on surface objects.

Thermals take air (and the water vapour contained within it) from within the surface layer and transport it to the top of the convection layer. As has been laboured throughout this series of articles, the air within thermals cools at the DALR as it ascends and the temperature of the contained water vapour will fall along with it.

If thermals rise enough for the temperature of the air within them to fall sufficiently to equal the dew point of the contained water vapour it will commence to condense out and form cloud. Whether this will happen depends on a combination of factors.

The height to which thermals can rise is controlled by (1), the temperature structure of the lower atmosphere which is represented by the early morning temp-trace and (2), the maximum surface temperature.

The maximum thermal height can be gauged from the intersection of the early morning temp-trace and a dry adiabat drawn from the estimated maximum surface temperature for that day. The dry adiabat is a representation of the temperature of air rising in thermals from close to the ground up to the top of the convection layer.

This method of forecasting cloud base is at best approximate. Official forecasters are often reluctant to forecast the dew point as there is not a firm basis for doing so given the sparsity of meteorological data regularly collected across the Australian continent.

The reason it cannot be precise is that there are many things which influence the distribution of water vapour in the vertical — these include the amount of water vapour at middle levels, the degree to which convection mixes the surface level and higher level moisture, and the advection of moist or dry air by the wind.

There are other elaborate techniques (Bradbury and Kuettner, 1976) requiring involved procedure, but it is questionable, given the time and resources normally available to the gliding forecaster, whether they are more reliable.

In another article, an alternative method will be presented by which the dew point temperature can be determined easily on the gliding site by means of measurements with a wet and dry bulb thermometer.

It is worthwhile, however, to pester your area Flight Service people for a forecast dew point temperature, as for many gliding operations, this will be their only basis for 'guestimating' the likelihood and altitude of cumulus. The surest way is in conjunction with the temp-trace, but it is possible even without the latter to make a good prediction if the nature of the air stream passing overhead is understood.

The key to such an understanding is the concept of air masses — if the nature of an air mass and its pattern of movement over your area is appreciated, it is possible, even without a temp-trace to make reasonable daily forecasts of how high thermals will go and the likelihood of cumulus.

ANTI-CYCLONIC SUBSIDENCE

An important recurring synoptic system, which does not fit into the category of an air mass, but which markedly, if temporarily, modifies the vertical temperature structure of the atmosphere as it passes, is the anti-cyclone or 'high'. These systems can significantly dampen cross-country prospects during the time they are around.

Each anti-cyclone is a region of high pressure because there is a column of slowly subsiding air above it which builds up the pressure below. This subsiding air descends at a very slow rate, about 200 metres a day, but in doing so its temperature rises at the dry adiabatic lapse rate as it undergoes compression sinking into the higher pressures at lower levels.

This 'adiabatic heating' modifies the ELR by raising the temperature of the middle and lower levels of the troposphere as shown in Fig. 4. The middle level warming can often be of such magnitude that an inversion will form within the height band. Such an inversion is known as a 'subsidence inversion'.

Referring to Fig. 4, let us assume that the unmodified temp-trace is the early morning ELR of one day, the modified temp-trace the ELR of the morning after and that the maximum temperature on both days is the same. Then the dry adiabat drawn from this maximum temperature will intersect the temp-trace of the second day (point B) at a much lower

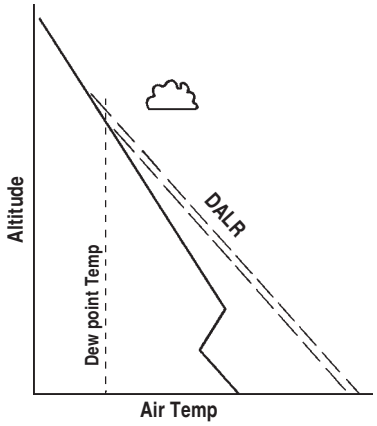


Figure 3: Temperature-height diagram with dew point temperature drawn upward from the temperature axis. If thermals do not go high enough for the temperature to fall to the dew point (lower dry adiabatic), cumulus clouds will not form. If the temperature at the forecast maximum height (upper dry adiabat) is less than the dew point temperature, cumulus will form at about the height where the temperature in the thermal equals the dew point temperature.

altitude than the day before (point A). Thermals will not go so high on the second day as they encounter relatively warmer air at a lower altitude.

In reality, it would be very unusual in such a synoptic situation, to have two consecutive days with the same maximum temperature. Before a high arrives the wind is from the north or northwest so that surface temperatures do not rise too high. Once it has arrived, the winds swing towards the south and daytime surface temperatures increase quickly. However, although surface temperatures may be higher, thermals often aren't able to go so high because of the warmer air aloft.

The early morning ELR is usually a reliable basis for predicting maximum thermal height. However, if the temp-flight was done before a high reaches an area and the high passes over during the day, then it is likely that the

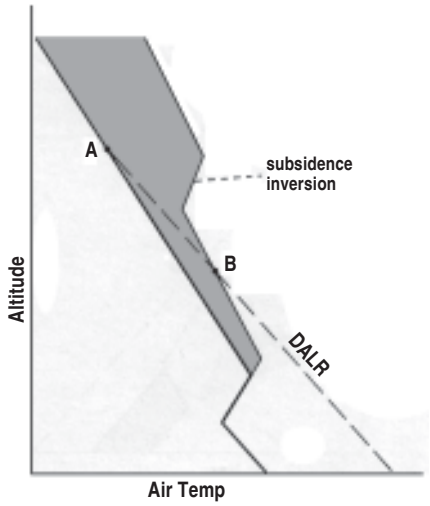


Figure 4: Temp traces of two successive days showing the warming aloft that occurs as a result of subsidence associated with an anti-cyclone moving into the area.

vertical temperature structure would be significantly modified. Middle level warming would occur after the temp-flight with the result that thermals do not reach expected heights, although the surface temperature may reach its forecast maximum.

An anti-cyclone can inhibit convection in a way other than the formation of warm air aloft, ie., by cold air near the surface. The associated subsidence suppresses cloud causing clear skies not only during the day, but also at night. Radiation from the earth's surface is free to pass out to space and a strong nocturnal inversion can form (see Part II of this series). Not only may thermals not go very high, the day may take a long time to get going.

THERMALS OVER MOUNTAINS AND HILLS

Something else that can be explained by reference to the temperature-height diagram is why convection is usually stronger over hills and mountains than over adjoining plains.

While waiting for soaring conditions to develop at their airfield on the plains many readers, no doubt, would have been frustrated to view well formed cumulus developing much earlier over mountains on the horizon. Moreover, conditions sometimes fail to develop at all, or the sky remains blue all day, while these tantalizing signals of excellent convection continue to decorate the distance ranges. The reason for the favoured development of convection over elevated terrain is straightforward.

When a measurement of the vertical temperature profile of the atmosphere is made above a gliding site, it is representative not only of the air above the site but of some distance around, providing that a change in the air mass is not in the vicinity.

If a temp-flight is done over a gliding site near a mountain range then the air passing over the mountains will have much the same vertical temperature structures as over the plains. Therefore when a thermal rises from near the summit of a mountain it will enter air having the temperature of the environmental air at that altitude.

The temperatures of the mountain faces with sun shining on them will not be too much below the temperature on the plains, so there will be much greater temperature difference driving a thermal rising from the mountain top and its new environment than one rising from the plains. This can be seen by considering Fig. 5.

The figure is the normal temperature-height diagram, with a diagrammatic mountain drawn on the temperature axis. The full thick line is the early morning temperature sounding.

Let us assume that in the afternoon the surface air temperature on the sunny slopes is a little lower than on the plains. If a thermal rises from the plains, the air within it will cool along and a dry adiabat drawn from this temperature at zero altitude. The maximum height of the thermal will be where this dry adiabat intersects the early morning ELR.

By contrast, a thermal which originates on the mountain would be represented by a dry adiabat drawn from the mountain surface temperature, but from the level at which it leaves the slope. The result is a substantial tempera-

ture difference between the two adiabats. This means that the temperature excess of the mountain thermal over its atmospheric environment will be much greater because the temperature profile of the air it passes through is much the same as that over the plains.

The rate of ascent of the mountain thermal would consequently be more rapid and it could be expected to go much higher before encountering, and being stopped by, a relatively warmer layer.

This applies equally to isolated hills on the plains which makes them worthy of a diversion when seeking strong lift.

In fact, the air over elevated terrain could be much cooler than that on the plain and still generate good thermals. All that is required is that the air over the slopes have a higher temperature than the environmental air at that altitude. This will depend on the height of the terrain and the shape of the ELR. In this regard, too much importance can be attached to into-sun rock faces being good thermal sources. Tree-covered ridges are also quite reliable sources of good thermals.

In a study in the USA of simultaneous comparisons between weather stations located in adjacent valleys and mountains it was found (MacCready, 1955) that the dry adiabat corresponding to the conditions of a mountain station typically had a temperature excess of 2.8° C over that for the valley. In one extreme case an excess of 8.3° was observed.

In this explanation it has been implied that the mountain thermal can be represented throughout its depth by a dry adiabat and that its maximum height can be estimated in the usual way as the intersection of this dry adiabat and the early morning ELR. This is probably not the case.

Like all other thermals, as the mountain thermal pushed up through the atmosphere, cooler air is entrained and mixed into the thermal. This entrainment will cool the air in the thermal and should quickly reduce the initially high temperature excess nearer to the normal values of ordinary thermals. Consequently, for the first 1000 feet or so, the lapse rate in the thermal would be greater than the DALR. Thereafter it would be at the DALR.

The line representing such a thermal is shown in Fig. 5. It can be seen that the maximum thermal height is less than would be expected if the thermal were able to maintain the initially high temperature excess between itself and its environment.

RIDGES ARE GOOD THERMAL SOURCES

It is the elevation of a thermal source which produces the large temperature excess between the air in a mountain thermal and the environment it enters. On most occasions, the greater the elevation the greater the temperature excess will be. Hence places with the greatest elevation ie., the highest points, will be favoured locations for thermal sources.

Thermals will originate as a general rule along the tops of the ridges with the local peaks being likely spots. They may be located above the downwind side of the ridge, even if this side is in the shade, as the thermals lean somewhat in the wind from the fixed thermal source. Having slope soared to the top of a ridge, one must be wary of drifting into the 'curl-over' on the downwind side. When transitioning from hill lift into a thermal you should be at least 400 feet above the ridge before commencing to circle. Below this, figure-8s should be flown so as to keep turning into wind and away from the slope.

Thermals are found in valleys but they appear to be less frequent, weaker and more difficult to work. A major reason for this is that there must be air descending to compensate for the air which rises in thermals along the ridges. This air will descend over, and in, the valleys and will tend to suppress thermals which attempt to form there. In the mountains, convection is organized spatially to a very large extent by the topography.

However, whilst weak, the thermals from the valleys and lower ridges will almost always get one out if worked with patience.

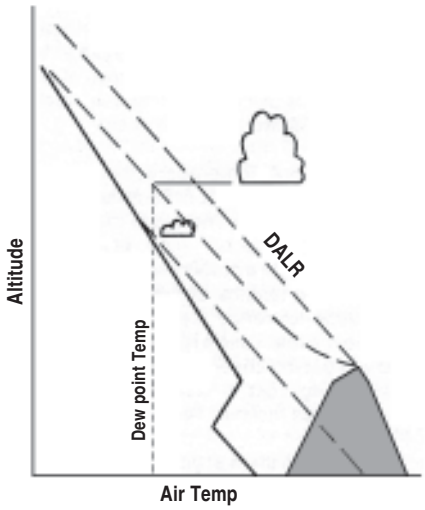


Figure 5: Temperature-height diagram showing an early morning temp-trace over the plains near a mountain range. A diagrammatic mountain is drawn in. The maximum surface temperature on the peaks is generally less than on the plains. However, a dry adiabat drawn from the lower surface temperature (upper dashed straight line) on the mountain summit goes higher than the temp-trace, whereas the dry adiabat from the higher temperature on the plains (lower dashed straight line) intersects the temp-trace much lower. The cumulus clouds and curved dashed line are referred to further on in the article.

ELEVATED TERRAIN WORKS EARLIER

The early development of soaring conditions over elevated terrain can also be explained by the advantage provided by the elevation of the thermal source. Looking again at Fig. 5, one should be able to imagine lines representing morning thermals rising from the plains and ones from the level of the mountain summit.

Even if surface temperatures are lower on the mountain, as temperatures increase early in the day lines representing thermals rising from the mountains will intersect the temp-trace higher than those for thermals from the plains. They will do this simply because they originate from a higher level. Consequently, late in the morning when it is still difficult to remain airborne in the thermals over the plains much better heights should be attainable over elevated ground.

CLOUDS FORM MORE READILY ON MOUNTAINS

Cumulus clouds often form over mountain ranges while the sky remains blue over the plains. On the days when they form over both, the clouds in the mountains usually appear earlier and then have higher cloud bases than those over the plains. The reason for this can also be found in the difference in elevation of thermal sources.

For cumulus clouds to form, the temperature of the air in thermals must fall to the dew point temperature. This temperature is largely a property of the air mass passing over a region (see the next article in this series) and at a given time will tend to be relatively uniform over a large area providing there is not a change in the air mass nearby. For the moment let us assume that the dew point temperature for adjoining mountains and plains is the same.

With reference to Fig. 5, the temperature of air rising from the plains in a mid-afternoon thermal will fall as shown by the dry adiabat originating on the plains. As the temperature at the top of a thermal reaches the dew point temperature a shallow cumulus will form at this altitude.

At the same time, the temperature of air rising in a thermal having the mountain top as its source will cool along the modified adiabat and will not equal the dew point temperature until having reached a greater height.

A cumulus cloud will commence to form at this altitude, but as the thermal is still warmer than its surroundings, the cloud will grow upwards until it contacts a relatively warmer layer.

The mountain-sourced thermal produces a higher cloud base because from the point of view of cloud formation it is hotter air and must go higher before cooling to the dew point temperature. Its apparently warmer temperature is due to it originating from the elevated source even though its starting temperature was lower. Higher mountains will thus usually have higher based cumulus clouds sitting above them.

Our assumption that the dew point temperature would be the same for adjoining plains and mountain tops is not, however, strictly correct. Because the surface is its source, the amount of water vapour in the atmosphere generally decreases with altitude. Therefore, if a thermal takes air up from over a mountain summit, the moisture of the air would be less than air carried aloft by thermals on the plains.

Because the moisture content is less, the air would have to be cooled to a lower temperature before becoming saturated and condensation commenced. Thus the dew point temperature in the mountains is usually lower than on the plains and this is another, but less important, reason for cloud base being higher in the hills.

MOUNTAINS DON'T ALWAYS WORK BETTER

It has been shown that as a general rule, elevated terrain should work better and earlier than adjoining plains. However, this is not

continued on page 13

SAFETY COLUMN

by Eric Newsome

MORE ON ROPES

Lloyd Bungey sent in the following article on ropes in response to a previous Safety Column (4/81) request:

I'm not the expert on ropes that Eric was asking for in his July/August Safety Column, but I do know a thing or two about them:

1. They will stand a lot of abuse, but if the student actually flies past the towplane when the towpilot applies Special Procedure #3 to produce slack in the rope, then let the rope go. The jerk as you take up the slack will only break the rope anyway (either that or the towplane will come apart).

2. If you are the towpilot and you suddenly see trees as the towplane stands on its nose, then let the damned idiots on the other end of the rope have it. It's far better than having it come whipping back around your tail.

3. If you feel the jerk in the towplane as your rope brushes through the branches on final, then make your next approach a little higher. Good towplanes are hard to come by.

What, you may ask, do the above gems of wisdom (?) have to do with a discourse of towropes. Actually, very little, except to lead in to my first three points:

1. if you abuse a rope it will let you down,
2. when it lets you down it will probably snap back and attempt to hit you,
3. if you want it to break, it won't.

So how do we protect ourselves from such cantankerous behaviour. By taking precautions such as:
a. selecting a rope of suitable characteristics,
b. installing suitable weak links,
c. looking after the rope.

HOW STRONG IS YOUR ROPE?

Many people rely on the stated strength of the rope to provide their weak link. This is a poor practice. Why? Simply put, because the rope could be overstrength, understrength or (highly unlikely) just right.

When you buy your (say) 2000 lb breaking strain rope what you usually get is a rope that won't break below that. The manufacturer doesn't want lawsuits caused by somebody getting clobbered when his 2000 lb load squashes him flat because he trusted a rope, so he builds in a safety factor. What this means to you is that if you have a release mechanism that is built to take up to 2000 lb load but will rip out above that, your nice 2000 lb rope will handle more load than it so you could rip your release out even though you think its protected.

After a few tows however, the rope is somewhat weaker. It gets scuffed on the runway, exposed to sunlight and generally gets handled without special care. A knot can knock its strength down by 50%. The jerks on tow (the ones given to it, not the ones giving it the jerks) may cause elongation of the fibres and weaken it. Thus it is not very long before your rope is below its (theoretical) 2000 lb breaking strength.

If you can't decide what strength your rope is, what should you do? Well if you are like 95% of North American glider pilots, you look at what everyone else is using and follow suit, trusting to luck that it will work (it often does).

Actually, this is a dumb approach. (Yes, but before you hit me on the nose remember I'm insulting myself also.) There is a much better solution. Get a decent rope of adequate strength and install a proper weak link. Not one of these stupid lengths of thinner rope but a proper close-tolerance shear pin assembly. Those are reliable. I use a rope so don't ask me where you get the shear pin assembly; I would suggest trying Tost in Germany since most European clubs insist on them.

Incidently, install them at both ends of the rope to protect your towpilot too. I've seen what a too strong rope can do to a towplane when it wraps around power lines, and it's not nice.

WHAT ROPE SHOULD YOU USE

For guidance on this topic try to lay your hands on a copy of the Nov/ Dec 1972 *free flight.* An article by Bob Carlson covers the topic of rope selection fairly extensively. Summarizing his statements, the choice of rope is a compromise between cost and properties. For use as a towrope, a 1/4 inch braided nylon rope handles easily and gives a nice tow, but is expensive and requires special splicing techniques. Polypropylene is cheaper but harder riding. It does, however have a size/break strength combination that is compatible with aircraft structures. Its negative features are poor sunlight resistance and shock absorbency.

HOW DO YOU CONSTRUCT YOUR TOWROPE

I stated at the beginning, I'm no expert. I've seen all sorts of towropes over the years, ropes with knots, ropes with splices and ropes that were so frayed they should have been long ago scrapped. Since knots can lead to a drastic strength loss, the ends should be formed into a loop and spliced. This loop should be fitted with a thimble and wire wrapped for greater wear resistance. The weak link can be installed by use of a suitable shackle or carabiner. Of course to save cost, one can always place the rings directly in the loop but we are then forgetting our weak link.

WHAT STRENGTH SHOULD YOUR WEAK LINK BE?

The USA FARs have a regulation that the weak link strength should be from 80-200% of the gross weight of the aircraft. I've come across pilots who use the 200% figure and go by that. I was roundly abused by one when my weak link broke because it wasn't a 200% weak link (he owned the same type as me). I wonder why he hadn't read his pilot's manual. It clearly called for a 900 lb weak link.

You should never assume the release mechanism will hold under twice the gross weight of the glider. Check the manual and see what the manufacturer requires as a weak link then adhere to it. A broken rope is much easier to replace than a release mechanism that has been torn from its mounting.

WHAT SORT OF RINGS SHOULD YOU FIT?

There is only one kind of ring to trust your life to, the right one. Each release calls for a specified set of rings. Sure they cost a little but it is a lot cheaper to fit the right rings than save a couple of bucks and buy a funeral.

A lot of people have got away with two pieces of chain link instead of the correct rings, but next time you see a set in use just double check and see how well they release under side loads and how well the back release functions with them installed. At least 90% of the time there are some side load situations where the chain links will jam while the proper rings won't, I've even been offered the use of a rope fitted with chain links that would have jammed in my release as soon as installed. Don't take chances. Rings are not that expensive, especially when compared to the cost of your machine.

ROPE MAINTENANCE

Because they are such an inexpensive item, ropes are often ignored until you have trouble. They are actually a key item in your equipment and should be treated as such. Give them a daily inspection as you do your plane. Check the whole length. A broken strand requires rejection and repair. Knots should be removed – if too tight to remove, the rope should be discarded. Check the rings and the fittings for damage. If the rope is a club rope and used for a large number of tows daily, check it visually each tow. It is not necessary to walk the whole length but be sure you can see it all. It is not uncommon for a knot to get into the rope after release and the earlier this is dealt with the easier it is dealt with.

When the rope is not in use, keep it out of the sunlight. Sunlight is an enemy of rope so protect your investment. Also, avoid contact with foreign substances, particularly acids.

Finally, ropes do not last forever. The chafing of fibres against each other in use can lead to a steady deterioration of strength. The exposure to sunlight which occurs takes its toll. Better to throw the rope away after a couple of years' use than to stretch it one more year and have it let you down at a critical moment. □

Eric comments …

Lloyd has a point when he says that we often use dumb methods which appear to work — but perhaps we should smarten up. Both his article and the one by Bob Carlson to which he refers makes it quite clear that you cannot know the strength of a rope – when new it is almost certain to be overstrength and as it ages there will be an unknown rate of decline. It follows that using another piece of rope of unknown strength as a weak link is not very bright. Both suggest the use of close tolerance shear pin assemblies as accurately calibrated weak links — Carlson made the suggestion almost ten years ago and I haven't seen one yet! If shear pin assemblies on both ends of the rope are the answer (and more information would be welcome) it's time we got moving on it.

INCIDENT REPORT – TOWPLANE

The CFI of the Cold Lake Club, J.H. Wood, advises that:

ALL CLUBS USING BELLANCA AIRCRAFT (SCOUT OR CITABRIA) SHOULD INSPECT THE U-BOLTS ON THE UNDERCARRIAGE, USING N.D.T. TO DETECT FATIGUE CRACKS. SUGGEST RE-INSPECTION EVERY 200 LANDINGS OR TWENTY-FIVE HOURS, WHICHEVER COMES FIRST.

This follows an incident when the undercarriage collapsed on an aircraft with about 40 hours and 250 landings.

HOW TO FLY A MOTOR BIKE

Dave Collard sends a description of an incident which could have been worse but which could also have been avoided.

At the approach of a storm a glider landed in strong, gusty conditions and was immediately hooked up to the motor bike used for towing (that deserves full marks for originality!). Heading off into the wind it wasn't long before the rider felt the rear end of the bike being lifted into the air and, on looking back, saw the glider fully airborne minus the pilot who had been forced to let go. The bike rider bailed-out and the glider, left to its own devices headed earthward there to batter its nose.

When the airflow over the wing is sufficient the glider will fly regardless of the origin of the flow: the wind alone might do, the wind plus the forward speed of the ground tow will do just as well.

Dave suggests limiting the speed of the tow, putting out the spoilers to decrease the speed at which flight will begin and, of course, draping large bodies in quantity around the glider will also help to keep it where you want it.

The best suggestion of all was not to do any of the above but instead install tie-downs at each end of the field opposite the touchdown points to which gliders can be secured until the wind has dropped to a less dangerous speed. □

Keep fit — Keep safe

by Annemarie Hollestelle

You may ask what has physical condition to do with gliding? It may not be important for local flying, but for pilots who go on long X-C flights, and especially competition pilots, it is vital. Soaring does not demand much strength, but stamina and concentration count:

• You are on your first 300 km attempt. You are tightened into your safety belt for hours and unable to change your position, you don't know what is awaiting you, you have little experience and are apprehensive. Your concentration suffers, you find your normal thermalling skills have vanished, and you are physically drained at the end of the flight, and bounced the landing badly.

• You are in a competition, flying with day after day of long X-C tasks. Fatigue builds up and stamina will play a critical role in your success. How many times have you made your biggest mistakes towards the end of a contest?

In both the above cases, the body is under a great deal of stress. Some stress is needed to keep the body in healthy tone, too much has harmful consequences which can show up in many ways. One of the best means of allowing yourself to overcome the physical and mental effects of excessive stress is to keep fit. The stress won't change — but you will be able to handle it without a physical overreaction which could cause an accident.

Getting fit should be part of your preparation towards great achievements. Not only does the body benefit, also the mind becomes clearer, and pressures are easier to bear.

If you have allowed yourself to "slack-off", you should start right now again with your training – skiing, jogging, swimming, (indoor) tennis, it does not really matter. Also, your alcohol consumption, smoking, lack of sleep, medicines, should all be carefully considered; they all have a negative effect on your general fitness, and restrain your skills.

Another important aspect is your food and liquid intake before and during the flight. Some pilots may want to eat nothing, others enjoy big meals. It's an individual choice. The ideal food to take along is easy to digest, high energy food that gets quickly into the blood stream. Studies indicate that lots of fluid during a flight will keep up concentration on hot days. Several incidents and fatalities in contest flights have been attributed, in part, to dehydration. Relaxation before the start is very important. A good and reliable crew is most helpful for this, since it also contributes to a reduced stress level during the flight.

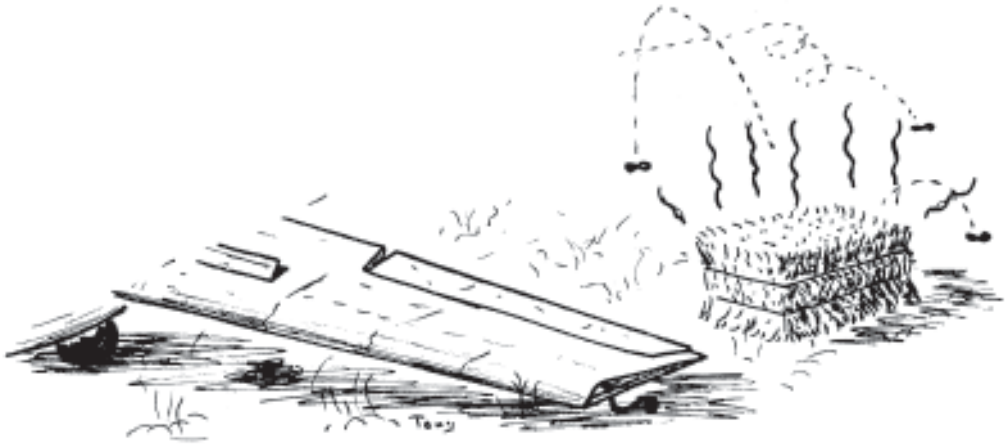
The pilot who is fit and relaxed is best able to achieve a big goal. But, soaring is a hobby and should be fun, so it is up to the individual pilot to decide how high to set his sights, and prepare himself to get there safely. □

SAC 19-21 MARCH 1982

Annual General Meeting	Dorval Airport Ramada Inn Montreal, Que Host: Montreal Soaring Council
Friday 19 March 1900 -?	Pre-registration (Watch for further details by Canada Post) Reception
Saturday 20 March 0830	Registration
0900 -1200	Information Session
1200 -1300	SAC Luncheon
1300 -1700	SAC Business Meeting
1900 -	Awards Banquet
Sunday 21 March 0830 -1400	Directors' Meeting
0900 -1200	Workshops
Plan to attend:	Advance Tickets $25.00 include Reception, Saturday Lunch, Banquet
Room rates:	$34.00 Single, $40.00 Double

PLEASE CONFIRM ATTENDANCE WITH THE NATIONAL OFFICE

The Sweet Smell of Success



The cloud base was reported to be at 3000 feet. This is it, I thought, Wingham here I come. As I was awaiting my turn for launch with my knees under my chin (due to the barograph taking up so much space behind the seat), good old Brent gave me a few encouraging words, “If you land out, it better be a big field”... Oh, why? “Cause you’ll need an airtow. The 1-26 doesn’t fit on the trailer”... Thanks Brent. There were still four gliders ahead of me, so I went back to my charts trying to forget what I just heard. Where the hell is Wingham anyway? Ah! I’m next to go. But wait... why is the 1-35 back?? What does Seth mean he is lucky to get back from Elora and that the conditions are terrible?? Thanks Seth. Oh well, I’ll go for a local flight anyway ...

by George Reid
York Soaring

The verbiage to follow is my first attempt to document an event. But fittingly the event in question was my first attempt at a cross-country flight.

I started out the appointed day by doing all the good things, fitting the trailer to my car, collecting the barograph, charts and paperwork.

The weather was starting to look good for a change. So much so that Seth and Lee were going to attempt a 100 kilometre triangle in the 1-23 and 1-35. This left a 1-26 for my use, which I pulled onto the line around 12:30.

Why Wingham you ask? Well that’s what Walter, our CFI, suggested at the last minute due to what little prevailing wind there was at the time ... so much for all my mental preparation and surveillance of Rockton.

I had asked for a low tow east of the field, and got off when we entered a boomer (relatively speaking). I went straight to 3000 feet and thought, well, that was easy. If I still have 3000 at Arthur I will proceed. I arrived there at 3300 and was convinced that it was in the bag. I would like to say that I never saw 3300 again.

I had forgotten what a miserable glide angle the 1-26 has (comparatively speaking again), my flight path looked like the edge of a rip saw. I detoured under every cloud and over every plowed field hoping to get something for nothing. The wind was now coming from the north which caused me to drift south when thermalling. Most of my flight was between 3000 feet (once in a while) and 1500 feet (most of the time). For this reason I was surveying the fields very critically for a potential outlanding.

At one point I found myself north of Palmerson looking for a thermal. There were no clouds or plowed fields that might be creating any convection. Oh well, Bill Sikma says that there is always a thermal over a village. Therefore, Palmerson here I come. Big town, big thermal … big disappointment… big worry… Bill Sikma, big … With any luck I should be able to glide to the outskirts. Wait… what’s this zero sink? … after what seemed to eternity I got back to 2600 and was heading northwest again.

I proceeded for another twenty kilometres and could see in the distance a huge field and a perfectly clear sky. What happened to the clouds? Is this what they call lake effect?

As I continued to slide lower, I passed the field and took particular note of the slope, the wires at each end, the plowed portions and the two farmers baling straw in the far corner.

There was a gravel pit beyond that, which was my only chance to get back up.

I knew my altimeter was reading low due to the terrain altitude difference, but I sure wished it was reading higher than 300. As I was circling in and out of zero sink that large field was drawing me like a magnet. It certainly met Brent’s criteria, it might even satisfy Walter. After about ten turns I had lost 100 feet. So proceeded back towards the field.

I crossed the field at 45 degrees to my intended IP so as to have a good look at my landing area. I noticed one lone bale in the area that must have fallen off the wagon. Good, I’ll land beside it and use it to hold the wing down.

As I turned onto base I saw a grass strip on an adjacent farm, but there was no sock … Could it be a strawberry crop?? Or was it a landing strip?? Too late, I wasn’t about to change my mind then, and flew over top of it.

I touched down at the near end of the field just short of my bale. The landing was no different than at Arthur except for the distinct smell of skunk, and a hill in the middle of the field which hid me from the farmers. I expected them to come rushing over the top, but when they didn’t I assumed that they had gone back to the barn with a load of bales and missed my landing.

Oh well, I’ll button up the glider and go phone Walter. When I got to the bale, I could see why it was still there. It had a dead skunk sticking out of the side. So much for that wing weight. I elected to get a clean one from the other side of the field.

As I walked towards the nearest farm house I could see the tractors parked at the far end. Must be having lunch. There was no one home at the house, not even the anticipated vicious dog, much to my relief.

As I headed back towards the road on my way to the next farm, I could see one of the tractors slowly making his way up the hill in my field. Ah! He’s stopped. He must see the glider… Boy! Look at him run… but where is he going? Oh! I see — that house down there … jeez, he actually cleared the fence. I better stop him.

Although I was shouting and waving my hat in one hand and my map in the other, he didn’t see me. He ran straight into the house. As I ran down the road I wondered which would arrive first, the police, the fire engines or ambulance.

As I arrived opposite the house he came running back out followed by a woman and numerous children, shouting something about an airplane crash.

I quickly explained to the gentleman what had happened and requested that he cancel his call to the local SWAT team. But it was too late ... over the hill came a dune buggy full of his family. He had only called his home.

After explaining the situation again, they drove me back to their farm where I could use their phone. I advised Walter of my location and assured him we could airtow out. He responded by telling me it would be two to three hours before he could come for me. It was now 3:00 o'clock.

The young couple drove me back to the glider where I tried to explain I didn't quite run out of wind, and no I didn't see the runway on the other side of the road. After they had sat in the 1-26 and saw all that they wanted they went back to do their chores, and left me with the skunk and my thoughts.

After walking the length of the field to clear the odd rock, there wasn't much else I could do except wait. I had not anticipated that, and as a result I had failed to bring anything to eat, drink, read, or listen to. There was nothing I could do except to sit under the wing, hold my nose and reflect back on my flight.

I was laying beside the glider when I heard the screeching brakes. A passing motorist had seen the glider and was now turning in the gateway and driving over the plowed portion of the field … boy, look at him bounce.

Good afternoon… no, I didn't crash. No, the wheels didn't fall off. Yes, I ran out of wind. No, I didn't see that airstrip over there. We chatted like that for ten minutes or so till the motorcycle showed up. I repeated the same conversation again including the part about not seeing the runway. Then came the truck and a family in a station wagon. Next came a gentleman who wanted to drive into town and buy me a hamburger. He also felt bad that I didn't see that runway over there.

Everybody in the county seemed to know there was an airstrip there. How come it wasn't on the charts? I checked just to be sure it wasn't and in doing so discovered that, although I hadn't made my destination, it appeared I had gone far enough to satisfy Silver distance. So when Mr. Thornton the property owner returned with his son, who it turned out actually saw me land, I presented them with my landing certificate for their signatures.

It was turning out to be a beautiful day after all, except for two things. The dead skunk in front and that damn runway behind. I wonder if Walter will see it? Where is he anyway, its after six o'clock and another crowd is starting to gather.

Why thank you ma'am for the offer, but no I can't go back to your house for supper, I will be leaving soon. (I hope)… (Boy, am I thirsty) No thanks fellers, I can't drink any beer until I get back. Yes ma'am, that skunk sure does smell, no it's not under the glider. No sir, I didn't see that airport. Oh! you own it. Yes sir, wind socks are expensive. Thank you for the invitation, but yours is the fourth offer for supper I have had to turn down, thanks again. No ma'am, the propeller didn't fall off.

Finally Walter showed up around 7:30. Aw No! He's lined up with that skunk's coffin. I'll have to move it … Yuk! I wonder if he saw the airstrip.

Walter landed after making one pass of the field and I will try to quote him to the best of my recollection. As he approached me with his hands out at his side, "Didn't you see that airstrip"? Before I could come back with something smart like... the stubble field looks more like Arthur than the airstrip did, or I needed an outlanding to enter a contest, or finally, if I landed there I wouldn't be eligible for York's coveted "Lead 'A' Award", he was saying, "It's just like in the text book, beautiful farmer's daughter with food". As I turned around I could see the property owner and his family walking over to us and the rest of the crowd, bringing an armful of food and a big jug of orange juice.

I don't know which impressed Walter the most, the beautiful girl or the food. I suspect it was the food.

While Walter was unrolling the towrope, I took a long drink from the jug, thanked everyone and prepared to depart. As luck would have it, a cadet with glider training showed up in time to run my wing. We took off over the hill, carried out a tight turn and returned for one pass of the crowd, who obviously enjoyed it, judging by their enthusiastic (or frantic) hand waving.

If this story has a moral, it is perhaps to say don't overlook the obvious and that outlandings can sometimes be fun. □

Practical Considerations of Atmospheric Convection (concluded)

always so. The inveterate mountain flyer Charles Day estimates that the main mountain ridges work better than the plains 70% of the time, even though there may be a slow trip in over the foothills.

The reason they don't work better all the time is uncertain. Apart from working too well and producing localized thunderstorms, a likely explanation for some occasions is that warming aloft may have occurred as a result of subsidence associated with an approaching anti-cyclone (see above).

The mountain may poke up into, or very near, this warmer air so that thermals originating on the peaks are unable to penetrate very far upwards before being stopped by the warmer air. By comparison, over the plains the thermals would be able to rise to much the same altitude before encountering the warmer air.

Because the ground is much lower, a comfortable height band exists allowing reasonable cross-country flights, rather than being trapped in a valley in the hills.

On the other hand, there are occasions when the thermals over mountains go considerably higher than those over the plains. Typically, mountain thermals go 2000–3000 feet higher, but there are times when they reach double the height of the plains' thermals. This is when the plains' thermals are stopped by a weak inversion which the mountain thermals can punch right through.

Finally, when the mountains are working better than the plains, some of the air which rises over the mountains will flow out and descend over the plains. This outflow from the mountains will be relatively warmer compared with the air over the plains and plains-sourced thermals will have difficulty rising through it.

Thus there can be a transition zone around mountains where thermals may be weak and far between. When approaching mountains one should always attempt to enter them as high as possible so as not to be caught in the weak and difficult-to-work lift in the valleys. This transition zone is a further reason for approaching mountain areas as high as possible.

CONCLUSION

This third article in a series on fair weather convection completes the employment of the temperature-height diagram for explaining convective phenomena. The next, and final, article will be about the air masses of the Australian region.

This topic is not beyond the scope of the series because, although much can be learned from an abstract study of these diagrams, for them to be of benefit in our day-to-day flying they must be utilized in the context of the air to be flown in. □

REFERENCES

Bradbury, T.A.A. and Kuettner, J.P. (1976), *Forecasters Manual For Soaring Flight*, Editors for OSTIV Meteorological Panel.
MacCready, Paul B. Jr., *High and Low Elevations As Thermal Source Regions*, Weather, Feb. 1955.
Reichmann, Helmut (1978), *Cross-Country Soaring*, Thompson Publications.
Woolley, Allen (1980), *Practical Meteorology For Task Setting*, Australian Gliding, Nov., 1980.

editor's footnote: Some references specific to Australia were omitted from this article. Also, some changes were made to reflect air mass movement in our hemisphere.

THE INSTRUCTORS' COURSES — WHAT THEY DO

by Ian Oldaker, Chairman Instructors' Committee

Although we now run three types of courses, the Basic Instructors', Advanced Instructors', and the Cross-Country/Competition courses, this article is about the Basic Instructors' courses only – but read on.

One of the objectives of these annual courses which have been run now for 21 years, is to teach pilots how to teach. This sounds a little too obvious I know; however, it needs elaboration as many pilots who attend these courses do not know what to expect. There is a huge difference between riding in the back seat and showing the student how to do a maneuver, and true flying "instructing". By this I mean the breakdown of each maneuver, its analysis and demonstration, and its buildup again and how it fits into the whole series of exercises that go to make up the SAC soaring instruction syllabus.

Out of the above it becomes clear that another objective is to seek uniformity of instruction so that a student pilot will receive the same words, advice, techniques, and criticism (mostly fault correction I hope) from each instructor. How do we achieve this? It is, I'm afraid to say, no good just reading the *Soaring Instruction Manual*, though a thorough knowledge of it is vital.

An important part to being an instructor is "patter", the words that we use to teach, advise, correct faults, cajole, encourage (and keep quiet!) in the air. This is a surprisingly difficult thing for all of us to do well, and many people are not very relaxed, even after several years of instructing. A *good* instructor develops a confidence in his abilities – both as a teacher and pilot – and knowledge that is reflected in his manner and in his voice from the back seat. I include knowledge, as pilots can display a certain confidence without having the correct terminology and/or teaching ability. During these courses the trainee instructor practises teaching most of the exercises in the *Soaring Instruction Manual*, and this helps to develop his or her abilities to say the right things at the right times; you know the sort of thing… "now roll to the right with elevator… or… right aileron…" It sounds funny on a course but is embarrassing with a real student – confuses them too!

I mentioned above the breakdown and buildup of each flying exercise – part of the plan that should be developed for each lesson. These are prepared before each flight and are thoroughly discussed and criticized by all the pilots on the course. A typical day might start with discussion and preparation of the lesson plans at 8 am, then out to DI the gliders at 9, with flying starting soon after. We try to record the rear-seat (instructor) pilot's patter as he or she instructs the "student". The student in this case is also on the course and, although he may laugh occasionally at the "instruction", it is his turn next!

At the start of the course the tape recordings are sometimes a bit self-conscious and unsure, but by the week's end they are very self-assured. This comes about for a number of reasons. Firstly many pilots feel a bit intimidated by a microphone, or by a feeling that they are going to be criticized. However, this is an instructing course in which pilots come to learn how to teach flying, and anyone who cannot accept suggestions for improvement and criticism of his or her approach to teaching, as well as of their own flying, should not be on the course. Usually the microphone is forgotten after a day or two, and the recordings become more natural. The pilots also begin to appreciate the value of the recordings, and the analysis that they provide. Another very important reason why the patter and therefore the instruction improves, is that the pilot's knowledge improves. (Answer me now, why don't we demonstrate lateral stability with ailerons? Is it done with the "further effect of rudder" demonstration? How?)

The typical day will continue with flying through lunch, and well into the afternoon, with the course director (Tom Bell, east, and Garnet Thomas, west), watching, evaluating, and flying with each pilot once or twice during the week. The flying exercise list is pretty long, with all exercises in the *Soaring Instruction Manual* being discussed, and most flown. Particular emphasis is placed on slow flying, spins, circuit flying, and the emergency and unusual situations of loose ropes on tow and running out of height in the circuit.

After flying – debriefing. This can take some time, and extends often into the evening. However, other lectures/discussions have to be fitted in. Transport Canada come to discuss their side of the licensing procedures, and often they include an excellent lecture on "instructing"; these men are of course very experienced pilots and instructors themselves. A lecture from a medical doctor on aviation medicine stresses important points for glider pilots in these days when medical considerations are becoming more important as we push ourselves and our increasingly sophisticated aircraft to their limits.

The lectures include subjects such as how people learn (important), how to teach, how to ask the right questions in order to develop the student's flying thought processes, what sort of questions to ask, etc. Instructor/student relationships and how to handle the talented/slow student are some of the many subjects that we attempt to cover during the week. Above all we attempt to turn out thinking pilots who are themselves willing to learn more as they progress both in their own flying and as they pick up more experience as instructors.

These courses are designed for the "new" pilots, the ones who started recently. There is always room, however, for the more experienced pilot and instructor, and I well remember one Gold Badge pilot who thoroughly enjoyed and contributed to the course that he attended ("now put your hands and feet on the stick…")

Pilots who have the minimum number of flights for an instructing endorsement sometimes lack the necessary experience, and should be carefully considered by their CFI before being sponsored for a course. Ideally the pilot will have been flying passengers from the front seat for a season or so, and will more recently have been checked out to fly from the back seat. He or she should also be a competent solo pilot with some good soaring flights under the belt. A Blanik, Lark, K7 (anyone have an ASK-21?) will be used for full spin instruction, though spin instruction in the 2-33 is fully covered (and if you believe a 2-33 can't be spun, think of it this way – in the turbulence and wind gradient of a low final turn flown too slowly and with overuse of the rudder, a nice spin entry can be demonstrated – once. Just read some of the Transport Canada accident summaries for gliders. Ideally the pilot will be solo in the above aircraft. This means that the CFI and/or assistants will have spent a bit of time with their pilot before the courses. It helps if these pilots are very good pilots – some say it is essential – and that they are able to execute all the flying maneuvers to a satisfactory standard. This includes good, clearly thought out left and right hand circuits, and well held off landings. The courses are intensive with a great emphasis on flying; believe me, the pilots put in long hours.

It is very difficult at the club level to get six or seven days straight during which pilots are given an intensive instruction course. This means that the pilots who have attended a SAC course have a head start when they return to their club. They are eager to put into practice all that they have learned – and it is important to let them, and to encourage them. There is nothing like actual teaching to consolidate what has been learned on the course.

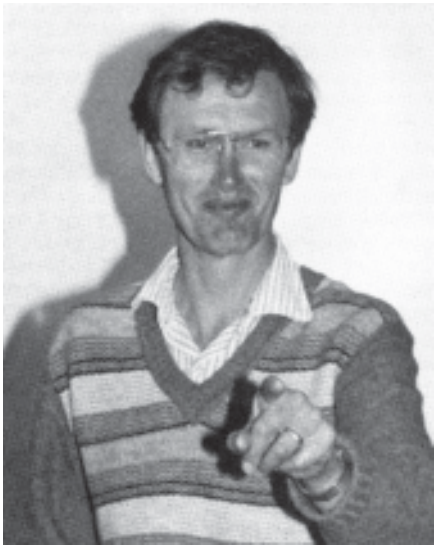
Start thinking now of whom you would like to send from your club, and/or whether you yourself would like to go. □

THE WESTERN INSTRUCTORS' CLINIC

featuring Garnet Thomas & Associates

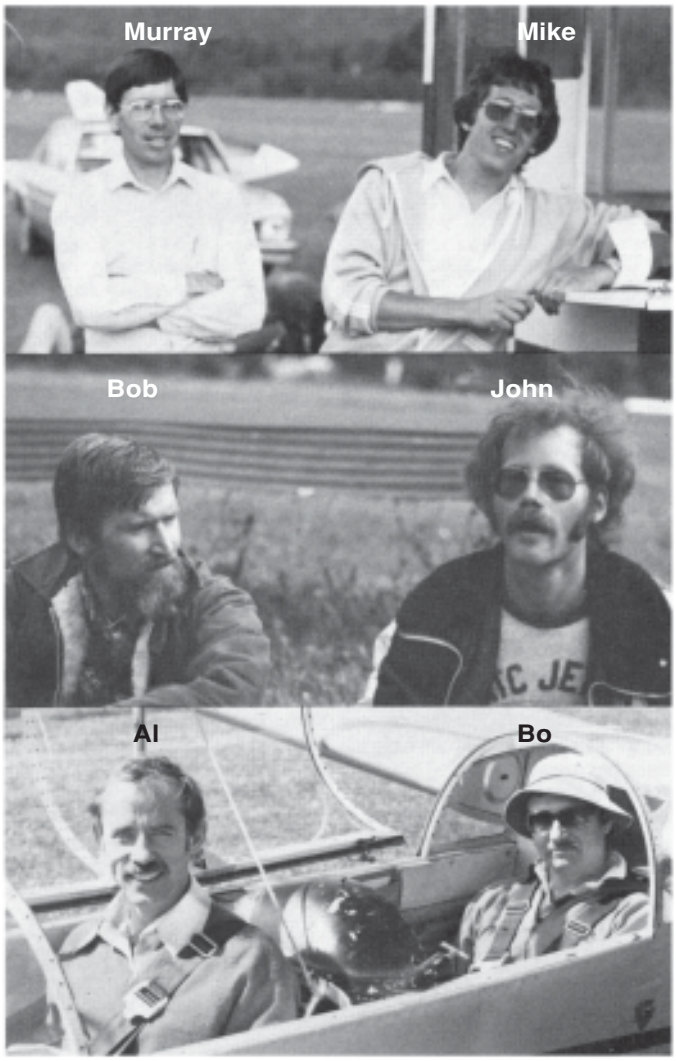
by Ken Palmer, Participant and Photographer

Host of this year's Western Clinic was Vancouver Soaring Council at Hope, BC. Besides Garnet's excellent guidance as to fly and teach properly, we were treated by guest lecturer Bill Teague (Transport Canada, Vancouver) with a fascinating insight into the history of gliding, and then invited to a discussion on the subject. Dr. Ron Pearson (Aviation Medicine Specialist with Transport Canada, Edmonton) warned at length and quite completely on the hazards of high altitude flying.

Garnet Thomas (THE BOSS)	*ASSOCIATES
	John Klute, *Edmonton* Ross LaGrandeur, *Cold Lake* Mike Maskell, *Winnipeg* Rob Mayhew, *Vancouver* Ken Palmer, *Cu Nim* Keith Peters, *Namao* Al Riches, *Vancouver* Murray Thompson *Vancouver* Bo Wasilewski *Cu Nim*

The Prairie participants on the course had their first taste of mountain ridge soaring under the tutelage of Lloyd Bungey. Exclamations of, "You're too close to the mountain!" were greeted with scepticism after observing a local VSC hotshot passing at one-tenth the distance from the mountain. VSC gliding enthusiasts even go soaring in the rain. The local rule is to add 5 knots to keep your canopy clear!

The Award for true and absolute dedication to the sport of soaring goes to Keith Peters, a course participant, and President of the Alberta Soaring Council. Keith and Jean, his lovely new bride, enjoyed a fabulous honeymoon while attending the Western Instructors Course.



Our appreciation to the VSC crew who assisted with towing and area checkouts, they were Lloyd Bungey, John Lisberg, Bruce Nickmans and Harald Tilgner.

MY DIARY

EASTERN INSTRUCTORS'

by A Course Member

JUNE 1980
I put my bid in today. I asked the boss if I could have the week of 18 to 23 May, next year, as part of my holidays. The answer came back "yes". I'm homefree for the Instructors Course next year.

MARCH 1981
Everything is set to go. I have my motel reservations at Pendleton. My wife is going to take a week's holidays and come with me. It has taken me quite a while to convince her that soaring is fun. I don't want to discourage her now. Let's go!

APRIL 1981
Good grief. The clinic is going to be held at York Soaring, not Gatineau. Phone call to cancel reservations. Wife says: "I don't think I'll go now."

8 MAY 1981
See a copy of a letter (just received by CFI, dated 6 April 1981) outlining the course to be held this summer. This letter tells our CFI that the course is going to be held at York Soaring 16 to 23 May 1981 (8 days?). Applicants should fill out attached forms. (The attached form was for the Cross-Country Clinic), I was under the impression that I was going to receive the form weeks in advance. (Can the postal service be this bad?)

SATURDAY, 16 MAY 1981
I arrived at York Soaring this afternoon at about 2:30. As I found my way into the office, an annex to the hangar, I noticed a very outstanding person standing at the counter at the far end. As I approached him, he suddenly rolled back on his heels and said in a gentle voice (as I found out later) "What do you mean, you don't know?"

He was Tom Bell, my course director. I approached the man and introduced myself. To quote Tom, "I don't have your name on my list. As a matter of fact, I don't have a Goldarn list." After we had our little go-around, you should have heard what he called the postal service. As the day wore on more and more people showed up. All of a slow sudden there were nine of us.

The time had come. Tom started giving us our check rides. Then we were "asked" to be back in the office area by 7.30 pm. Nobody was late.

At 7:30 meeting we introduced ourselves and our home clubs. We have quite a mixture. From the Bluenose club (Halifax) we have Mike Leblanc, Gord Waugh, and Dick Vine. From Champlain (Mont St. Hilaire) Leon Hutten-Czapski and Bob Labrosse. From Central Ontario (Peterborough) Herb Ferguson. From Erin Soaring, Hozi Patel, and from Base Borden Bruce Rowlandson and Len Douglas. And from Rhein-Main (Germany) Tom Bell. The average age of members is 43, the youngest member is 18. We are not exactly a bunch of spring chickens. Tom requested that we be at briefing at 0930 tomorrow.

SUNDAY, 17 MAY 1981
As requested we gathered in the briefing room. A man standing at the counter with Tom queried, "Who has not yet registered for the course?" All nine of us put up our hands, we filled in the forms, paid our fees and received several books and pamphlets. This was our study material. Why couldn't we have got this ahead of time? It would be nice to have had a chance to read this before the course started. Can the postal service be this bad?

Tom introduced Mr. Ian Oldaker, Chairman of SAC Instructors' Committee. Ian gave a short briefing on the purposes and philosophies of SAC Instructors' Clinics. Then Tom introduced the manager and CFI of York Soaring, Walter Chmela. Walter briefed us on the field layout, circuit and traffic procedures. Walter also informed us of the aircraft at our disposal and what the flying fees would be. We have two 2-33's, a Blanik and a 1-26.

Tom briefed us on course outline and content. We were then given our first tasks as "instructor" and we were paired, one "instructor" and one "dummy". The instructor was given a tape recorder to tape his air instruction techniques. Those of us that had been checked got on with the business at hand while Tom completed the checkrides.

MONDAY, 18 MAY 1981
0930 Morning briefing and the tasks were given. We changed partners and once again carried the recorders. After flying was completed we gathered for debriefing. I'm glad this weekend is over. I have never seen such a busy gliderport in my life. We listened to the tapes. One instructor talked and talked, introduced himself, gave a time check, glider letters, towplane letters, take-off time and on and on and on. Listening to other tapes we heard of a "slideslip" and also a "side split to the right" and the comment, "this damned thing is a pain in the butt on final".

After the debriefing, Walter Chmela, who holds the Canadian altitude records for both single and dual soaring, gave a very interesting talk on altitude flying. He covered everything from clothing to wave flying. Thank you, Walter.

TUESDAY, 19 MAY 1981
0930 The weather is fantastic. Tom proclaimed that he had ordered it just for us. I don't know if Tom has a direct line or just increased the volume on his voice-box.

Tasks assigned, changed partners again. Splendid idea. It broadens our flying experience. Tom has started to find Nicknames. On listening to tapes we found out about "steep vibrations" and "gentle turn, my A--". Tom started spin checks today in the Blanik.

WEDNESDAY, 20 MAY 1981
0930 Tasks and partners were assigned. We started today with three "Bluenosers". Fortunately there was normally only one around at a time, except for the briefing and debriefing. Today our guest speaker was Dr. Wolf Leers, Chairman SAC Medical Committee. Wolf gave an excellent presentation on personal stresses and aviation.

THURSDAY, 21 MAY 1981
0930 The weather is unbelievable. Everyone on course is in agreement with the changing of flying partners. Into the air for spins and recoveries. Spinning a 2-33 is not easy. After a tow to 4000 our crew had six attempts before success. My "Dutch Roll" exercise turned out more like a Kaiser Bun.

Our guest speaker today was Ian Oldaker. His presentation was on "Motivation" and how to keep them coming back.

FRIDAY, 22 MAY 1981
0930 Weather continues CAVU. This is the last day. We have completed, almost. Tom brought in a five-pound bag of flour to mark the runway for the spot landing contest. "The KID" won the contest with a distance of six feet. Nice going Bruce. Our final guest speaker was Inspector Wayne Foy from Transport

CLINIC

Canada, Ottawa. His presentation on licensing and testing, and requirements was not only interesting but also enlightening.

The time is 1430. The course ends. I head for home. The diary ends. □

*****

Tom has a great approach to a flying course. To get the most out of it one should fly. If the weather is flyable — FLY — if not, then we ground-school. We flew — it was great. We totalled about 150 flights. This would not have been possible without the aid of our two capable and friendly towpilots, Don Band and Rudi Mueller. Thanks fellas. Especially for your patience and fortitude while "Boxing the Wake" or as the "French Connection" said, "The Waking Box".

Collectively, we would like to thank Walter for the use of gliderport, gliders, briefing room, refrigerator and the "Chmela Hilton" where the young fellows laid out their sleeping bags. Not elegant-looking but the price was right. Right, Bruce? Walter, if you have us back again, how about a fireplace in the briefing room to take that early morning chill away? Thank you also to Wolf Leers, Ian Oldaker and Wayne Foy. And Pendleton take note — NO MOSQUITOES.

Some points brought out on course critique:

- no better choice than Tom Bell as our Leader.
- changing flying partners was a great idea.
- the decision of "where and when" should be made in the fall not in the spring, and the information should be published in the Nov/Dec issue of *free flight*.
- a "cut-out" copy of the application form should be published in the same issue with a "deadline date" (at least two months in advance!) for receipt of applications by SAC. This will permit the mailing out of course information, Instructors Manuals, accommodation, etc. well in advance of the course.
- If you are reading this in someone else's copy of *free flight*, YES, the postal service can be that bad.
- We worked hard but we enjoyed it.
- Last but not least, from us all — "Thanks, Thomas".

A GLIDING AVIARY

by Eric Newsome

The species 'Aeronauticus Pedagogicus' is an exclusive breed, the members of which have evolved from the generality of the masses. They fly best when trying to see around a large head equipped with large ears and a large hat 'Pedagogicus' has some claim to psychic powers exhibited by his ability to forestall the suicidal flying moves of fledglings before they happen.

There is within the species an obvious aging process. In early days there is no known way of keeping Pedagogicus out of the back seat of training gliders but with progressive stages of experience and affluence, ending in the fractional ownership of some fibreglass flyer, he develops a protective camouflage. He therefore becomes rather difficult to find and is particularly adept at blending with the scenery when a student is heard to ask for an instructor.

Pedagogicus exhibits a marked tendency to flock together with other members of the species to discuss how best to get Aeronauticus Embryonicus through his fledgling stage. It is a matter of pride that no two Pedagogicii shall ever agree on the single correct way to do anything. The result of this is that meetings of the flock are interminable and seldom achieve any significant decisions. Indeed, unkind ornithologists have borrowed Shakespeare's, "An idiot's tale of sound and fury, signifying nothing", to describe flock meetings.

Still, Pedagogicus is the chosen instrument for perpetuating the myths and legends of soaring lore. If the student survives his ministrations he may yet soar with the eagle.

Here's to 'Aeronauticus Pedagogicus'. May he also survive. □

Editor. The next few issues will feature the antics of a variety of very recognizable 'Aeronauticus Embryonicii' ... instructors will cringe … others may blush!

CLUB NEWS

SOSA ASTIR FLIES

The Astir is here, paid for and flyable — look to Bob Gage for the qualification requirements. Much credit for the speed and smoothness of Type Approval, C of A and C of R issue goes to SAC people — Jim Henry of Montreal Soaring Council especially, and others like Jim Leach who lobbied on our behalf when it looked like the Type Approval was going to get hung up.

WINDSOR WINCH WORKING

After two long winters, we finally tested our new winch this summer. The new launch vehicle is a replica of our older one which has served us now faithfully for over 16 years.

There is one important difference; in order to save brake linings, the drag needed on the drum during the retrieve is now provided by a hydraulic mechanism. A sprocket and chain drive from the drive shaft connects to a hydraulic pump which in turn circulates hydraulic fluid from and to a small holding tank. The flow can be controlled by means of a needle valve which is adjustable and provides the drag as needed. A dump valve takes care of the excess flow during the tow. The winch is powered by a brand new 351W V-8 engine, donated by the Ford Motor Company. This engine is capable of high torque at low RPM, a desirable characteristic for winching.

Immediate benefits:

- We no longer depend on a single winch,
- Launch capacity is almost doubled, over 100 launches are now possible per day,
- Our towing operation becomes even more efficient since both cables (new and old winch) are now retrieved in one trip.

A tow to 1200 to 1500 feet costs $2.00 and who can argue with the economics of that!

Fritz Schreiner (1041 Linden Way, Sarnia, Ontario N7S 2C7 — Tel. (519) 542-2204) devoted his time and talent to make this project a reality. He would like it to be known that he is quite willing to build a winch, at a price of course, for someone else. Please contact him.

REGINA ACTIVITIES

Big News: We purchased a quarter section of land for a gliderport, 60 km east of Regina, in the Odessa district and between the Strawberry Lakes (sounds delicious!). The soil is sandy and should drain exceptionally well. Although this particular field is quite flat, the surrounding area is gently rolling and there is an abundance of trees. Landing areas are all around as is the case in most southerly areas of the province. Although a lot of hard work will be needed, we can look forward to the development of a family soaring facility and proper hangaring for our equipment over the next couple of years. Now, if we could only get some students!

The Award for Sorriest Soarer has to go to Ted Chernecki. First of all he hung in there around the field for over four hours, till one by one, the ground crew went home. We called him on the radio to suggest he hold on for his "five hours", but the transmissions were garbled. A few minutes later he landed while it was still good thermalling. When asked why, he replied that he saw us packing up on the ground and did not want to hold us up. Besides, he was not carrying a barograph *(Who else out there is unsure of badge requirements? ed).*

The clincher was his 51.8 km cross-country to Grenfell. According to the 1% rule, he would have had to release below 1725 agl, but he did 1800 feet. And, anywhere a mile south of the line to Grenfell, the terrain is at least a 100 feet higher!

For a change, we arranged exchange visits with the Saskatoon club and had the opportunity to fly their Blanik. Needless to say, we Schweizer sots were thrilled with the ship. The major difference was the relatively fine control stick movements required by the Blanik. In comparison on aerotow, the 2-33 is like stirring a cauldron.

The exchange visit idea has other merits as well. Not only do you learn something about another aircraft but you can compare flying techniques, and picking up valuable tips! We are used to lift from ploughed or dark areas, they are better radiators than cropped or light land. When we encountered a potash mine with its white salt piles near Saskatoon, naturally we thought to avoid that spot. But not so. Salt, like water, has a much greater thermal storage capacity than earth, so it will remain warmer than surrounding land when cooling starts. Even though it is a less efficient radiator owing to its colour, it is more than compensated for by its heat content.

WINNIPEG SUMMER GAMES

As the western thermals follow the Canada geese and flying at WGC slowly winds down, we look back on the 1981 season as a good year of soaring. WGC took in 19 new sustaining members, bringing our total strength to 130, and saw the arrival of six new aircraft — including a twin-engine microlight Lazair. While WGC is still evaluating how powered hang gliders and sailplanes mix, the Lazair certainly turned a few heads and provided something new to talk about at the weekly Saturday night campfires. The other new arrivals include a Blanik, Astir CS, Std. Cirrus, homebuilt Monerai, and the club's 1-26E. With 9 more gliders under construction, we've started thinking about expanding the tiedown area.

Both flying weeks were well attended with reasonable soaring weather and some good flights — but the students were the real winners, taking advantage of the short draw lists to wind up the hours to licence. The annual Rivers weekend saw 18 pilots, 2 students, and 6 gliders trek out to Rivers, Manitoba, guests of the cadets. Many of our hosts enjoyed their first ride in a personal high performance glider.

photo: Bruce Wilkin

The WGC demonstrates its great class by greeting newly soloed Harry Smith with a wild flower bouquet and a kiss. No crude cold showers or cut ties at this club!

The most crowded day at the field was the result of a visit by the Western Canadian Aviation Museum when 40 people signed up for fam rides. We were treated to a radio controlled model airshow and slides of the museum's expedition into the forests of northern BC to recover the wreckage of an old Junkers. Other activities included a corn roast and spot landing contest. The winner stopped about 2 feet from the mark — not bad for a 2-33 with marginal braking! Of course the highlight of the season was the Western Regionals at Carman. (See 5/81). Many WGC members worked hard on the event, some competed, and others wandered in for a day or two just to watch. Despite the disappearance of two gliders and a towplane (loaned to the Regionals), the club managed to keep its operation going for those who wanted to stay home and fly.

Of the many interesting stories that have come from this year's flying, there is one I would like to pass on: Just as towplane and glider were lifting off, the tail wheel detached itself from the towplane (G-TOW). The glider pilot, the only one who noticed, waited for a little height, then tried to inform the towpilot by radio, saying, "Your tail wheel just fell off". Unfortunately, TOW'S radio was working about as well as its tail wheel so the pilot did not hear. However, a towpilot at the Regionals 50 km away, also airborne, heard the message and replied that he was flying a Cessna 182 and didn't have a tail wheel. After several more exchanges — one pilot claiming the other's tail wheel was lying on the runway while the other insisted he didn't have one to start with — someone else finally intervened to straighten things out. Meanwhile, TOW had returned to the field only to find people all over the runway waving and running around. So he simply went to the other end of the runway and landed — safely. We've since got the radio and wheel fixed. This incident, although humorous, does illustrate the need, even in soaring, for accurate communications. Let's all keep safety in mind while we enjoy our sport.

Well, that's about it for this year except for planning the Awards Banquet, trying to guess which weekend will be the last before the snow hits (to de-rig), and finally, thinking about next year.

SSA SOARING SAFARI

To celebrate the 50th Anniversary of Soaring in America, an East Coast and a West Coast Soaring Safari are being organized for the Summer of 1982. Soaring enthusiasts from all over the West will be congregating at Heber Valley Airport in Heber, Utah, between July 12 and 16, 1982. Safaris from Washington, Oregon, California, Montana, Alberta, Arizona, Colorado will be flying and driving to Heber, leaving their respective departure points around July 9, 1982.

Between July 12 and 16, there will be organized flying events, dinners, tours, barbecues, and family fun. Utah is ripe for new soaring records and is a very desirable area to fly. Badge opportunities abound.

Heber Valley is approximately 50 miles to the southwest of Salt Lake City, offering some of the West's most scenic soaring. Within minutes of release you will view the magnificent ski runs of Park City, the majestic beauty of the Great Salt Lake, and Mt. Timpanogos. The soaring is excellent and the location is beautiful.

Rick Matthews (3 Westwood Drive SW, Calgary, Alberta T3C 2V6, (403) 242-4726, would coordinate for pilots flying from Alberta or Montana. Just call Rick for more info.

Stu comments to his American friends: There are a number of people interested in continuing north to Alberta for the Alberta Soaring Council's annual soaring event in Cowley. This event occurs the last week of July (July 24 to Aug 2). The flying, the people, and the country make it a must for every soaring family to experience. The cross-country soaring is breath-taking. The route includes Teton National Park, Yellowstone National Park, and Glacier-Waterton International Peace Park.

GRANDE PRAIRIE / WIDE SKY WAVE CAMP

(excerpt from "Hangar Rash")

Although the wave did not cooperate for us, the September 18-20 weekend was an unqualified success. The Hudson Hope strip is privately maintained by BC Hydro. This paved strip is oriented 05-23 and is about 5000 feet long with an elevation of approx. 2200 asl. Butler Ridge (the main wave generator) is easily visible from the west end of the strip.

Friday night saw the camp being set up and many old and new acquaintances being made with the Fort St. John club. After a long night of quadraphonic snoring we awoke on Saturday to a strong breeze straight down the runway and a well developed cap cloud on the ridge. Some rotor clouds were present and our spirits immediately rose with hopes for a good day. Frank Hinteregger got everyone hustling and he launched in the Blanik with Les Oilund to check things out and orient Les to the geography of the area.

After a long and frustrating tow searching for lift, they released about 9200 feet ASL but were unable to sustain and landed 55 minutes later after takeoff. The remainder of the day consisted of check rides to give everyone a chance to get oriented. The rotor clouds persisted throughout the day but they changed rapidly. The cap cloud had moved off and did not reappear after the first flight. It looked as though a system had stalled just to the east and was backing things up. Further to the west beyond Butler Ridge wave could be seen, so it appeared all we were getting was the tail end of the activity.

Late in the day some good thermal flights were made. Heinz was up 1 hour 12 minutes in the 1-23, while Ken Harvey from Fort St. John had a good flight southeast of the strip in the B-4.

Saturday saw the arrival of many Fort St. John people and some more Grande Prairie people. By Saturday evening we estimated over 50 people present at the campsite.

Sunday morning dawned clear and cool but it was obvious there would be no wave. The wind was very light and from the east. Toward late morning some cu were developing just east of Portage Mountain and good lift was found below the cloudbase.

As the day wore on the development appeared to be filling in and one peak to the west began turning white with snow.

Some reflections and observations ... in spite of no wave I thoroughly enjoyed the weekend and the FANTASTIC job done by the Fort St. John club to make sure everyone enjoyed themselves… I hope we can do the same job for them some time… things like providing a tent for the crew, all the food you could eat all weekend (paid by donations from business in Fort St. John)… water provided in a portable tank, and a portable generating plant for lights. Thanks again to the Wide Sky Flying Club for a great weekend and also a great wave site. We will be back!

Douglas Clark Winger

1927-1981

"Oft have we seen him at the peep of dawn
Brushing with hasty steps the dew away,
To meet the sun upon the upland lawn."

Thomas Gray 1742

So he did. I know not how many mornings I rose early to be the first to sign "the book", and was frustrated by his precedent signature.

Such was his love of flying that he was first to meet and lead the dawn. Such was the enthusiasm and eagerness of Doug Winger. Such was his willingness to greet new members or encourage others.

While Doug was a keen skier and outdoorsman, his major love was flying; especially the cross-country tasks associated with badge and competitive flying and the training of new pilots, especially those who taught or towed. It was to these endeavours that he devoted much of his time and effort. The definition of the Rockton based 500 km triangle that was conquered four times this July, was his.

It seemed to matter not, the nature of the activity that Doug followed, he attacked it with vigour, did his best and expected no less of all of us who knew, flew with or learned from him.

Doug was one of the most senior members of SOSA. He had been active in the club as student, gold and diamond standard pilot, instructor, assistant chief towpilot, CFI, director and President, for about 20 years. It was only in his final year that the cancer that was to claim him slowed his participation; it never dulled his ardour or his interest.

His family and all those who were close to him have lost someone beloved. SOSA, the gliding fraternity, and those with whom he worked at the Toronto, Hamilton & Buffalo R.R. have lost a friend, confidant, an instructor and a competitor. He will be missed.

FAI BADGES

Dave Belchamber
29E Varley Drive
Kanata, Ontario K2K 1G4 (613) 592-5516

The following badges and badge legs were recorded in the Canadian Soaring Register during the period Aug 5 to 8 Sept 30, 1981

SILVER BADGE

587	Sid Wood	SOSA	595	Michael Kappl Jr	Windsor
588	Gilles-André Séguin	Montreal	596	Brian Milner	Kawartha
589	Arnold Rosner	Montreal	597	Gerard Wood	York
590	John Bandorf	Winnipeg	598	Stephan Weinhold	Cu Nim
591	Bruce Nicmans	Vancouver	599	Peter Myers	Lahr
592	Ian Coristine	Montreal	600	Calvin Devries	Windsor
593	Philip Morion	SOSA	601	John Theilmann	Bonnechere
594	Henry Mahood	SOSA			

DIAMOND GOAL 300 km (186.4 mi) O&R or Triangle

Denis Gauvin	Quebec	309 km	Lark	St. Raymond, Que.
Brenda Histed	Montreal	314 km	LS1	Hawkesbury, Ont.

SILVER DURATION 5 Hours

Sid Wood	SOSA	5:16	Cherokee II	Rockton, Ont.
Gilles-André Séguin	Montreal	5:05	Jantar	Hawkesbury, Ont.
Arnold Rosner	Montreal	5:20	?	Hawkesbury, Ont.
Rod Flaman	Regina	5:22	1-26	Indian Head, Sask.
John Bandorf	Winnipeg	5:23	Duster	Pigeon Lake, Man.
Ian Coristine	Montreal	6:08	Astir	Hawkesbury, Ont.
Henry Mahood	SOSA	5:23	Ka6CR	Rockton, Ont.
Jean-Guy Bernier	Quebec	5:28	Blanik	St. Raymond, Que.
Michael Krieger	Quebec	6:15	Blanik	St. Raymond, Que.
Michael Kappl Jr.	Windsor	5:58	L-Spatz 55	Dresden, Ont.
John Ennis	Toronto	5:17	Bergfalke II	Conn, Ont.
Gerard Wood	York	5:35	1-23	Arthur, Ont.
Stephan Weinhold	Cu Nim	7:05	Cirrus	Cowley, Alta.
Edward Truman	?	5:18	1-26	Estrella, Ariz.
Peter Myers	Lahr	5:23	ASW-20	Lahr, West Germany

SILVER ALTITUDE 1000 m Gain (3281 ft)

Patrick Wickenhauser	Regina	1860m	1-26	Indian Head. Sask.
Gilles-André Séguin	Montreal	1220m	Jantar	Hawkesbury, Ont.
Rod Flaman	Regina	1800m	1-26	Indian Head, Sask.
John Bandorf	Winnipeg	2118m	Duster	Pigeon Lake, Man.
Philip Morion	SOSA	1200m	Blanik	Julian, Penn.
Henry Mahood	SOSA	2000m	Ka6CR	Rockton, Ont.
Michael Kappl Jr.	Windsor	1524m	L-Spatz 55	Dresden, Ont.
John Ennis	Toronto	1160m	Bergfalke II	Conn, Ont.
Stephen Weinhold	Cu Nim	1829m	Cirrus	Cowley, Alta.
Edward Truman	?	2533m	1-26	Estrella, Ariz.
Colin di Cenzo	SOSA	1219m	1-26	Rockton, Ont.
Peter Banting	SOSA	1550m	2-33	Rockton, Ont.
Steven Mason	SOSA	1950m	1-26	Rockton, Ont.
John Theilmann	Bonnechere	1230m	Skylark 4	Deep River, Ont.
Elizabeth Bell	Vancouver	1000m	Blanik	Innisfail, Alta.

SILVER DISTANCE 50 km (31.1 mi) Straight Line

Patrick Wickenhauser	Regina	85 km	1-26	Indian Head, Sask.
Gilles-André Séguin	Montreal	63 km	Jantar	Hawkesbury, Ont.
John Bandorf	Winnipeg	92 km	Duster	Pigeon Lake, Man.
Bruce Nicmans	Vancouver	72 km	Blanik	Innisfail, Alta.
Ian Coristine	Montreal	65 km	1-26	Hawkesbury, Ont.
Henry Mahood	SOSA	62 km	Ka6CR	Rockton, Ont.
Michael Kappl Jr.	Windsor	80 km	L-Spatz 55	Dresden, Ont.
Dave Belchamber	Gatineau	60 km	Skylark 4	Pendleton, Ont.
Brian Milner	Kawartha	75 km	Pilatus B4	Omemee, Ont.
Stephan Weinhold	Cu Nim	115 km	Cirrus	Cowley, Alta.
Calvin Devries	Windsor	60 km	K8	Dresden, Ont.
Vladimir Konecny	Windsor	62 km	K7	Dresden, Ont.
John Theilmann	Bonnechere	67 km	Skylark 4	Deep River, Ont.
Elizabeth Bell	Vancouver	70 km	Blanik	Innisfail, Alta.

C BADGE 1 hour Duration

1725	Patrick Wickenhauser	Regina	2:25	1-26	Indian Head, Sask.
1726	Rod Flaman	Regina	5:22	1-26	Indian Head, Sask.
1727	Henry Mahood	SOSA	5:23	Ka6CR	Rockton, Ont.
1728	Jean-Guy Hélie	Quebec	2:29	2-33	St. Raymond, Que.
1729	Daniel Videau	Quebec	1:07	2-33	St. Raymond, Que.
1730	Michael Kappl Jr.	Windsor	5:58	L-Spatz 55	Dresden, Ont.
1731	Pamela Theilmann	Bonnechere	1:55	1-26	Deep River, Ont.
1732	Ignacio Ruibal	Montreal	1:19	1-26	Hawkesbury, Ont.
1733	Brian Milner	Kawartha	5:15	1-26	Julian, Penn.
1734	Jack Emack	Edmonton	1:16	1-23	Chipman, Alta.
1735	Robert Dawson	Winnipeg	1:18	2-33	Pigeon Lake, Man.
1736	Neil Graham	Montreal	1:13	2-33	Hawkesbury, Ont.
1737	Stephan Weinhold	Cu Nim	7:05	Cirrus	Cowley. Alta.
1738	Gerald Rosner	Winnipeg	1:51	?	Pigeon Lake, Man.
1739	Steven Mason	SOSA	1:57	1-26	Rockton, Ont.
1740	Susanne Witchel	CFB Borden	1:58	2-33	CFB Borden, Ont.
1741	William O'Brien	CFB Borden	1:09	2-33	CFB Borden, Ont.

FAI RECORDS

Lloyd Bungey with co-pilot Dave Lovick flew a territorial multiplace record on 31 July, 1981. The pilots departed from Cowley, Alberta with Lloyd's modified HP-14 and flew a straight distance of 253 km.

The 620 km O&R task flown by Rainer Zimm on 7 June 1981 will not be claimed as an FAI record due to the barograph problems he had (see 5/81 page 20). Better luck next time, Rainer!

1982 COMING EVENTS

Jan 9-10, 82 SAC Directors Meeting, Ottawa, Ont. Park Lane Hotel.

Jan 6-Mar 24, 82 Toronto Ground School at Bathurst Heights Secondary School under the direction of Ivor David, York Soaring Association. The course is for pre-solo and new solo pilots and prepares for Transport Canada Glider Pilot Examination. Also refresher course for licensed pilots. Cost approx. $12, students should obtain copy of Air Regulations and book "From the Ground Up". For further information and registration contact the North York Board of Education.

Feb 10, 82 Open House (films, discussions, coffee, ...) Winnipeg Gliding Club, Basic Sciences Building Medical College, University of Manitoba, Bannatyne at Emily, Winnipeg.

Mar 19-21, SAC Annual General Meeting. Airport Ramada Inn, Montreal, Que. Details see page 2 this issue.

May 22-24, Innisfail May Meet. Hosted by Edmonton Soaring Club at Innisfail Airport, Alberta. Contact Lee Coates, 2216-32 Street SW, Calgary, Alberta T3E 2R5 (403) 242-3056 H.

May 82, Eastern Basic Instructors School, hosted by Gatineau Gliding Club at Pendleton Airfield, Ontario. Contact to come.

Western Basic Instructors School, place and date to be announced.

May 82, Flying Week, Winnipeg Gliding Club at Pigeon Lake Airfield, Manitoba. (Date to be announced)

Advanced instructors Course. Host club bids required, contact National Office.

May 82 Manitoba Provincial Contest, at Carman Airfield, Manitoba. Contact Jeff Tinkler, 816 Wicklow Street, Winnipeg, Man. R3T 0H7 (date to be announced).

Jun 28-Jul 2, Flying Week, Winnipeg Gliding Club.

82 Canadian National Soaring Championships. Hosted by SOSA Gliding Club at Rockton Airfield, Ontario. Date to be announced.

Jul 12-16, SSA 50th Golden Anniversary Safari, Heber, Utah. Contact Rick Matthews. Details see 6/81 page 19.

Jul 24-Aug 2, Cowley Summer Camp at Cowley Airfield, Alberta. Hosted by Alberta Soaring Council. Contact Ken Palmer, 23 Baker Crescent NW, Calgary, Alta. T2L 1R3 (403) 284-1396 H.

Aug 2-6, Flying Week, Winnipeg Gliding Club.

Oct 9-11, Cowley Wave Camp at Cowley Airfield. Hosted by Alberta Soaring Council. Contact Lee Coates (403) 242-3056 H or Ken Palmer (403) 284-1396 H.

Jan 9-29 1983, 18th World Gliding Championships, Adolfo Gonzales Chaves (450 km SW of Buenos Aires).

SAC DIRECTORS and OFFICERS

PRESIDENT
Dr. R.W. Flint
96 Harvard Avenue
Winnipeg, Man. R3M 0K4
(204) 284-5941 (H)

PAST PRESIDENT
Dr. K.H. Doetsch
1610 Apeldoorn Ave.
Ottawa, Ont. K2C 1V5
(613) 224-1470 (H)
(613) 993-2110 (B)

VICE-PRESIDENT
Mr. D. Collard
8717 Alton Pl.
Surrey, B.C. V3S 5E5

SECRETARY-TREASURER
Dr. Karl H. Doetsch

DIRECTOR PACIFIC ZONE
Mr. L. Bungey
General Delivery
Port Mellon, BC V0N 2S0
(604) 884-5341 (H)
(604) 884-5223 (B)

DIRECTOR ALBERTA ZONE
Dr. M. Apps
11455 - 43 Ave.
Edmonton, Alta. T6J 0Y2
(403) 436-9003

DIRECTOR PRAIRIE ZONE
Mr. D. Collard
8717 Alton Pl.
Surrey, B.C. V3S 5E5
(604) 591-3490

DIRECTOR ONTARIO ZONE
Mr. Al O. Schreiter
3298 Lone feather Cres.
Mississaugua, Ont. L4Y 3G5
(416) 625-0400 (H)
(416) 926-1225 (B)

DIRECTOR QUEBEC ZONE
Mr. A.W. Krieger
1450 Oak Avenue
Quebec, Que. G1T 1Z9
(418) 681-3638 (H)
(418) 656-2207 (B)

DIRECTOR MARITIME ZONE
Mr. G. Graham
1-125 Hospital Ave.
New Glasgow, NS B2H 2C8
(902) 752-3803 (H)

EXECUTIVE DIRECTOR
Mr. J.W. Leach
485 Bank Street
Ottawa, Ont. K2P 1Z2
(613) 232-1243 (B)
(613) 822-1797 (H)

COMMITTEE CHAIRMEN

AIR CADETS
Mr. Glen Fraser
1105 - 2175 Marine Dr.
Oakville, Ont. L6L 5L5

AIR SPACE
Mr. D. G. Tustin
581 Lodge Avenue
Winnipeg, Man. R3J 0S7

FINANCIAL PLANNING
Mr. F. Stevens
302 Boreham Blvd.
Winnipeg, Man. R3P 0J6

FREE FLIGHT
Mrs. Ursula Burton
Box 1916
Claresholm, AB T0L 0T0

HISTORIAN
Mrs. C. Firth
542 Coronation Avenue
Ottawa, Ont. K1G 0M4

INSTRUCTORS
Mr. I. Oldaker
135 Mountainview Rd N
Georgetown, Ont L7G 3P8

INSURANCE
Mr. A. O. Schreiter
3298 Lone Feather Cres.
Mississauga, Ont. L4Y 3G5

MEDICAL
Dr. W. Leers
4889 Dundas St. W
Islington, Ont. M9A 1B2

MEMBERSHIP
Mr. C. Keith
58 Wentworth Ave.
Willowdale, Ont. M2N 1B2

PROVINCIAL ASSOCIATIONS
Mr. L. Bungey

PUBLICITY
vacant

RADIO
Mr. F. Vaughan
Box 113, RR 1
Kanata, Ont. K2K 1X7

SAFETY
Mr. E. Newsome,
131, 13710 - 67th Ave.,
Surrey, BC V3W 6X6

SPORTING
Dr. D. Marsden
3920 Aspen Dr. W.
Edmonton, Alta. T6J 2B3

SUBCOMMITTEES

FAI AWARDS
Mr. Boris Karpoff
24-1/2 Deloraine Ave.
Toronto, Ont. M5M 2A7

FAI RECORDS
Dr. & Mrs. R. Flint
96 Harvard Ave.
Winnipeg, Man. R3M 0K4

SAILPLANE REGISTRY – CONTEST LETTERS
Mr. R.L. Barry
542 Rouge Rd.
Winnipeg, Man. R3K 1K4

TECHNICAL
George Adams
12 Hiawatha Parkway
Mississauga, Ont. L5G 3R8

TROPHIES & STATISTICS
Mr. D. Miller
19 Richie Cresc.
Regina, Sask. S4R 5A5

TROPHY CLAIMS
James W. Oke
551 Bruce Ave.
Winnipeg, Man. R3J 0W3

METEOROLOGY CONSULTANT
Dr. S. Froeschl
1845 Brookdale Ave.
Dorval, Que. H9P 1X5

WORLD CONTEST
vacant

FOR SALE

WANTED

Classified ads (above) & back page omitted