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SAILPLANE & GLIDING

Magazine of the
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June-July 1993
Volume XLIV No. 3

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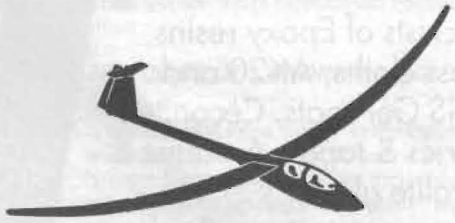
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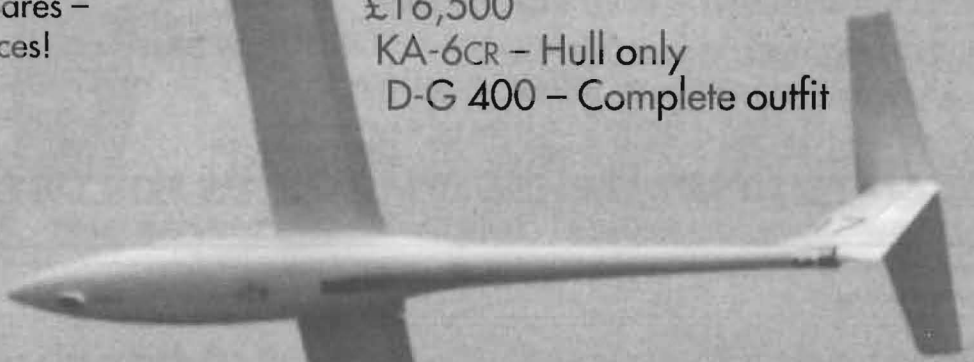
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YOUR LETTERS

FRIGHTENED OF BADGE ATTEMPTS

Dear Editor,

In common with many other official observers I am concerned that much of the new red tape with regard to badge flights is an unnecessary complication which will deter many pilots from attempting cross-country flying. Fixed, sealed and signed cameras for record attempts may be acceptable but surely not for 100km triangles.

Must we accept such rigour for the National and Weekend ladder? I sense a real undercurrent of resentment over these new FAI regulations.

Before the soaring season gets properly under way could we please have a definitive piece in *S&G* explaining the new regulations.

I would very much like to see an example of a TP photograph which clearly shows the TP detail and a distinctive chinagraph mark on the glider canopy!

Without a clear statement in *S&G* I fear that many pilots will be frightened off badge attempts and/or make invalid claims this season.

GORDON KERR, *Solihull, West Midlands*

Eric Smith, BGA FAI certificates officer and a member of the BGA Competitions and Awards Committee, replies: From Gordon's letter it is apparent that he (and possibly others) are concerned about complying with the **Sporting Code 's** camera requirements, when used in conjunction with badge, certificate and record attempts.

The **Code** requires that all cameras should be fixed in the cockpit and include the wingtip in the picture. For many years I used a hand-held camera and was reluctant to changed to a fixed mount, clinging to many false beliefs. Since changing, my photos are clearer and easier to interpret and, perhaps more important, it's easier and safer to take the photo – just position the turning feature in front of the wingtip and click. Fitting a mount is a straightforward task and the mounts can be easily made or bought.

The **Code** states that *"if the same observer is controlling the preflight photographs and the processing of the film, it is not necessary for the camera to be sealed, except for record flights where the camera shall be sealed to its mountings "* This seems to me to be right and proper and should be easy to arrange.

I, like Gordon, used to believe that you couldn't see the "distinctive chinagraph:" mark on the canopy. That was until I was given the opportunity to view my negatives on a video-based photo interpretation system, such as the one used at Lasham. I can assure him that the mark is there, albeit faint. The chinagraph mark is the final proof that the camera remained in the glider for all the photographs.

Those unsure of the camera and photographic requirements are advised to consult **The Sporting Code** section 3 and the **Handbook for Official Observers** which can be obtained from the BGA. All OOs are issued with a copy of each.

DISTANCES UNDERESTIMATED

Dear Editor,

The latest version of the **Sporting Code** gives formulae for the calculation of distances for record purposes. For small distances (in practice, any distance less than 300km) the **Code** rightly dismisses the use of the cosine formula of spherical trigonometry unless a large number of decimals is used. In its place is given a formula for use over all distances, but the **Code** still requires that it be used with seven or eight places of decimals, whereas six places are ample, bringing the calculation within reach of most calculators – in old fashioned terms, the calculation could be done with six-figure tables. However, with the prevalence of relatively powerful personal computers it is highly unlikely that the computations would be done "by hand", in which case a more rigorous set of formulae could be used.

The accuracy within which distances can be computed depends upon the adopted shape of the Earth, taking into account the differing values of the radius at the Poles and the Equator. In our latitudes and using the method proposed by the **Code**, distances will be underestimated by about 0.2%, whereas there are other, slightly more rigorous, formulae which can provide the distances to better than 0.01km. Is there any reason why these should not be used?

PS. For the mathematical programmer. The formulae to be used are the same, but the greatly improved accuracy is achieved by using the geocentric latitude in place of the geographic latitude and also by using the geocentric radius of the Earth corresponding to the mid-latitude between the two positions.

BILL NICHOLSON, *Bexhill, Sussex*

Eric Smith replies: The reason for using values of sines and cosines accurate to at least seven significant figures during great circle distance calculation is to ensure that the distance so calculated is accurate to at least one decimal place. This would not always be the case were values with a lesser number of significant figures used.

The Sporting Code lays down that all distance calculations use the "FAI sphere" which assumes that the Earth is a true sphere with a radius of 6371km. This, it is accepted, is a compromise as in reality the Earth is an an ellipsoid with an equatorial diameter of 12756.274km and a polar diameter of 12713.505km. The situation is further complicated by the fact that the Earth is pear shaped with the north polar radius being 45 metres longer than the south polar radius. There is also a slight ellipticity of the equator.

The Sporting Code Section 3 (Gliders and Motor Gliders) is published by the FAI to provide the rules for records, badges and certificates throughout the world. The "FAI sphere" is used by other FAI controlled air sports in the calculation of great circle distances. It provides an easy to use, universally adopted constant. If Bill could produce a simple rule that, when calculating distances, gave greater accuracy throughout the world, I'm sure the BGA Competitions and Awards Committee would be prepared to consider it for submission to the FAI.

As mentioned earlier, copies of **The Sporting Code** Section 3 can be obtained from the BGA office.

We welcome your letters but please keep them as concise as possible and include your full name and address. We reserve the right to edit and select.

THE COST OF LANDING

Dear Editor,

My letter ("A ridge too far" in the December issue, p307), asked a simple question; "Can farmers demand whatever fee they choose from glider pilots for landing in their field?" The answer is most certainly no. A farmer may expect a reasonable fee for the trespass and he is entitled to proper compensation for any damage caused to his crop or property as a result of a field landing. Damage to crop or property is normally covered by the glider third party insurance.

When I paid the farmer the £50 he demanded having landed the glider in his field, I was not aware that several eight-man champagne drinking balloon parties had descended on his land during the Bristol Balloon Festival earlier that year and caused him some annoyance. I would imagine that £50 per balloon landing would not be a significant fee to the balloonist who in turn was charging up to £125 for each passenger in his balloon.

The landing fees for gliders on this particular farmer's land have now been amicably resolved at £10 per landing.

TIMOTHY DEWS, *Bath, Wilts & North Dorset GC*

Dear Editor,

I read with interest the letter from Timothy Dews. The legality of immediate monetary demands made by landowners in the event of a forced landing raises a number of interesting aspects of common law which have historically been misunderstood.

As a lawyer engaged in dealing with aviation liabilities on behalf of aircraft owners and their insurers, this is a predicament which has in my experience caused considerable concern over the years.

In particular I have been faced with claims made by landowners on a number of occasions for alleged loss and damage caused to crops, livestock and property by both powered aircraft and gliders as a result of forced landings. In some situations it has not been possible to remove or retrieve aircraft until compensation has been agreed and paid. The amounts involved vary considerably although, in my experience, the initial demands made are usually inflated and sometimes totally unrealistic.

The law of trespass applies. Although this can apply to a number of situations, broadly "trespass" occurs when an asset is placed on another's property without their permission. The circumstances in which this occurs are irrelevant. One of the remedies available to a landowner in such a situation is known as "distress damage feasant".

What does this mean? "Distress" is a seizure of an asset in order to satisfy a particular liability. "Damage feasant" broadly means doing damage. This remedy was used in the past ➡

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where cattle or livestock trespassed and strayed on to an adjoining landowner's property. In such an event the landowner could then seize the cattle until their owner made good the damage they had caused. However, this somewhat ancient right was eventually abolished by The Animals Act 1971 which substituted certain statutory powers of sale.

Nevertheless, "distress damage feasant" still exists and extends to inanimate objects such as aircraft and gliders.

Broadly this means that it is lawful for any occupier of land to prevent aircraft retrieval until he receives compensation. However, it must be noted that this is only a right that is vested in the owner and involves a requirement to pay him "reasonable" compensation. One of the controversial questions is whether it is necessary for actual damage to have been sustained. I am afraid that the law on this is not very clear. However, in most cases some form of damage (whether it be rutting caused by aircraft wheels or glider tailskids) is usually present in a forced landing situation.

What, therefore, should pilots do if confronted by an irate landowner demanding exorbitant compensation? The answer, I believe, is to attempt to negotiate some form of reasonable disposal of the claim being made. The obligation imposed by law is to attempt to estimate the damage sustained and make a reasonable compensation tender. Clearly each case must be considered on its particular facts and it is not possible to lay down any hard and fast rules. In the case quoted, the £50 "compensation" would not appear to be unreasonable although clearly further information concerning the alleged damage, if any, to the stubble field would be needed in order to evaluate this.

However, one aspect which in my experience is usually overlooked is the corresponding duty and responsibility imposed upon the landowner to take reasonable care of an aircraft which he effectively impounds by refusing to allow retrieval. In the past I have found that when it is explained that the landowner will be liable for any deterioration in or additional loss and damage caused to an aircraft (*eg* by virtue of exposure to the elements or inadequate security) usually demands miraculously become more moderate and reasonable.

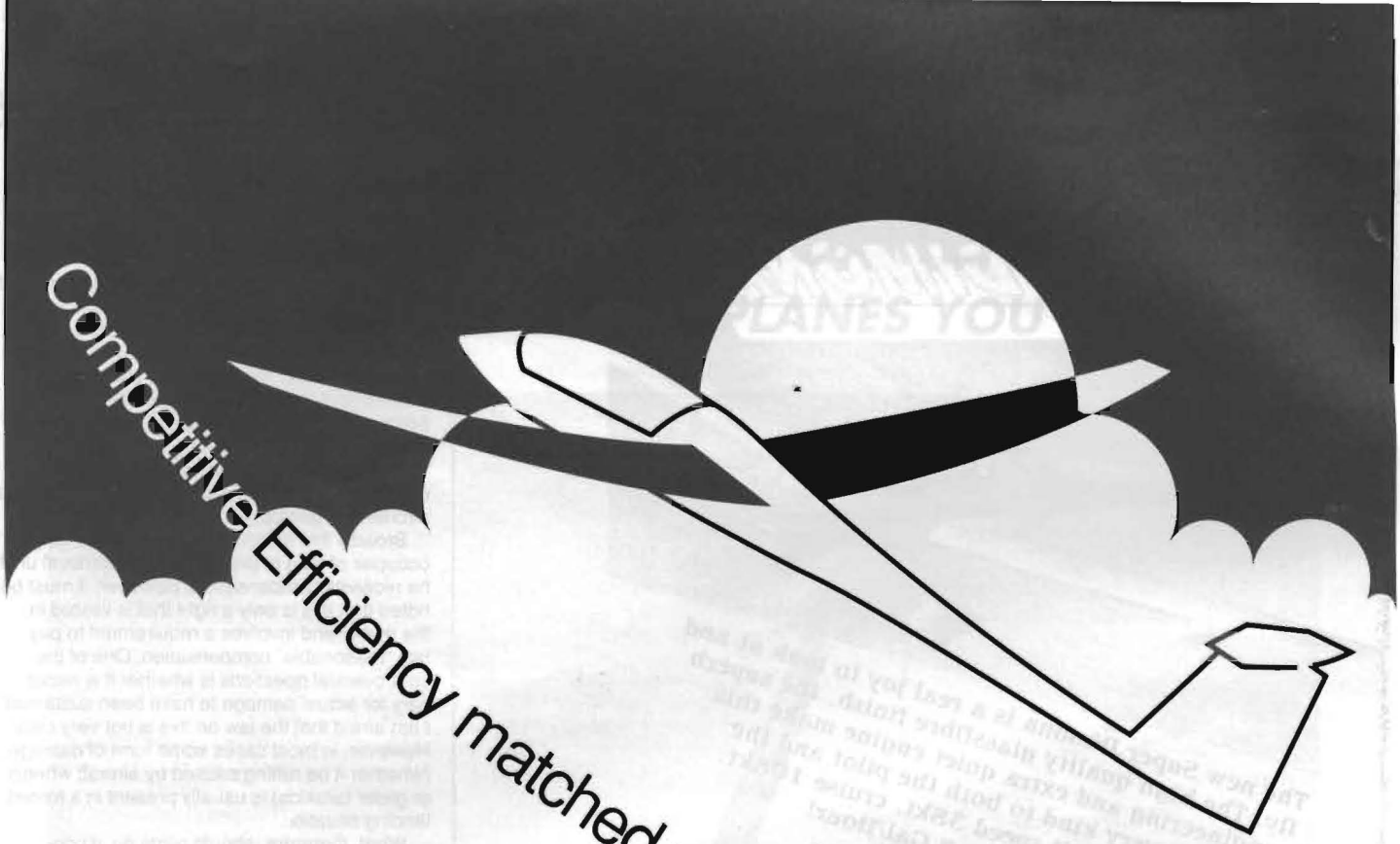
Indeed, in many cases in which I have been involved, the potential additional loss and damage which could occur (particularly to an aircraft in a semi-damaged state) as a result of inadequate care and protection can far outstrip any property compensation claim. The possibility of a substantial counterclaim is therefore a strong negotiating lever!

TIM BRYMER, *Messrs Cameron Markby Hewitt , London*

ARE WHITE GLIDERS DANGEROUS?

Dear Editor,

Reading recent articles and letters in *S&G* about safety, prompts me to ask why gliders aren't made more visible, since this would reduce the chances of a mid-air collision? Most modern glass gliders seem to be a uniform white, which doesn't give much contrast when ➡



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★ NIMBUS 3, ASH 25

Contact: Shawn Leigh
PO Box 206, Narromine 2821
Tel: 010 61 68 892313
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A.H.: (68) 892642

viewed against a normal, cloudy sky (though it's a good contrast for ploughed fields!).

Isn't it possible to have reflective surfaces added on to a glider, such as bands around the wingtips, tailplane and rudder?

STEVE KERSLAKE, *Huby, York*

LAUNCHING RINGS

Dear Editor,

I have twice watched a glider being written off when a launch went wrong, the second time was last summer. In both cases when the pilot was asked "Why didn't you release?" the answer was that he tried to and the cable did not go. In both cases, one winch and one aerotow, the rings in use were Otfur and the glider had a German type hook.

I have heard of a number of other cases, some of which resulted in accidents, where there was difficulty in releasing Otfur rings from continental hooks. I have never heard of difficulties releasing Tost rings from any type of hook.

A number of clubs discovered this problem long ago (including Bicester, Booker, Dunstable and Lasham) and changed to Tost rings exclusively, but some clubs are still using Otfurs (or even worse locally made rings). Do they realise the risk they are running?

In my view, the problem is now so well known to those in authority (through the experience of major clubs) that to continue to use rings other than Tost is negligence, underwriters might well be entitled to refuse payment and anyone injured (it has already happened to two people to my personal knowledge) could probably sue with success.

Any club which says "We use Otfur rings and have never had a problem" should thank their lucky stars and change at once.

Use Tost rings and no others.

BILL DEAN, *Kings Langley, Herts*

TRAILER TALK

Dear Editor,

Once again we have somebody theorising over the possible cause of trailer accidents. This time it is the C of G of the car (April issue, p69) and in the December issue, p309, air temperature. Has anybody ever thought it could possibly be due to lousy driving!

Remember, the maximum speed limit for a trailer is 60mph. It could possibly be less depending on the towing vehicle, but in any event the driver should stay within the constraints of the road, traffic and weather conditions. The result would be less accidents. (See also the February issue, p9.)

JULIAN DAY, *Wakefield, Yorks*

Dear Editor,

I would like to add to the letters on the design and use of trailers. Many of us have a tendendy to buy the trailer as a necessary evil, looking on it mainly as a hangar which will be used occasionally for retrieves and expeditions. My first trailer was little more than a box on wheels and towed well up to 70mph. Above that many factors influenced its safety including crosswinds and loading.

I then designed a trailer I couldn't find time to build. However, it was an education into the various problems, for initially you have to decide the design limits. A visit to le bureau des Mines, responsible for roadworthiness in France, suggested I should base the design on 85mph with light crosswinds. However, I was very surprised to see that my next design parameter of a 30mph crosswind at 60mph was unrealistically low and had to be increased to cater for the tramantin wind. Driving much below 60mph causes too much inconvenience to other drivers on the autoroute.

Subsequent experience with a top German trailer indicated that there is an optimum configuration for loading. If the C of G of the car is too far aft there is insufficient weight on the front wheels and hence the snaking effect of the trailed is not damped. Likewise there is an optimum C of G for the trailer. However, this isn't easy to determine for I have found that much depends on the crosswinds and the aerodynamic characteristics of the trailer.

My experience shows that for my particular combination of car/trailer I shouldn't have more than about 50kg load on the coupling. I should add that I have replaced the standard coupling with the Alko stablisher with considerable beneficial results.

Every year one hears of road accidents to glider trailers. These are all costly for not only is the trailer damaged but usually the glider. From my studies it is evident that not all is the fault of the driver. Not only is it essential that stability is well tested, but also that typical combinations of car/trailer are tested in strong gusting winds on wet roads.

JOHN MASON, *Rambouillet, France*

CAN ANYONE HELP?

Dear Editor,

The Thames Valley Aviation Society take a keen interest in aeronautical events in this part of the country and we published details of the Open Class Nationals and the Inter-Services Regionals held at RAF Abingdon last year in our magazine, *Centreline*.

We have a complete list of the competition numbers (or in some cases the three letter indentification) but despite generous help from Barry Rolfe, we haven't always been able to tie the competition numbers in with the BGA C of A numbers.

BGA C of A numbers not identified include 1, 3,12,13,26,29,60,87,126,132,139,162,166,176, 188,262,374,388,412,434,501,559,691,748, 840,918,929,941 and 954. Both the glider type and the BGA C of A number are needed for the following – 166,559,748,A6, DXH and IGF. Any help would be much appreciated.

BARRY COOPER, *19 Blackcroft, Wantage, Oxon, OX12 9EX*

Dutch gliders – 532 gliders were registered in Holland last year (an increase of 18 since 1991) and 54 motor gliders (an increase of nine).

French competition: The L'Aéro Club du Poitou are running the Coupe d'Europe Two-Seater Competition starting on August 13. There isn't much time as entries have to be in by June 30, but for further details contact B. Charpentier, Aero Club du Poitou, Section Vol à Voile, Aérodrome de Poitiers-Biard, 86580 Biard, France.

LAUNCH SIGNALLING

Bill Scull, BGA director of operations and co-chairman of the Safety Committee, submitted the following paper to the Instructor's Committee. It was debated and approved.

The new arrangments have already been in use for some time. This article aims to reach a wider audience so that everyone is aware of the change; clearly, any pilot expecting to operate under the old, pilot initiated signal system would be at risk with this new procedure. Given the considerable number of take-off accidents due, in the main, to the pilot's failure to release, such a change was long overdue. – Dick Dixon, BGA Instructor's Committee chairman..

The familiar cries of "all clear above and behind", "take up slack" and "all out" have been with us since time immemorial. For twenty years or more these messages have been confirmed by hand signals, a thumbs-up for all clear or a finger pointed and waved in a circle, one finger raised for take up slack and two fingers for all out. In addition the hand might be waved to confirm the all out signal.

The potential risks involved with these hand signals was raised by Derek Piggott at a flight safety presentation in the context of releasing the cable if the launch goes wrong. The question was put in terms of "how often (as an instructor) have you seen a student or pilot with his hand/fingers still raised some seconds after the glider is airborne? The answer is "too often" and the implications are obvious.

The risks

There was a time when the emphasis at the start of a launch was on keeping the hand near or even on the release. By doing so the pilot was able to stop the launch quickly if it went wrong, a wing dropped or there was a loss of directional control for whatever reason.

Given that the time taken to accelerate to control speed on a winch launch may be as little as two or three seconds (longer for an aerotow) then this is obviously a critical phase. If the pilot has his hand raised in order to signal then clearly releasing will be delayed in any emergency.

The actual risks are evident from take-off accidents which often give rise to substantial damage.

The situation

The logic of the present system is:

1.That the pilot is reliant on the duty pilot or other observer to ensure it is safe for the launch to proceed.

2.Based on (1) above the pilot gives the command "take up slack" but having already accepted the cable it is implicit that he is ready for the launch to start.

3.The decision to give the command "all out" (presently given by the pilot) is based on either observation of the cable tightening or the glider moving forward. If the take-off is slightly downhill then waiting for the glider to move increases the chances of the glider over-running the cable.

This procedure is both time taking and distracting for the pilot. His concentration is divided between observing the cable, signalling and controlling the glider. Also he is not able to make the decision regarding possible cable over-run; he relies on an observer for that.

The observer, who is also possibly the signaller, may not be concentrating on the glider because it is not specifically his responsibility; he simply relays signals. The demarcation of the respective responsibilities is not clear, or at least not as clear as it should be.

The alternative

The obvious solution is a complete rethink of launch signalling practice. It is usual in some countries and, incidentally, at some clubs in the UK to operate on the principle that once the pilot has accepted the launch cable then further commands to start the launch are the responsibility of a ground marshal or duty pilot. This arrangement clearly establishes the respective responsibilities without removing the pilot's ultimate action of releasing the cable if he believes there is anything wrong.

The arrangements

The only formal requirement is that the ground marshal/duty pilot (hereafter the marshal) is fully aware of his responsibilities. For this he needs some experience, briefing and an operational procedure. The considerations are:

1. "All Clear" is already his responsibility in the present system. The more usual potential for conflict is with approaching traffic. With efficient launching (winch driver ready and an expeditious system) it should be possible to continue launching up to the point the conflicting glider turns finals and possibly later. This applies unless the glider is likely to land across the launch line or ahead of the launch point and conflict in either case. The more experienced the marshal the better he is able to judge the stage at which the impending launch should be stopped.
2. "Take up slack" can be given as soon as theperson attaching the cable is no longer in front of the glider. There is no reason for anyone else to be there.
3. "All out" can be given when the cable is tight just as the glider starts to move forward.
4. Should the glider over-run the cable then the marshal is best placed to decide whether to continue signalling or stop the launch. The pilot training emphasis must be to release the cable if the glider rolls forward then stops or the glider is snatched.
5. "Stop" should not be given once the glider is airborne. The exception to this is if the cable has caught in the glider's wheel box [see (4) above].

Safety and efficiency

Such an arrangement is obviously more expeditious than the present system. In terms of safety it gives a clearer demarcation between the responsibilies of the marshal and pilot. Most importantly the pilot is able to keep his hand near the cable release while looking ahead, to detect the first indication of a wing dropping or veer on take-off from whatever cause.

Conclusion

It is recommended that the BGA launching practice is amended to:

1. That the pilot having accepted the cable is ready to be launched.
2. The marshal is responsible for seeing that it is clear to launch (as at present) and giving the launch command signals of "take up slack", "all out" and "stop" as required. Also that no one is allowed to act as marshal unless they have been properly briefed and acted in this capacity under supervision.
3. To enable the pilot to be aware of progress there should be an audible signal coupled to the signalling light. This will give the necessary feedback to the pilot.

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Cumulus Clothing ... the variations

If you are a member of one of the following clubs you may be able to get your hat from them. An * indicates that the club is a stockist or has samples as of 3.5.93.

ARGYLL & WEST HIGHLAND
**AVON*
BICESTER
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BUCKMINSTER
BURN
**CAMBRIDGE UNIV*
**COTSWOLD*
**COVENTRY*
DEESIDE
DERBY & LANCS
**EAST SUSSEX*
**ESSEX*
**THE GLIDING CENTRE*
KENT
**LASHAM*
**LONDON*
MIDLAND
NORFOLK
NORTHUMBRIA
**OXFORD*
SCOTTISH GLIDING UNION
SOUTH WALES
SOUTHDOWN
STRATFORD ON AVON
**SURREY & HANTS*
WOLDS
YORK
**YORKSHIRE*


Style CC001


Style CC002


Style CC003


Visor

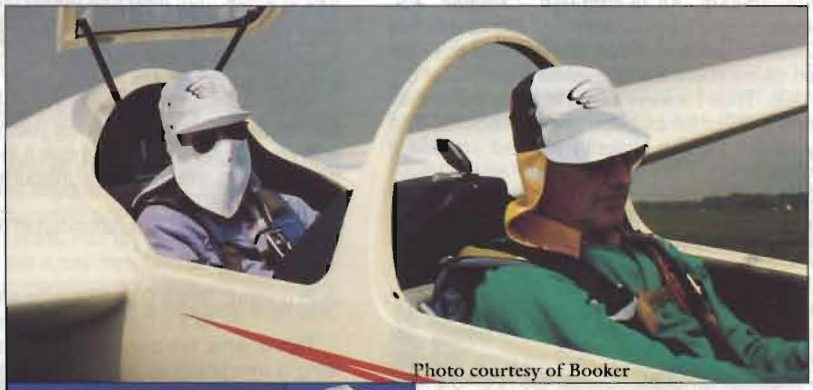

Style CC004

In the Summer of '92 Cumulus Clothing set out to develop the ultimate gliding hat. It had to provide outstanding levels of protection and comfort in the air and on the ground. We did more, and produced the best gliding hat in the world.

The gliding hat can be worn in 4 ways:

- Flaps up, it's a stylish and lightweight cap with a multi-position peak which provides maximum protection from direct sunlight.
- Pull down the side flaps, and you have total ear and cheek protection and is perfect for all ground-handling situations.
- One more tug and the vulnerable neck area is covered.
- Choose the optional face visor, which can be withdrawn in flight, and the hat will cope with every gliding condition you will meet.

With over twenty years of design and manufacturing experience behind it, you can be certain that the quality matches performance.


Photo courtesy of Booker


Style CC005


Style CC006


Style CC007

HOW TO ORDER

Choose the style you want from the options shown then select the size you need from the table below. You can either complete the coupon (photostats are fine) or write with your order to: Cumulus Clothing, 141 Praed Street, London W2 1RL. Tel: 071 724 9473

Please send me_____gliding hats at £13.95 each in the following sizes and styles

ORDER SIZE	M		L		XL	
HEAD SIZE	22½"	22⅝"	23"	23⅛"	23⅜"	24½"
HAT SIZE	7⅛	7¼	7⅜	7½	7⅝	7¾

QTY	STYLE	ORDER SIZE	PRICE
	VISOR		

I would also like_____visors at £3.50 each

Postage: UK, 50p Overseas airmail, £2.50

I enclose my cheque/PO, payable to Cumulus Clothing for_____Total

I am: Pre-solo ☐ Post-solo ☐ Silver C ☐ Competitor ☐ Instructor ☐

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Name _____

Address _____

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Post Code ☐☐☐☐☐☐☐

Send to Cumulus Clothing
141 Praed Street, London W2 1RL

Cumulus Clothing . . . the Glider Pilots' Clothing Company

TAIL FEATHERS

Mock thou not, for it could verily happen unto thee

A small ad, psychiatrists would doubtless assert, is a cry for help. *Bunny. Come back to the syndicate. All is forgiven. Cuddles. PS. Please bring wing pins with you.* Some ads are fascinating since we must wonder how the situation came about that provokes a particular cry for help. Thus I always seem to be come across ads in *S&G* or on clubhouse noticeboards that say something like *Urgently wanted: starboard wing of Dart 17.* Did the owners of an otherwise intact Dart 17 leave a wing behind while on holiday in the south of France? Probably not. Or did someone run over it with a pickup truck, not just



Leave a wing behind.

nibbling at the tip, which is a quite common and recoverable blunder, but smack across the middle, reducing the spar and brakebox to matchwood? I jest, of course, knowing the true answer. In the case of the Dart, which I managed to spin at about 400ft above the bar of the Dunstable Golf Club within minutes of being winched off on my very first flight in 1966[1], there is little doubt that the call for help of this kind arises from an



Serious trade in odd wings.

asymmetrical impact with the ground following a spiral descent in a stalled condition. Thus one wing escapes, and a tearful call goes out for a mate.

A reader of *S&G*, smugly cosy with pipe and slippers, reads the tragic small ad to his wife, who is knitting a pitot-warmer[2], and not unnaturally jeers: "Look sweetie, some poor clown hopes someone else has got a spare starboard wing just lying around! People really are weird!"

"Well, darling, what's that thing cluttering up the loft that I'm always asking you to tidy away and you always say you'll throw it in a skip next time builders are in the neighbourhood, which they never are?"

Pipe hangs sort of suspended in mid-air . . .

"Great Scott! It's a –"

"It can't be –"[3]

In unison: "It's a Dart 17 starboard wing!"
"It's a Dart 17 starboard wing!"

This is what the owner of an immaculate port wing is imagining as he hopefully[4] pens his ad. After all, gliders are not like power planes, with their marked preference for spins in one direction, depending which way the prop is turning. So the law of averages[5] should send the answer to his prayer.

Pete Wells says don't joke, there is indeed a serious trade in odd wings. He was called by a chap who wanted a replacement wing for a Polish glider[6]. Pete happened to have just such a wing, which was duly collected. However the person who called – obviously not the pilot at the time of impact, since he or she would be unlikely to forget – had not examined the surviving wing much closer than, say, a hundred yards distance. That's right, you guessed it. They were now the owners of two port wings and still no starboard wing. This was eventually bought from the manufacturers. Oddly enough, nobody tried to return the surplus wing to Pete and ask for their money back. Shame and embarrassment make people act in ways that are not wholly rational.

Wells père (Martyn) relates a still sadder story. Encumbered with two outer sections of a three-piece Skylark 4 wing, he said one day "This junk has to go. Where's my chainsaw?" and in a few minutes reduced the 40ft of timber to chunks of firewood, all a nice size for popping into an Aga stove.

No, I don't have to tell you what someone rang and asked for the very next day . . .

A great show

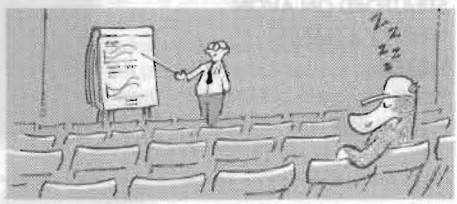
The Soaring Society of America, despite a membership not much larger than our British Gliding Association, regularly attracts a thousand people to its four-day annual convention and exhibition, and about 400 come to the annual dinner and awards ceremony. This



A luxury hotel.

February in Seattle I was generously given a luxury hotel room for three nights and a ticket to all events and shows in return for a few minutes of idle chatter and jokes masquerading as an after dinner speech[1]. The only sad bit was when one found that two or more excellent speakers were sometimes competing for one's time in parallel sessions – but audio tapes were made available after the convention by way of compensation. I should say too that since Seattle is in the very top left corner of the USA, some couples from the eastern or southern parts of that vast country would have put in more than 10 000 miles of travel between them to make the round trip, but were not deterred by the time or the cost.

In the 1980s, by contrast, the BGA struggled



A useful lecture.

to achieve half those numbers, and now the full-blown BGA Weekend Conference and Exhibition has been abandoned and the annual gathering has shrunk back to one-day affair comprising an AGM, a useful lecture or two and a dinner. Numbers: up to 200 in the best cases in the 1980s and now back to about a 100.

There are a number of alternative conclusions one can draw from this, most of them unflattering to somebody, specifically:

[1] *Recovery was at less than 200ft above the golf club bar. This was 500ft above the London GC bar, the first bar being at the top of the Chiltern ridge and the second being at the foot (nestling is the guide book phrase) of the slope. The irony is that the people closest to the imminent impact saw nothing of this brief drama, whereas those in the LGC bar half a mile away had a first class view. It is said that the flow of inane chatter stopped for all of five seconds, allowing bets to be made.*

[2] *He is a sterotypical male chauvinist pig and she is an oppressed hearth-slave, but neither of them know it, not being readers of the* Guardian.

[3] *I can fill up pages with this kind of dialogue and meet the editor's quota, easy.*

[4] *Note the proper, but now rare, use of the word* hopefully.

[5] *Which assumes that the standard gliding club circuit is equally often to the right as to the left.*

[6] *The glider type and the name of the individual are concealed to protect the guilty, as usual.*

[1] *My thanks to Norm Ellison, a Boeing Brit, for inviting me on behalf of the Seattle Glider Council.*



Miserable skinflints.

That the British gliding fraternity are a mean-bunch of miserable skinflints who begrudge anything that does not automatically benefit them here and now, and who think of a 100 miles as an intolerably long way to travel except when they want somebody to retrieve them

OR

That the BGA and its volunteers – which includes me, I suppose – cannot put on a decent show that is worth the time and money of their members, who are broke, especially in the recessionary 1990s, but willing to pay for a lively, informative and uplifting couple of days

Since such a debate would quickly degenerate into vulgar abuse, I suggest a third explanation, which is less combative and more creditable to our movement.

Our clubs in the UK try to provide a pretty pleasant environment for members, rain or shine. Since rain, or every form of cloud other than cumulus or lenticular, is more common than shine, the clubs usually have a social and educational programme that keeps members coming and keeps the bar and restaurant busy. Everything from amateur theatricals to fancy dress parties to sessions on the theory and practice of cross-country flying. (Sorry, no drag shows yet, but I wouldn't rule them out.) And we can always just sit and talk and talk and talk until the sun comes out, if it ever does.

In the USA, however, many gliding operations are located at local airports and seem to be al-



Social and educational programme.

most marginal to the powered activities. They are friendly, efficient, professional get-you-in-the-air businesses that have to fit in with several other commercial enterprises on the same site. There is frequently no bar, restaurant or clubhouse – indeed no club in our sense at all. For such a gregarious people as the Americans, this leaves a huge gap which the annual conference fills. This is your unique opportunity to feel like members of one great club. In British clubhouses we can have a gabfest every weekend. In the USA it explodes joyously like Christmas, once a year.

So that is the explanation of our relatively poor showing in the matter of annual conferences which casts aspersions on nobody.

All the same, you are a mean bunch of – (STOP THAT! Ed)

TOM BRADBURY

JUST GIVE ME THE FAX

Tom shows how the fax has become a major factor in aviation meteorology

Producing competition forecasts used to involve assembling a lot of radio and electronic gear to obtain coded Met data from which to plot charts and work out the prospects of a good thermal day. It was a time-consuming occupation which was seldom really successful. The effort of gathering information meant that the competition forecaster seldom had time to use it properly.

Then the Met office started a dial-up system which enables anyone with a fax machine to call up a lot of computer processed data. This can save a lot of work. Fax is not the only source of information but it has now become a major factor in aviation meteorology. Here are some suggestions on using fax, with a little help from BBC TV weather slots.

Using the forecast chart

Every six hours the Met Office update the surface analysis and forecast charts. Dial 0336-400-502 soon after 0445,1045,1645 and 2245 to get the ASXX (analysis) and FSXX (forecast) surface charts. I usually dial during the cheap rate time, often around 1830 after watching the TV forecast.

At this time one gets the latest midday chart and the forecast for midday tomorrow. As well as giving a general picture of the situation the forecast chart has two main uses:

1. Obtaining the geostrophic wind: Cross-country prospects depend on the winds being fairly light; speeds of 30kt have not prevented good races but most successful days had winds of less than 16kt. The forecast charts are nearly always accurate enough to predict the geostrophic wind within 5kt. Fig 1 shows some examples.

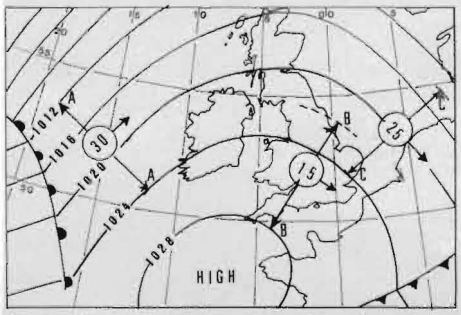


Fig 1. Measuring the geostrophic wind.

(a) First mark off a distance of 300nm on a piece of paper or with dividers. The distance between 5° of latitude is 300nm. Lay this at right angles to the isobars. The Bracknell charts use 4mb isobars. If the 300nm scale spans the distance between one pair of isobars the wind is 10kt. The rule at our latitude is that 2.5 times the difference in pressure in mbs gives the speed in knots.

(b) A simple system is to see how many pairs of isobars the scale crosses. In Fig 1 the line A-A west of Ireland spans three isobars; multiplied by ten this gives a 30kt wind. The line B-B across the Midlands of England spans one and a half pairs of isobars. The wind there can be taken as 10 x 1.5 or 15kt. Over the North Sea the line C-C spans two and a half isobars so there the speed should be 25kt. This convenient method only works in our latitude. In other latitudes different conversion factors are needed.

More from the forecast chart

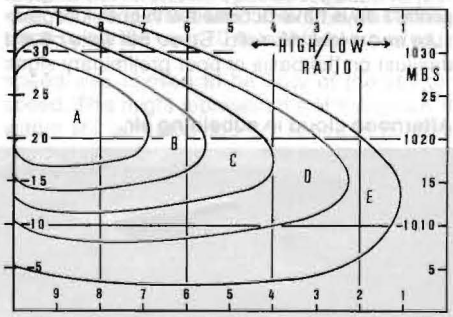


Fig 2. Prospects for 300km or more based on MSL pressure (on left) and the High/Low ration (at top and bottom). These figures represent tens of percent; 8 means 80% etc. Area "A" gives very good prospects, "E" or worse offers a very small chance.

As well as measuring the wind for the next day one can find the chance of a 300+km day by combining two pressure items and looking at Fig 2. Fig 2 combines the "High/Low" ratio with the predicted surface pressure. To find this figure you need:

(a) The central pressure of the nearest high.
(b) The forecast midday pressure over the likely cross-country area.
(c) The pressure of the nearest low.



Morning cloud warning of spread out.

From these one can get a ratio showing where the predicted pressure lies in relation to the high and low centres. For example if the centre of the high is 1031mb and the low is 996mb there is a pressure range of 35mb. If the pressure over your area is predicted to be 1024mb then the ratio is 28/35 = 0.8 or 80%. This is the High/Low (H/L) ratio.

Now turn to Fig 2. This shows pressure up the side and the H/L ratio at top and bottom. The 1024 isobar and the H/L of 80% meet in the area marked "A". This indicates a very good prospect of a 300km day or better. The areas from "A" to "E" were selected from plots of 300 and 500km flights; the greater the concentration of plots the higher the prospect of a good day. The diagram shows that the further away the high centre the lower the chance of a good day. There is a small deterioration in prospects as pressure rises above 1030; this is because high pressures in summer tend to produce blue days and/or very low inversions.

No simple Met rule is infallible and a few good contest days have occurred with both low pressure and a low H/L ratio. So do not write off the day just on the basis of poor preliminary signs from Fig 2. Alas, the reverse is true too; an apparently good day may be spoilt by spread out.

The value of min and max temperatures

I usually note down the TV predictions of night minimum and day maximum temperatures. These are values computed from a statistical relationship between all the important weather features which the computer model predicts. The temps are usually pretty accurate. Good cross-country days generally follow a night when temperatures fall rather lower than normal, and when there is a wide range between the minima and maxima. At this early stage one looks for a separation of at least 10° between night min and day max. This indication is only useful on clear and fairly calm nights. It is of limited use to us when a front goes through overnight.

During a fine spell when there are clear skies and light winds overnight the night min is quite close to the dew point during the afternoon. A check made on many good soaring days showed that the difference between night min and afternoon dew point was usually within a couple of degrees; by the time of max temp the dew point had often fallen a degree or two below the previous night min.

Afternoon cloud in subsiding air.



The dew point is important because the difference between dew point and air temperature is a very good guide to the lifted condensation level. This is nearly always very close to the base of cumulus clouds. If you multiply the temperature/dew point difference by 400 you get a very good approximation to the base of active cumulus. So the difference between the predicted max and min is a first guess at the afternoon cloudbase. On good days the first guess is often a slight underestimate of the cloudbase.

Using the fax low level weather and spot wind charts

After 0500 GMT one can dial 0336 400 503 and call up the F215 "UK Low Level Weather Chart" and the F214 "UK Spot Wind Chart." These two normally appear as a single fax item. The weather chart is divided into areas, usually numbered from 1 to 4. An arrow on the boundaries or fronts indicates which direction and how fast the weather areas are moving. A written description of conditions in each area is printed underneath. It is not entirely satisfactory for gliding because the forecaster is obliged to cover all sorts of morning hazards, such as fog or low stratus which trouble early rising power pilots but seldom worry late rising glider pilots. As a result it is not easy to see if it will be a good soaring day; another snag is the forecast ends at 1200 GMT, just when soaring may be getting good.

However, it gives a forecast surface chart for 1800 GMT; this is most helpful if another front is coming in because the chart shows where it will be at the end of the soaring period. One can also measure the 1800 GMT geostrophic wind from the spacing of isobars and see how the winds are expected to change towards evening. This is important if all you have is an 0900 spot wind and a 1200 GMT forecast chart.

What the spot wind chart shows

This chart is covered with a series of boxes in which the predicted winds at levels from 1000 up to 24000ft are shown. The boxes look like this:

```
5230N  0230W
24  260 30  –25
18  260 25  –13
10  270/15  +01
05  250/10  +06
02  VRB  5  +10
01  VRB  5  +13
```

The top line shows the spot where these winds will occur, (hence the term "spot wind chart"). In this example it is 52° 30min N and 02° 30min west. The subsequent lines show first the level in thousands of feet and then the direction and speed. Thus the second line starting

```
24  260  30  –25
```

shows the 24000ft wind to be from 260° at 30kt with a temperature of –25. Most cross-country pilots will use the lowest three levels, from 5000 down to 1000ft. The letters VRB mean the direction is variable. This particular box was issued early on July 28, 1992, a day when many 500km flights were made and Nympsfield set a successful 519km triangle for the 15 Metre Class.

Using the temperatures

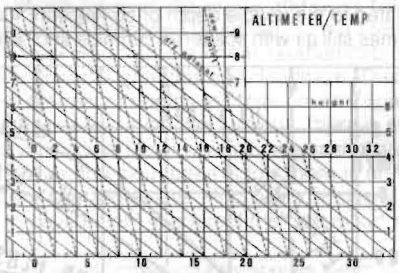


Fig 3. Temperature/Height diagram. Height in thousands of feet along the side refers to altimeter readings. Sloping lines show the dry adiabatic lapse rate of 3°C/1000ft. Pecked lines show how the dew point decreases upwards in a thermal.

The temperatures are valuable too. Fig 3 shows a graph of altitude versus temperature on which one can plot these predictions, or any local sounding by aircraft. Here is a point to remember: A blue thermal cools at 3°C /1000ft. In the spot wind box the 1000ft temp is 13°C; adding 3°C for the cooling between the surface and 1000ft gives us 16° at the surface. This is the surface temperature which has to be exceeded before a thermal could reach 1000ft. At 2000 the temp is 10°C, add 6°C for the distance down to the ground and the same value of 16 is reached. Hence once 16°C has been topped thermals should reach and probably pass 2000ft.

Now look up to 5000ft where the temp is given as +06. To reach this height a blue thermal would cool 3 x 5 = 15°C. So for dry thermals to get so high the ground temperature needs to pass 6 + 15 = 21°C. The expected max temp that day was 21°C so blue thermals would barely reach 5000ft, even at the time of day max. The reason was that a stable layer existed just below 5000ft. However if cloud formed below that level the tops might exceed 5000ft.

Bringing in the dew point

The pecked lines on Fig 3 show how the dew point changes as a thermal rises. Condensation occurs when the dry adiabat crosses the dew point line. For example if the thermal left the ground with a dew point of 8 and an air temperature of 18°C condensation would occur at about 4000ft. At this level the air temperature would be 6°C. The line of figures just above this level identify the isotherms and are added to supplement the base line values. This illustrates the simple rule: cloudbase is 400 x temperature difference. (In this case the initial difference was 10°C.)

Returning to the spot wind box with its temperature of 6°C at 5000ft, we can see that if the max temperature reached 21° and the dew point remained at 8°C the cloudbase would be 13 x 400 = 5200ft. We have already seen that blue thermals could barely reach 5000, now it seems that the cloudbase would be higher.

This suggests cu would become rather sparse and the day could well turn out blue. In fact if thermals were strong they might rise some distance into the stable layer to produce a puff of cu on top. On the other hand if high cloud spread



Midday cu spreading out.

over, weakening the thermals, any puffs of cu would disappear.

Here is another example: On this day the 5000ft temperature was 13°C; to get a blue thermal so high needed a temperature (13+15) of 28°C but the max did not exceed 27. If cu formed lift might have become good but the dew point was 10. The separation (27-10) was 17°C indicating the condensation level should be 400 x 17 = 6800ft, which was well above the limit of blue thermals. Not surprisingly it was a blue day which turned into rather a grovel near the coasts where the temperature was much lower.

On most good cross-country days the 5000 temp is at least 15°C below the max temp. If the difference is a lot less it often means there is an inversion limiting thermals.

Wind effect and O/R flights

Wind always reduces the speed achieved on closed circuit flights. The effect is worst on an O/R flight if the track lies up and downwind. Beam winds are far less of a hindrance. The effect of changing from head/tail to a beam wind is shown in Fig 4. The curve shows the ground speed as a percentage of still air speed. One can see that the loss of speed due to the wind is least when the direction is 90° to the track (a beam wind). To emphasise the effect, the wind

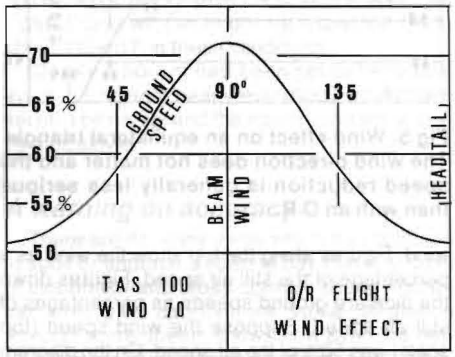


Fig 4. Wind effect on an O/R flight. The curve shows how the speed varies as the wind direction changes from being along the track (180 or 360°C relative) to 90°C (a beam wind). With a very strong wind to emphasise the effect the curve shows speeds reduced to just over 50 % when the wind direction was along track to a trifle over 70 % with a beam wind.

speed was chosen to be 70% of the still air speed. This might represent the effect on a K-8 with a still air cross-country speed of 50km/h ➡

The last stepping stone before thermals ended.



meeting a wind of 35km/h (about 19kt). In these circumstances the curve of the ground speed shows it is reduced to 50% for an up-and-down wind flight but with a beam wind the ground speed is just over 70% of the still air speed.

Equilateral triangles

Fig 5 shows the effect when the flight goes round an equilateral triangle. The wind direction does not matter in this case. The curve shows the reduction of ground speed related to the

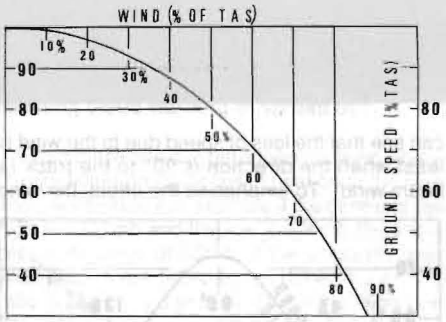


Fig 5. Wind effect on an equilateral triangle. The wind direction does not matter and the speed reduction is generally less serious than with an O/R.

wind. Figures along the top show the wind as a percentage of the still air speed. Figures down the side are ground speeds as percentages of still air speed. Suppose the wind speed (top scale) was 50% of the air speed. On the diagram the vertical line marked 50% meets the curve where the horizontal line reads 80. This means that the ground speed would be reduced to 80%. Increasing the wind speed to 70% the vertical line meets the curve at about 60%. Changing percentages into real figures this means that with a still air speed of 100km/h and a wind of 70km/h the ground speed would be reduced to 60km/h. Until the wind speed exceeds 30% of the still air speed the ground speed is not badly reduced.

Fig 6 can be used for predicting the ground speed round an equilateral triangle using the ex-

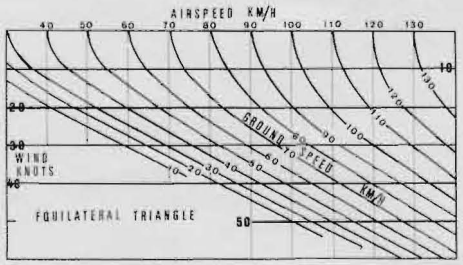


Fig 6. Graph to calculate wind effect on a flight round an equilateral triangle. Units are mixed. Still air speeds and ground speeds are in km/h since these are used in contests. Wind speeds are in knots because those are the units in forecasts.

pected still air speed and the forecast wind. Notice that although the air speeds are given in km/h the wind speed (left hand scale) is in knots because these are the units in Met forecasts. For example if the still air speed would have been 90km/h (top scale) but the wind was 30kt, then going down the 90km/h line till you reach the 30kt wind speed shows the ground speed would be reduced to about 60km/h. The family of ground speed curves shows that fast pilots are little affected until the wind gets very strong. On the other hand beginners setting off in their K-8s may be badly handicapped if the wind is much more than 10kt.

The trouble with such corrections is that on some days strong winds produce cloud streets or lines of large cumulus. If pilots find a conveniently placed cloud line they may be able to travel long distances into wind without circling. The achieved speeds are then far higher than usual.

What speeds do pilots achieve?

Several years' competition results were plotted to see what speeds were reached. There is of course an enormous range of values on any one day. The widest range I came across was 113.8km/h for the winner and 20.2km/h for the last man back. This dauntless pilot struggled against wind and weather to complete a 107km flight in around 5hrs.

"Top ten speeds"

It seems generally true that short flights on difficult days produce the biggest spread of speeds. Flights of 300km or longer give more consistent speeds – if only because the slowest pilots never get round. I chose the average speed of the top ten pilots as a representative value. The winner was often about 10% faster than this. When 20 or more finished the average usually fell to 87% of the top ten speed.

The achieved speeds were then converted into a still air speed by correcting for the windspeed. This correction is probably justifiable on long cross-countries but can introduce serious errors when competitors start off downwind and then come home along a great line of cumuli which allow a "wings level" flight most of the way.

Finally the speeds were adjusted for three Classes. Discus and equivalent Standard Class gliders were the 100% base. 15 Metres were allotted 105%. Open Class were given 115%. This is much less than BGA handicaps suggest but a comparison of speeds on good days showed that over England Open Class pilots do not normally achieve 135% of a Discus speed. Distance flights may be different.

Factors influencing speed

The average lift is the most important factor. In the absence of large areas of spread out or extensive top cover the speeds achieved seemed to depend on the usable depth of convection. On average the higher the cloudbase (or base of inversion on blue days) the better the lift. This assumes only small to medium sized cu capping the thermals. Big cu and cu-nim may produce very much stronger lift; however, they are not always spaced conveniently. The small areas of strong lift are of little use if one has to go through miles of poor air to find the next thermal. Cloud climbs are good for crossing gaps but speeds are usually higher with only moderate lift but well spaced clouds.

Speeds and the cloudbase

Fig 7 shows a set of curves for still air speeds related to the usable depth of convection. It assumes still air with scattered cumulus and no top

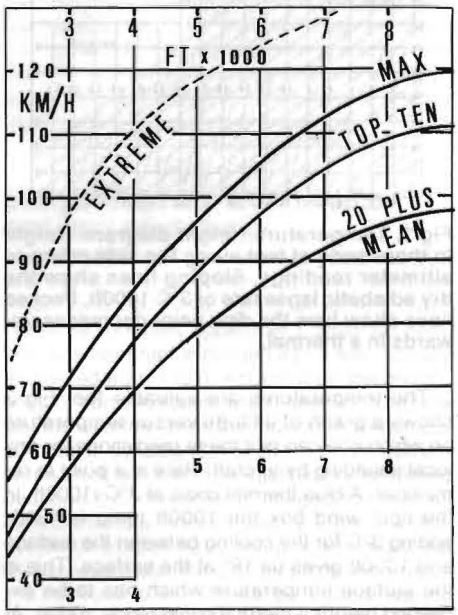


Fig 7. English Standard Class still air speeds and usable depth of convection. (For Open Class increase to 115%.) Curves are based on the average speed of the top ten finishers. Means for 20 or more finishers are shown to be slower. The winner's speed was usually on the "MAX" line but there are exceptional days when competitors found cloud lines which enabled them to go into wind very fast. These may account for some of the "EXTREME" line speeds.

cover or spread out of stratocumulus. The curves are based on the average speed achieved by the top ten gliders (Standard Class). The winning speed was often about 10% faster. The average of 20 or more finishers was about 87% of the top ten average.

Speeds were strongly dependent on the cloudbase in mid-afternoon, or the base of the inversion on blue days. Thus if the cloudbase started low and never went above 3000ft the top ten average tended to be only a little over 60km/h. However cloudbases rising to 6000ft allowed speeds of nearly 100km/h. The arrival of a thick layer of top cover often reduced speeds to about 60% of these values.

Some corrections

(a) It appeared that when thermals were capped by large cu (but still well broken) the speeds achieved were equivalent to an extra 1000ft on the cloudbase. It is difficult to substantiate this since conditions varied too much over the route. Cloud climbs rarely improved the speed but did enable pilots to cross gaps.

(b) On blue days speeds were nearer those achieved under a cloudbase 500ft lower than the inversion. This is probably because lift tends to fall off badly in the last 500ft of a blue thermal but remains good up to and into the base of a moderate sized cumulus. Blue days also make

competitors resort to gaggles which are nearly always slower than individual pilots.

The link between cloudbase and cross-country speed is supported by figures from a French Met man who found a linear relationship between thermal strengths and cloudbase. Theory links thermal strengths to cross-country speed but the line is curved, not straight. There is also a psychological factor which theory cannot allow for. When the cloudbase is low there is only a narrow operating band. Most pilots fly slower so as to have height to spare if the next cloud is a dud.

The highest cross-country speeds seem to be made in hot dry desert areas such as central Australia where (I am told) one may have thermals up to 18000ft on record breaking days. Such conditions make possible speeds of 170km/h. The achieved speed is improved because true air speed is greater at such high levels. Paragliders have thermalled to over 17000ft asl over South Africa (near Vryburg) but the height above ground was only about 13000ft. In England, where it is rare to experience cloudbases above 7000ft, the cross-country speeds seldom go much above 120km/h.

There have been days, notably during the drought year of 1976, when pilots occasionally found cumulus forming at 11000ft. My impression is that the rate of climb on these rare days was usually no better than on days when the cloudbase was 6000-7000ft. The speed curve shown on this graph tends to flatten out under really high cloudbases.

New Standard Class speed graph

The dew point depression may show the condensation level is high but that is no use to us if the thermals stop lower down. Fig 8 is an attempt

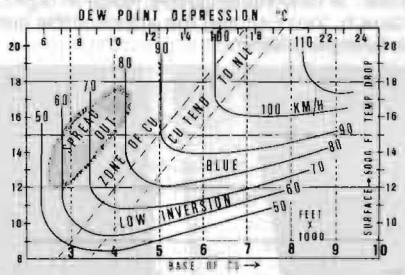


Fig 8. New speed graph combining dew point depression and the temperature drop between surface and 5000ft. Curves show average speeds by the top ten pilots.

to combine the condensation level with the extent of dry thermals. This diagram shows the dew point depression along the top with the equivalent cloudbase along the base. Up the side the figures running from 8 to 20 are the drop in temperature between the surface and 5000ft. This height was chosen because the spot wind forecasts give the 5000ft temperature. (The max temp is taken from the TV weather slot.) The series of curves marked in km/h show the average speeds likely to be achieved by the top ten Standard Class pilots round a triangular course in still air.

This is how to use the diagram:

1. Find the difference between the dew point and the afternoon temperature (the dew point depression) and also the difference between the mid afternoon temperature and the 5000ft temperature. (Look up the spot wind box.)

2. Go to the dew point depression (say 12°C on the top scale). Move down the line to the surface/5000ft difference on the side scale. (Say 15°C.) Where these two lines cross the expected speed lies between the curves for 80 and 90km/h, probably about 86km/h.

There are two diagonal lines running across the diagram. On the left of these lines one expects to find cumulus; it is marked "ZONE OF CU". Between the lines "CU TEND TO NIL" means that in that region cumulus will tend to burn off during the afternoon. To the right one expects only blue thermals. Underneath the remark "BLUE" is a region labelled "LOW INVERSION". Here the surface to 5000ft temp drop is less than 12°C (Scales at the side.)

What the diagram is based on

All the "top ten" speeds were plotted on an enlarged diagram of this type together with symbols for blue days and spread out or top cover. The speed curves were then fitted using basic data from Fig 7 to supplement the spot values.

Notice that the speed curves, which range from 50km/h lower left to 110km/h upper right, show a sharp bend as they pass through the region marked "CU TEND TO NIL". This is:
(a) Partly because speeds achieved on blue days were seldom as fast as on cumulus days .
(b) Because the bottom of the diagram includes days when the inversion was well below 5000ft. Some of these days were spoilt by early morning fog and/or patchy stratus from the North Sea. On these days competitors found it hard enough just to remain in the air so speed flying was of secondary importance.

Thus if the day is predicted to have a large dew point depression suggesting a high condensation level, but the 5000ft temp is also high, then thermals will never rise to condensation level. If the 5000ft temp drop is much less than 15°C there is likely to be a low inversion.

Spread out

In the middle left hand side is a stippled section headed "SPREAD OUT". This represents days when the air was moist. The cloudbase was not very high but the air was fairly unstable. A 3000ft cloudbase combined with a 5000ft temp drop of 15°C brings you into this stippled zone. Such conditions favoured the development of spread out. It is a region where the clouds build up too rapidly and, if they encounter a lid higher up, tend to spread out. On such days even the Open Class had a struggle to complete the task and there were days when nobody got round.

Keeping a running check

It is useful to make a series of local temperature readings through the morning. However, Volmets reports are almost as good. They are free by radio but if reception is bad one can get reports from almost every airfield of importance *via* the fax machine. Dial 0336 400 520 for an index page. There are so many available that several pages are needed for the entire country and Europe. Fig 8 can be used as a "How-goes it". Suppose the 5000ft temp is 3°C, and the predicted max 19°C, then one can make a little table using the hourly temp and dew points from METAR or local reports.

THE "HOW-GOES-IT" TABLE

Time	Temp	Dew point	T-D	Cloud-base	Tdrop (0-5000)	spd graph km/h
0900	14	07	07	2800	11	60
1000	15	07	08	3200	12	65
1100	16	07	09	3600	13	73
1200	17	06	11	4400	14	81
1300	18	06	12	4800	15	87
1400	18.5	06	12.5	5000	15.5	90
1500	19	06	13	5200	16	91
1600	19	06	13	5200	16	91

One can see why the top ten Standard Class pilots would probably delay their start until about 1300 and then go round a 300km triangle at some 90km/h, getting back about 1620. The winner would probably have taken 20min less. The Open Class winner might be expected to do about 115km/h in these conditions.

Clearly if 500km had been set (a fairly rare event in England) nearly everybody would have set off a bit earlier and the top ten average would be a bit slower.

A warning on accuracy

There are so many items which can combine to spoil or improve a soaring day that any table of cloudbase and cross-country speed figures can only give approximate value. A glance through score sheets shows how even the better pilots may turn in poor results on some days. On a day which one pilot described as "The best soaring weather I have ever experienced in England" the top ten averaged 109km/h with a standard deviation of only 2.2km/h. The cloudbase was 6500 and the surface to 5000ft temperature drop was 19°C in mid afternoon.

In contrast there was a day when the Open Class at Enstone returned speeds ranging from 121 for the winner to 60 for the last man home. Few things are certain in soaring or Met. Combine the two and you get some surprising results.

Adding the wind correction

Use Fig 6. Select the still air speed along the top line. Move vertically down until you reach the horizontal lines giving wind speed in knots. Read off the likely ground speed from the curves. For example on a mediocre day the expected still air speed was only 70km/h but the wind was 20kt. The probable ground speed is about 53km/h. In contrast on a booming day with expected speeds of 100km/h the 20kt wind will only reduce the ground speed to 90km/h. This speed applies to Standard Class sailplanes. Increase still air speeds by 5% for the 15 Metre Class and by 15% for the Open Class.

Speeds will be much lower if top cover spreads over or the cumulus spreads out to give a layer of stratocumulus. A rough guess suggests that under spread out the speeds are only 60% of these values, and if this brings the average speed down to 50km/h a large proportion will not get back at all.

THE CASE FOR WINGLETS

Gerhard, Schleichers' chief designer, wasn't convinced about the value of winglets until he did some tests for himself

Schleichers became involved with the further development of winglets after their designs for the ASW-22 (1m high) and the ASW-20F (0.8m high) winglets. They also asked Walter Neubert to design winglets for the ASW-22 and these had flaps connected to the ailerons by conical gears.

As DLR Akaflieg and some of our National team found, the winglets improved low speed performance but at the expense of of high speed. Also the flutter analysis showed that torsional stiffness of the wing needed to be increased to make the winglets safe, but the additional weight negated part of the gain in low speed performance.

Because this showed the performance cost of such (big) winglets is bad (and they are against the intention of the 15 Metre Class rule to achieve a good performance to price ratio by making small and simple gliders) I proposed to OSTIV that the International Gliding Commission should be asked to abandoned winglets in both 15 Metre Classes. It is to the credit of David Marsden (University of Alberta, Canada) and a group of interested pilots led by Peter Masak in the USA that they tried rather smaller winglets on several gliders in an evolutionary way, improving them in steveral steps.

Not only were the increased performance gains spectacular compared with the small size of their winglets, but the handling qualities were improved. I could personally verify this after flying Karl Striedieck's ASW-20B after the Vivalde World Championships.



Above and below the experimental winglet.



It is not good for an engineer to have an excellent product without understanding why but I still didn't have a scientific explanation for why they worked so well. This was nearly as frustrating as having a good theory but no results.

In this desperate situation I looked for a suitable wingtip in my repair shops and built on a winglet (with adjustable flaps) , leaving some flexibility to change its angle of attack. We put





Above and on the right a close up of the winglets.

this on to my car's ski rack (see photo) and drove along the sheltered valley road near the factory early one morning when we had a high pressure system.

With oil/pigment brushed over it we got an insight into the aerodynamic problem. As the winglet was in serial production we could detach it from the wing and compare the difference in flow quality with and without winglets.

This test soon showed us what was happening. **With rather small winglets two beneficial effects can be combined:-**

1. Induced drag is reduced as predicted by existing theory. This means the low speed performance is increased, whereas at high speeds induced drag is low and possible performance gains are very small and overshadowed by the additional winglet drag.
2. Friction drag is improved as indicated by the flow test. Laminar flow is longer and turbulent flow is shorter, resulting in a reduction in drag. Separated flow areas near the trailing edges are considerably smaller or even totally avoided, though this doesn't show up in the third and fourth photos. This can only be seen when the car is being driven and is therefore hard to record.

Drag due to separation, however, is many times higher that the transition from laminar to turbulent flow. So avoiding flow separation, even if only locally in the wingtip area, counts heavily on drag reduction. The drag reduction due to (local) separation may be greater than the drag of the winglet itself. Similar effects are already known in general aviation from boundary layer fences or vortex generators. Glider pilots know the effects of the turbulator tapes (humps, zigzags or blow holes) where the additional drag turbulators are smaller than the drag reduction because of the avoidance of flow separation.

Below: A flow visualisation made in flight at 120km/h. You can see the effect of the laminar boundary layer.



After we had discovered the two beneficial effects we found that Richard T.Whitcomb had already published this in the NASA Tech Note D-8260 . It was inconspicuously buried in a short sentence but it is only fair that we call the winglets "Whitcomb type winglets" in future.

Photo 5 shows a n example of the turbulent flow made by Randolph W. Moser of Detroit, USA, flying at about 120km/h. Beginning at the leading edge of the wing and winglet, you can see the effect of the laminar boundary layer. The low laminar skin friction drag transports the oil/pigment mixture slowly backwards until it comes to a full stop (on the upper wing surface) or just creeps over the zigzag tape on the winglet.

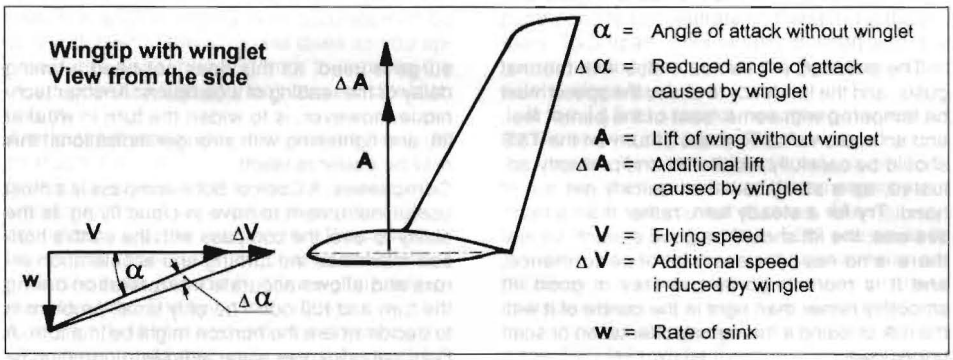
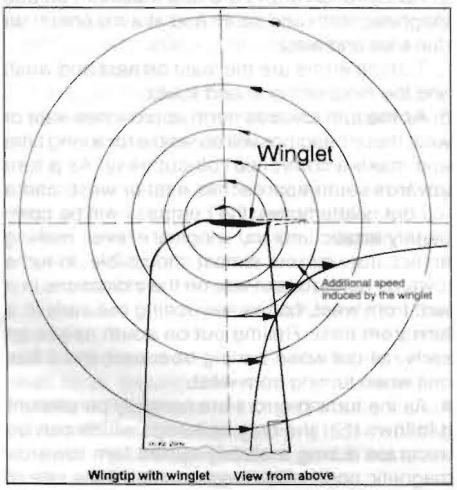


Fig 1.

The large amount of oil/pigment on the wing is a laminar separation bubble which is known for the ASW-24 profile, but a very thin one has no serious effect on drag. Behind the separation bubble is turbulent re-attachment., The skin friction of the turbulent boundary layer disperses the oil/pigment quickly to the trailing edge of the wing.

The winglet turbulent boundary layer is also visible behind the zigzag tape, but large drops near the trailing edge and the winglet tip show that the trailing edge separation is perhaps just avoided. If Rudy Moser had flown one minute longer before he landed and took the photo they would probably have gone except for the tip.

Fig 2.



Note: Rudy didn't use tape to cover the winglet section.Leaking air caused a typical turbulent wedge or cone opening up downstream at both sides of the junction.

What really happens on wingtips if winglets are installed is very complex. However, a simplified model may show the main effect. The winglet is only effective if it produces a sideways inwards force. As on the upper wing surface, the speed of the airflow is faster and adds to the flow which would occur without the winglet (see Fig 1).

For the wingtip, the higher speed caused by the winglet results in:
a. Higher lift.
b. A lower induced angle of attack and a lower angle of trailing edge flow (see Fig 2).

The simplified model is helpful in explaining our findings in flight if we make best flights with and without winglets.
Effect a). results in a slightly lower stall speed (about a pointer's width on the ASI) of about 1km/h or ½kt.
Effect b) results in a higher safety margin against stalling of the wingtip and therefore a lower tendency for wing dropping. This means that speeds close to the stall can be controlled better and even if a stall occurs it will be more gentle.

Both effects together explain why Karl Striedieck can feel vibrations caused by a separated flow on the top his ASW-20B's ailerons without winglets. But if winglets are installed the vibrations disappear which means that the flow separations are reduced and better performance can be measured by direct comparison in flight.

Also Walter Binder fitted his ASH-25MB with winglets and found that rain drops dried off quickly, beginning at the winglets and continuing to the flaps, whereas without winglets the ailerons dried off last.

It is worth mentioning that Wil Schuemann (who also made the Schuemann vario and TE compensation boxes) modified his ASW-12 into a 15m version by sweeping back the outboard wing. He demonstrated that flow separation in the aileron and flap area could be avoided.

To the best of my knowledge and understanding, winglets **or** sweepback **or** triangular wingtips are three successful means of controlling outboard trailing edge separation with its drag increasing effects in an inboard direction. A combination of all three methods however **cannot** triple the drag reduction. It is enough to avoid the separation by just one means.

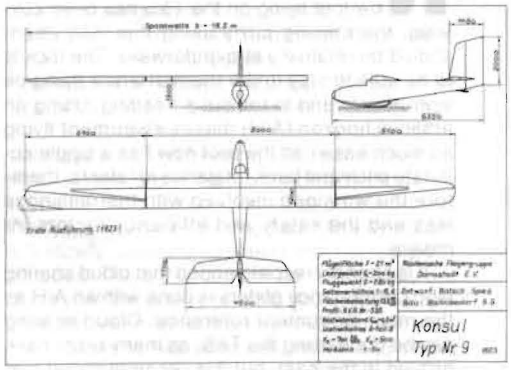


Fig 3.

Nevertheless I tried the combination for the ASW-22BL hoping that the 0.3m high winglet still had some effect on a 26.4m span wing.

Did our glider designer forefathers know more than we did until Klaus Holighaus designed his Discus? As far back as 1921 at Göttingen Mr Muttray tested wing planforms like the Discus and Akafleig Darmstadt (Fig 3) designed triangular wingtips for the Konsul (Fig 4) to improve induced drag.

To the best of my knowledge and understanding the Whitcomb winglet combined with the sweepback of the outboard wing reduces flow separation on the upper side of the wing and makes pre stall flight conditions easier to control.

Many aerodynamicists in Germany, the UK and USA are glider pilots after all. I hope this

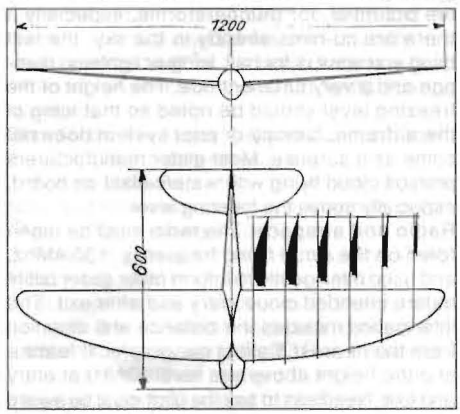


Fig 4.

article triggers their interest and that we get a good theory of winglets soon. It is frustrating to work on the trial and error method and driving a car up and down the road.

A Quote from the BGA Annual Report

Humfrey Chamberlain, Development Committee chairman, reported: "It is generally agreed that those clubs which have moved away from an all aerotow regime have gained younger members as a result. The reduction in the number of aerotows has enabled some clubs to sell surplus tug planes with large savings in overheads.

"The BGA can be seen to be promoting an environmentally more friendly effect on its public image."

CLOUD FLYING FOR ADVANTAGE

This is the second article by John on teaching safe cloud flying. In the last issue, p81, he concentrated on the turn & slip and now shows how the artificial horizon makes instrument flying so much easier

Now that flying on the T&S has been covered, thermalling turns using this instrument should be relatively straightforward. The trick is to be able to stay in the thermal whilst flying on instruments and to roll out a heading. Using an artificial horizon (A/H) makes instrument flying so much easier as the pilot now has a single accurate pitch and bank reference to refer to, therefore the workload involved with thermalling is less and the safety and efficiency factors increase.

It is strongly recommended that cloud soaring high performance gliders is done with an A/H as the main instrument reference. Cloud soaring can be done using the T&S, as many pilots have proved in the past, but it is recommended that this be done only in gliders which are able to stay within their VNE limit in a vertical dive with full airbrakes selected.

The aim is to climb in cloud safely.

Considerations

Clouds. Small or shallow cumulus do not normally lend themselves to cloud climbs; often the climb seems to stop just below cloud. Medium to large cumulus clouds that have a solid look, a crisp outline and dark, level or concave bases usually have at least one thermal that continues easily above cloudbase. Once in the cloud the thermal increases in strength and size as the rising air absorbs the latent heat from the condensation process and continues to surge upwards. Caution and pilot airmanship judgment should be exercised, however, on a day with rapidly growing cumulus which has a forecast, or shows the potential, for thunderstorms, especially if there are cu-nims already in the sky; the last thing you want is for hail, icing or lightning damage and a very turbulent ride. The height of the freezing level should be noted so that icing of the airframe, canopy or pitot system does not come as a surprise. Most glider manufacturers prohibit cloud flying with waterballast on board, especially above the freezing level.

Radio and airspace. The radio must be monitored on the cloud flying frequency, 130.4Mhz, and used intelligently to inform other glider pilots before intended cloud entry and after exit. The information includes the distance and direction from the nearest distinct geographical feature and the height above sea level (QNH) at entry and exit. Needless to say the pilot *must* be aware of relevant controlled airspace and its category, staying clear unless specifically allowed access by the rules contained in the **UK Air Pilot** or its associated documents.

T&S soaring. The first attempts at realistic instrument soaring should be done in VMC to gauge what happens with a visual/instrument mix and to calibrate the rate of turn against needle deflection. Once the instrument scan and control of airspeed/attitude, differing rate of turn and rolling and out of the turn have been practised, then thermalling on instruments should be tried, perhaps culminating in a real cloud climb. It is important to be settled into a stable, trimmed turn before entry. Once in cloud it all gets a bit more difficult as the mentally disorientating stimuli become very strong, especially if the head and glider are moved significantly or glimpses of the ground are seen.

The airspeed will fluctuate also with thermal gusts, and the tendency to chase the speed must be tempered with some "seat of the pants" feel, and an audio vario. The rate of turn on the T&S should be carefully monitored and promptly adjusted, as a steep turn can quickly get out of hand. Try for a steady turn, rather than a reactive one; the lift should be good enough so that there is no need for every bit of performance, and it is more important to stay in good lift smoothly rather than right in the centre of it with the risk of losing it through disorientation or scan breakdown.

Errors. If the airspeed increases or the altimeter starts unwinding quickly, resist the temptation simply to increase the stick back pressure, but include the turn needle in your assessment of what is going on, reducing the bank and rate of turn first if necessary. The airbrake should be used as necessary to control the speed within realistic limits, the hand resting on the lever to allow a timely selection, until the speed is under control again.

Centring. Eventually the thermal turn will need a re-centring adjustment to cater for flying inaccuracies or wind shear; it is suggested that the thermalling technique of straightening on the surge is used, as this does not need a timing delay or the reading of a compass. Another technique, however, is to widen the turn in weaker lift, and tightening with stronger indications; this may be easier to teach.

Compasses. A Cook or Bohli compass is a most useful instrument to have in cloud flying as the ability to level the compass with the earth's horizon minimises the turning and acceleration errors and allows accurate interpretation during the turn and roll-out. The only small problem is to decide where the horizon might be in a turn. A Bohli can also give some attitude information by relating the position of the heading index marker to the circular markings on the perspex globe. Beware if the compass is mounted where it is not easy to read without turning the head – get if moved if you don't want to get disorientated.

Turning errors. An Airpath or E 2b/c compass is a different story, however, as they are affected markedly by acceleration and turning of the glider. This makes it very difficult to decide what the heading is in a turn without rolling out of the turn – a distinct disadvantage in cloud climbs! The turning errors only become marked at angles of bank over the critical angle of the compass, which is about 22° of bank. If the turn can be made at a fairly shallow angle of bank then the turning errors should be minimal. If the sun is not discernable through the cloud and you need a reasonable bank angle, then the only accurate option is some clever mental gymnastics:

1. Acceleration errors are at a minimum on due magnetic north and south and at a maximum on due east and west.
2. Turning errors are the least on east and west, and the most on north and south.
3. As the turn towards north approaches east or west these headings will be visible for a long time and make a controlled roll-out easy. As a turn towards south approaches east or west, and a roll-out is attempted, the compass will be completely erratic until the wings are level, making an accurate roll-out almost impossible. In turns towards north roll out late on the indications in a turn from west, conversely rolling out early in a turn from east. Rolling out on south needs an early roll-out when turning from east and a late one when turning from west.
4. As the turning errors are normally paramount it follows that the only headings which can be accurate during a steady speed turn towards magnetic north will be east or west. If the rate of

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the turn can be estimated – a Rate 1 turn at normal TAS for a glider calibrated T&S is about 8°/sec – then a swift calculation can be made for any roll-out heading. For example, to roll-out on north, depending on the Rate 1 turn direction, count 10sec off from the east/west heading then roll-out of the turn. Given that the roll-out will take about 10° before the wings are level this should give a good result. As the wings are levelled the compass will either slow down or speed up its rotation depending on the compass quadrant and turn direction; this is normal and, after some practice, predictable. Minor heading errors can then be corrected with small amounts of bank.

If you want to leave the cloud on any heading then rolling wings level should work eventually! However, another slightly more accurate method is to watch what the compass does as you approach the visual heading prior to entering the cloud, provided that you maintain the direction of turn.

Artificial horizons. Most horizons are designed so that the miniature aircraft symbol (us in the glider) stays fixed in the centre of the instrument whilst the horizon bar moves so as to be always co-incident with the real horizon. This gives an immediate representation of what the glider's pitch and bank attitude is, allowing fine adjustment to either. The flying technique is now modified slightly in that instead of just moving the stick, hoping and waiting to see if it is the right amount, as in the T&S flying, now the pilot moves the glider's attitude to a suitable position on the display with a stick input, and gets an accurate feedback.

Radial scan. Smooth, accurate cloud flying is possible if a proper scanning pattern is used, using the A/H as the centre of a radial scan whilst referring to the performance indicators in turn. The scan pattern for a steady turn for example would be: A/H, airspeed, A/H, vario, compass, A/H, airspeed, A/H, T&S, A/H, airspeed . . . etc.

The disadvantages. These expensive and useful instruments do have some drawbacks which you should be aware of:

1. They need a good power supply (14 volts) to provide the fast erection for older horizons and the starting current for the attitude gyro in all A/Hs. This power supply needs to be separated electrically from other glider power sources and should have its own battery power level indicator. Once run up an A/H draws a comparatively minor current, unless it needs further fast erections of the gyro.
2. A/Hs can topple if the pitch limit of about 80° is exceeded, but they normally have freedom in roll. The gyro will wander during prolonged turns, giving small pitch and bank errors which may only be noticeable on rolling wings level, by cross-referring to the T&S and altimeter/ASI.
3. They tend to be rather heavy, normally need a special AC to DC inverter and take up a lot of space behind the instrument panel.
4. They need time to run up sufficiently to allow caging or fast erection, which must take place with the glider in a normal cruising attitude, wings level, to be accurate. They can be damaged internally if the gyro is not caged during violent manoeuvres, take-off and landing. The "off" flag normally indicate power failure, and is not an indicator of satisfactory gyro speed.
5. A/Hs do need a back-up primary instrument display to include a T&S in case of toppling or power failure. The pilot needs to keep in practice on the T&S, even if the glider is A/H equipped, as an obvious insurance policy in case of an unexpected failure.

A/H and T&S failures. A technical failure of the electric instrument is rare compared with low battery voltage situations. Poor battery output tend to make the failures insidious, with the gyros losing speed and the "off" flag staying retracted whilst the A/H bar or T&S gets wobbly, sloppy or unresponsive. If you suspect the A/H is failing, cross-check the T&S, ASI and altimeter, trusting them if you see discrepancies with the A/H. A major problem is then to ignore the distracting and bogus artificial horizon indications completely and to concentrate on flying using the primary T&S scan. This is very difficult and it is recommended that the cloud flying is terminated safely, wings level.

If the T&S is suspect, waggling the rudder should show a corresponding movement on the turn needle. If you are relying solely on the T&S, and it fails, then you can use the emergency exit procedure to get you out of cloud. Alternatively, if you are using an Airpath or E2b, you could fly a southerly heading, as you can get quite an accurate idea of wings level information from these compass types as any turning is magnified by the compass turning errors on a heading of 180°. If the T&S fails whilst flying with an A/H as the primary instrument, cross-check the A/H frequently in wings level flight against the ASI, altimeter and the compass, and carefully consider if you should not leave cloud.

Pressure instrument failures. The common type of failure of the pressure instruments is of the ASI caused by water getting into the pitot or static systems and freezing. This can happen in VMC as well, and is normally cured by descending below the freezing level; once on the ground the system is carefully dried out. The symptom is a slowly reducing airspeed with normal pitch attitudes. The glider can still be flown safely out of cloud if the A/H is reliable, but if the T&S is used the altimeter is the only reliable pitch indicator, together with airstream noise, and therefore it is better to exit cloud wings level. The altimeter can also read incorrectly with freezing of the static system; normally if will read the height at which the blockage occurred.

Instructing A/H flying. Fly unhooded initially. Show wings level instrument attitude through the likely speed range, the airbrakes out attitude at penetration speed, find the Rate 1 angle of bank attitude at normal speed, practising continuous turns using Rate 1 and angles of bank between 20 and 40° approximately. Progress to steeper turns as confidence grows. Show that attitudes within the untoppled range of pitch and bank do not upset the horizon reference unduly, but then deliberately go beyond the toppling limit to show typical toppled display. Show difficult scan of primary instruments with the distraction of a toppled horizon. Show a cage or re-erection of the A/H gyro in straight flight, and continue with turns to headings as required. Try thermalling turns and opportunity cloud soaring. Once these points have been covered and the student has practised them satisfactorily in a visual environment, let the pupil practise with no external reference to the cloud flying soaring standard.

Standards. The suggested end standards using the A/H, (T&S in parenthesis) are:

1. Speed +10/–5kt, (+15, –10) in normal conditions and shows competence in thermals in 30°, (Rate 1), turns during 3min.
2. Rolling out on to nominated headings +/–45° initially, adjusted to +/–20° within 1min.
3. Unusual attitudes recoveries to straight flight using the A/H, but also to include a recovery with a toppled horizon, using the T&S as the primary instrument and then straight flight for 1min, to simulate a controlled exit from cloud, then re-erect the A/H for the recovery.

Advice to instructors

Don't have a long instructional session concentrating on the instruments, especially under the hood, as it is a recipe for airsickness.

Let the student fly as much of the recovery to the airfield as possible, but do not have them land under the hood.

Emphasise to the student that they must stay in practice, once qualified, as the new skills can quickly be blunted without reinforcement. This may mean more backseat time.

Ensure that the hood is really efficient at removing all outside references, as it is easier to fly on instruments with the occasional glimpse of the sun, horizon, or the movement of shadows on the cockpit floor than it is to be totally deprived of any outside reference as in a real cloud!



S&G
CLASSIC

CHOSEN BY PLATYPUS

The usual notion of a Classic in these pages is an account of a great flight, brilliantly described. The choice this time may be a disappointment to many of you, but it's my quirky self-indulgence that is allowed to rule till the editor calls "Halt!" For my purposes, the definition of a classic is any piece of writing that one has difficulty in forgetting even after years, and I believe what I have chosen fits the bill.

In 1965 I produced the daily newsletter[1] at the World Championships at South Cerney; this was a great opportunity to meet my heroes like Dick Schreder, flying one of his many own designs, and Dick Johnson of the USA (flying a very clean Skylark 4, with a performance close to what people now go solo in) and to try out my languages, predominantly French and Russian. It was the time I fell in love – with the amazing D-36, forerunner of the Schleicher and Schempp-Hirth Open Class ships. There were lovely plastic gliders such as the Phoebus that made our British Darts look like starved horses. The gliding world was trembling on the edge of vast change.

The French won in the Standard Class with a wooden Edelweiss, despite the fact that one of them, Cartry, was removed from the sky by a metal Russian-built A-15 flown by a Bulgarian. Cartry soared back to South Cerney with a large piece of wing missing, put on a replacement wing, then restarted and completed the race with splendid sangfroid. The Bulgarian finished the task with a minuscule dent in the shiny leading edge. Whatever else, Russian gliders were tough. No penalties were imposed on either party, and the rule about not replacing major pieces of glider after an accident was not invoked, since it was impossible to attribute blame for the collision. An East-West diplomatic row was side-stepped. For in those days the cold war was at its chilliest.

The most interesting event so far as this Classic is concerned, however, was not at South Cerney itself, nor in England, but in the Soviet Union after the tents and trailers had departed. The Soviet team had not performed well. In football parlance, the boys done lousy. In most countries this would have been passed over with little or no public comment, apart from "better luck next time". The Soviet pilots had little or no experience in flying outside their own country; to make things worse, the UK skies, after a deceptively fine practice week, turned dark and damp. From the cloudy, freezing, windy opening ceremony onwards, the conditions were about as far from the Steppes in high summer as you could get. So they could easily have blamed their failure on our weather (or their heavily loaded KAI-14 Standard Class sailplanes, built for conditions that could keep up not just a barn door but a whole collective farm) and kept any soul searching to themselves. But no. An excoriating critique of the team's conduct, and particularly its leadership, was made public, and that is the subject of this Classic.

Although it reads like a tale of incompetence, the fact that such a damning account was aired openly was a matter for admiration, not to say astonishment, at the time. For such a closed society to be so open was refreshing. However it left tantalising questions hanging in the air. Who wrote the critique? Obviously someone who knew gliding really well and presumably someone who was present at South Cerney. But who? Not the pilots themselves, surely. The political commissar? If this mystery critic, who had both the expertise and authority to publish a damning review of the manager's efforts, was at South Cerney at the time, why didn't he – or she – step in and take over? Since I wrote the above note, Chris Wills, translator of the original unsigned article, has filled in some gaps.

The writer was Margareta Ratsienskaya, a famed prewar record-breaker of immense prestige and standing in the Soviet movement. She was an OSTIV representative at South Cerney. Apparently the team captain was God and could not be overruled at the time, though after the damage was done nobody stopped Mme Ratsienskaya from flaying him alive. However it seems that the authorities did not take kindly to the subsequent publication in *S&G* of Chris's translation – in effect the washing of one's dirty linen in western media. There was a bit of a scandal; Mme Ratsienskaya did not appear in further OSTIV meetings abroad. After conventional gliding she became very active in hang gliding, rather after the manner of Ann Welch. She recently sent Chris Wills a long, chatty letter, so it appears there were no dire consequences.

[1] *Later editions of the newsletter were brought out by George Locke and Gordon Camp.*

SOVIET LESSONS FROM THE WORLD CHAMPS

Translated from Krilya Rodiny by Christopher Wills

The Soviet Union was represented by M. Verietenikov and V. Chuvikov in the Open Class, and I. Yarushevichus and O. Suslov in the Standard Class.

The effort of our glider pilots was a failure. I. Yarushevichus and O. Suslov came last and V. Chuvikov and M. Verietenikov only managed to take 22nd and 32nd places respectively. What was the cause of this failure?

The basic and chief reason was the inadequate training of our glider pilots in flying under complex weather conditions – particularly the sort they were likely to encounter in England: low cloudbase, weak thermals, and bad visibility which makes flying on course difficult.

For the training flights, a country of good climatic conditions and relief was chosen. The pilots, even then, only flew when the thermals were strong and the cloudbase was high. Before departing for England, they trained at the town of Donetsk. The trainer, however, fearing the arrival of complex weather, went with the team to Dnepropetrovsk. Last year, for some reason, the members of the team did not take part in a National Meeting. So they found themselves alone and flew how and when they thought fit.

In the Championships, the Poles, the French, the Germans and others flew well, thanks to excellent co-operation with their teams on the ground. For example, every member of the Polish team, including the drivers, assisted the pilots. They went out on the roads early and gave their pilots full information about the weather, helped them to find thermals and also with their navigation. Our teams included many people who knew little about gliding. They did not leave before the start of the respective flights and therefore our pilots were not able to benefit like those mentioned.



Mikhail Verietenikov (left) and Vladimir Chuvikov at South Cerney. Chris Wills is in the background.

It has long been known that in bad weather it is better to fly as a group in order to make the finding of thermals easier. However, already during one of the first flights, this was not adhered to. Iozas Yarushevichus found himself in a bad position and he was losing height. Along the course there was smoke, and visibility was limited. He did not know where to find any more lift. Not far away, Verietenikov and Chuvikov were circling. Yarushevichus asked them to wait a little so that he could fly under them to gain height. They did not wait for him, and so their comrade, not finding any lift, had to land and broke his glider.

The director of the team, E. Stepanov, and the trainer, L. Petrianov, would often call up the glider pilots during their flights, asking about conditions, giving unnecessary information. Post-mortems of the flights, with the whole team present, were enough to make everyone nervous.

We do not understand why the chief glider trainer, P. Antonov, did not train the team for the Championships. Last year, at the international meeting in Czechoslovakia, he must have learned sufficiently well how to train glider pilots for a competition. Nor do we understand why the chief trainer did not come to the World Championships.

The directors of DOSAAF prescribe that pilots, when down to 300m (1000ft), should abandon soaring and look for a landing field. This is necessary for beginners, but one would have thought that experienced pilots could do without this limit. As Verietenikov states, this regulation was enough to make our pilots' knees tremble every time they were down to 300m and to make them abandon all thoughts of continuing the struggle in order to seek a landing place.

Some people say that the reason for our failure was due to unsuitability of the A-15 and KAI-14 for English conditions. Yes, our machines have a high wing loading for weak thermals. But the Hungarians also flew A-15s and they were better placed then Chuvikov and Verietenikov. To be just, it is only fair to note that Hungary has entered many contests, and they have a more sensitive variometer.

It is to be hoped that the directors of aviation training and sport, DOSAAF, the Federation of Aviation Sport of Russia and its gliding committee will draw serious conclusions from the lessons received at the World Championships, and will really help the development of gliding in our country.

(This article was first published in the December 1965 issue of S&G, p495.)

CADET SCHEME

MIKE LANGTON

Mike describes a way the Cambridge University GC are attracting young people to come gliding

We have in part unashamedly plagiarised the Lasham scheme but as it is working so well it might encourage other clubs to try a similar method of recruiting. We offered a year's membership and at a very reduced fee (something for nothing is not really appreciated), a much reduced inclusive price for a flight (easier to budget) and an age limit of 14-18.

At the moment we do have slight reservations about starting so young as we may have to hold them back from going solo. But if this becomes a problem we can revise this another year.

In return we asked for enthusiasm, enough time to take part in the scheme and, where possible, wanted cadets who either lived within walking or cycling distance of the airfield or who had transport. Also, we wanted them to give one week's work in the summer (this year during our Regionals) and help on a number of flying evenings.

I went round local schools giving lunch time talks on gliding and the intended scheme and was encouraged by the number of application forms I gave out. It was a lengthy form but by asking for a lot of details we were able to sort out the wheat from the chaff and cut down on the number we had to interview for the six places we offered to launch the scheme.

We had an informal selection panel and started our cadets (three girls and three boys) off this January. It was a good time as there is usually spare flying capacity in the winter. It wasn't long before duty instructors were arriving to find the hangar doors open and they were no longer allowed their tea-break. In fact the first launches of the day were earlier than we had achieved all summer.

Now we have volunteers to keep the log, to push back the gliders, tow out vehicles and, when the weather was really bad, we appreciated their help in planting 1200 trees on our new trailer park. The weather didn't give us a good start to the season but so far it hasn't affected their enthusiasm.

It soon became obvious that it wouldn't take the year we had allowed for them to go solo and we hope it won't be very long before they are claiming a Churchill award (see the last issue, p96).

And there have been other fringe benefits such as a better relationship with local residents, favourable murmurings from local authorities to grant applications and publicity in the local newspapers. I have had great personal satisfaction from being involved and would be glad to hear from anyone organising schemes at other clubs or interested in starting one. Contact me at CUGC, Gransden Lodge Airfield, Gt Gransden, Sandy, Beds.

MERRI'S PROGRESS

Back To Normal



I've had two years of gliding sporadically, and bringing up baby constantly. Now, I love being with our daughter, and she always comes first (especially at 3:00am), but, let's be honest, there is nothing like soaring, is there? This year Izzy is two, sleeping more or less regular hours, and I'm so eager to get back to normal (if glider pilots can be described as normal) that it almost hurts. In fact, when non-gliding friends ask the two of us with a knowing look in their eyes "When's the next baby due?" we reply with the infinite patience borne of looking at the sky while standing on the ground too many times – "Not this year!"

Bearing in mind how early it gets soarable, I made it a point not to get frustratingly behind the weather. Early on this season, therefore, I got myself solo-checked and current off aerotow. "Eff", the lucky fellow who chose to sit in the back while I had a nervous breakdown in the front, managed to remain wonderfully calm. Bless him, he didn't turn a hair while I gibbered. As the CFI said, he's been instructing for donkey's years – and I was unlikely to frighten him any worse than he's been frightened before. How true – but it did wonders for my confidence to be told that I had graduated from straight-and-level-behind-tug to solo aerotow.

The next step was getting solo checked off the winch which, in the Janus, always leads to the fun of wondering just where on the airfield we would end up. I should have been warned – any one sensible would have been warned – by the brief given by the CFI to the instructor: "Make her life miserable; give her a really hard time". I should have expected no less than this, but still I thought that I would be eased back into things gently. Up the wire, first launch, pulling like mad thinking that the bung would be pulled at 600 or so feet when, "Ding" – 350ft! I ask you! Now I know that there is only 30ft of wing either side of the fuselage, but the tips sure looked close to the ground as I turned and landed.

By the time we got back to the launch point I had stopped trembling enough to strap myself in and was cautious enough to actually wonder what was coming next. I should have guessed – 150ft. It would have been a normal, straight ahead approach, but in my haste as I reached

for the airbrakes I knocked the flap lever. Of course, the flaps behaved exactly as they should and slipped into -7, I kept the speed up and, while the roundout was rather positive (at those speeds it had to be), the landing was actually quite smooth.

I always look for the brake lever as I reach for it, because it is very close to the flap lever in the Janus, so this just goes to show that even with the best procedures, accidents do happen. I got out very red faced explaining what I had done, and was told "I think we learned something from that." Not least of which is that the Janus can be landed in –7 if needs be. Ahem.

One problem with this last simulated cable break was that, while no one was close enough to see the flaps move, everyone could see the increase in speed, rate of descent, and snatch-grab landing. By the time the CFI had moseyed up to chip in I was feeling a bit peppery: I had been teased by husband and others, and repeated the story several times, much to their amusement. I'm afraid my response was something less than it should have been considering I was speaking to the CFI! Thank heavens it was muffled by the canopy being closed. The forebearance of these chaps!

The third and last cable break was the one I had anticipated the first time around – nice and high with plenty of time for decision making. It was very tactful of Al to let me smooth my rather ruffled feathers and regain my composure. I think he is to be commended for sticking to his brief so faithfully! I then treated myself to an hour or so local soaring off the wire, while Al, having had enough, hid in the bus.

Easter Bank Holiday Monday was a cracker. I don't know what the weather was doing where you were, but at Bicester, just for a change, the showers passed about 2nm either side of the airfield. Unusually, the entire syndicate was present, so I jumped in the front, Peter Saundby was put in the back (shame to waste a seat by going solo on such a nice day), and off we were towed to a nearby cloud street. It was wonderful – a climb at 4kt to cloudbase, and then a high speed wazz and pull up at the end (gain of about 600ft) accompanied by maniacal giggles from the front and "Tut-tut, waste of height to fly this fast" from the back. There are some things on this earth that are just too good to resist, and that was definitely one of them!

I settled down (sort of) after having got that out of my system, and carried on a more seemly fashion. We made the decision to stay fairly local, as it would have been so easy to get washed out by the showers. This decision, however, had no impact on the fun-factor. Peter is quite experienced at cloud flying and kindly demonstrated some basic procedures.

Having done a PPL and the requisite instrument flying for that, I realise cloud flying in a glider and flying blind in a powered aircraft are not at all alike. Anyone who thinks that because he can fly power on instruments, he can cloud fly in a glider has a lot to learn. Gliders accelerate fast, and they respond more to flight conditions than a tin can with a propeller ever could!

We next took advantage of the conditions by practising competition finishes at altitude. We picked a little wispy cloud to be our airfield and proceeded from there. It all went very smoothly until we noticed that the airfield (cloud) had disappeared as we were completing our "circuit". I probably frightened it away. Still, it was good practice and great fun.

Having climbed back up to cloudbase with my usual flair, Peter decided that enough was enough and I had to be taught proper thermal entry techniques. He then demonstrated the following, which is particularly appropriate for big, flapped gliders. As you begin to enter lift, start easing the speed off so that as you are ready to initiate your turn, you are at your normal flapped thermalling speed and the glider is unloaded. As a wing starts to drop – this is important: make sure the other wing isn't being pushed up by the lift because if so, it's that wing you should roll on to – ease the flaps into +8 and let the glider carry on turning itself.

This results in the ultimate of elegant pirouettes smack in lift requires the least amount of input from the pilot. That in particular makes me happy, because I am a firm believer that gliders fly themselves better than ever I could. It's safe because you never actually stall and for a big glider like the Janus, is just the answer. It was exactly what I had been looking for; I had long fretted that while I could get into a thermal well enough, my technique lacked a certain amount of finesse which had really irritated me. Here, finally, was that elusive degree of finesse!

As cloudbase had begun dropping, we decided to call it a day. Peter, who was in charge of the GPS (this is just as well, I haven't got a clue as to how it works), simulated an instrument circuit join for me by reading the GPS and pretending to be the air traffic controller. This worked very well, positioning us on the downwind leg, and was good practice at flying on our glider's instruments. A neat hangar flight ended one of the most enjoyable afternoon's flying.

For me, it was a prime example of how a dodgy day to be going cross-country can be put to use and made into something special. Now I know I'm fortunate in having a high performance two-seater (OK, all of you with Nimbus 3Ds, ASH-25s and DGs can just back off), but the point is that we extracted lessons from everything we did, rather than just bumble around.

That can be accomplished in the most humble of single-seaters with a bit of planning. Every club has a pundit, and by asking them to suggest something to try when your own inventiveness fails, you can raise your standards of competence quite dramatically. I know, because I vividly remember what gliding was like before we bought 710 and I was flying single-seaters, and some pretty basic ones at that. If you only explore the performance of your glider, you learn how to use it better.

One last bit about this Bank Holiday: after Peter bravely shot down the lone enemy aircraft which strayed into our air exclusion zone, proving quite conclusively that boys will be boys, there followed one of those magic climbs, again at about 4kt to cloudbase. The cloud was pulling so strongly that it formed a dome, and up we circled (T&Ss and horizons on) into the dome surrounded by a curtain of cloud fronds. It was so breathtakingly beautiful that if that had been all we had experienced on the day, it would have been enough. Well, almost, but then I am notoriously greedy.

SOMETHING SPECIAL

Richard started gliding ten years ago and flies club gliders at Strubby GC, has more than 150hrs and an AEI rating, but it still waiting to finish his Silver badge



Saturday, September 8, 1990, was forecast to be a good day. Many times I had considered going for my Silver distance and decided this would be the day.

I told my CFI I thought it should be a downwind dash to Crowland. His "Why not" filled me with a cross between terror and anticipation.

Off the wire in the K-8 I settled down, which meant I made a conscious effort to stop shaking. Eventually I adopted my normal soaring style, sinking at 2kt, and in this mode floated round the circuit. Then I got my first tickle, not much, but ¼kt is ¼kt.

After several turns the airfield started to look a long way off. Then the audio howled and a quick look at the vario confirmed 4kt and then 6kt. I kept turning, bringing into play my two golden rules of soaring. 1. If it's going up leave it, and 2, who cares how fast it's going, if it's 6kt invoke rule 1.

Going up like a train I decided that if I could get to 4000ft I'd set off. As it was I went to 5000ft – after all you have to have some safety margin!

I set off on track and felt I was doing quite well

when the K-6 came thrashing past at about 80kt. It had to be our CFI, Phil. I took the thermal he marked for me and waved as he set off back, leaving me to my thoughts and self doubts.

The first major town I flew over was Boston, full of bustle on this late summer Saturday afternoon. I looked down from my mile high perch, thinking that probably no one was even aware of my passing. Awe inspiring. Staying up now had become easy, even for me. By the time I reached Spalding I'd climbed to 6000ft, content in the knowledge that I could glide it out from there.

The next problem was finding an airfield that I had never seen before. I followed a river, which my map told me would lead straight there. But the only snag was I couldn't see Crowland anywhere, even though the map and landmarks showed I must have been almost over it.

Soon a large town was below

Panic began to scratch at the back of my mind, but I flew on. Soon a large town was below which must have been Peterborough. So I'd come too far. I turned through 180° and retraced my steps.

Suddenly, like a beacon, I saw a flash from the ground. It took me a second to realise that it was the wings of a powered aircraft crossing a hedge. They aerotowed at Crowland, didn't they?

A more careful look revealed a line of white trailers and I'd arrived. Gliding around to lose height, I watched the sea breeze coming in. I joined the circuit, praying my landing wouldn't let me down. It didn't. The next impression was a sea of faces and the usual question I've asked so often of others, "Where have you come from?"

I walked on shaking legs, trembling legs to the clubhouse to 'phone and saw Steve Crozier land his Oly. He had followed me here. A good day.

Later, whilst pondering on my achievement and measuring my track, I discovered I'd flown 100km in just over 2hrs in a K-8. Nothing special!

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RETRIEVING WINCH CABLES

The Midland GC is one of the few clubs with this system and Peter, their professional winch master, is always being asked about the pros and cons of their operation. Here he explains what is needed from the basic features of the gliding field to the main (launching) winch and the retrieve winch

The following are the physical requirements of the airfield.

Shape. To allow for the eventuality of drift in a 15kt crosswind resulting from a failed retrieve, a suitable shape is approximately elliptic with an axis ratio of 3:1; normal retrieves with intact cable remain well within these limits.

Surface

1. It should be smooth surfaced with dense vegetation and the cable dropping zone clear of thick patches of bracken, protruding rocks, bushes or saplings, etc.
2. If markedly convex between winches, cable action will eventually remove vegetation and create pits and bare patches.
3. Cable and associated tackle should be prevented from crossing extensive areas of stone, asphalt or concrete.
4. The launch point area must be sufficient for locating gliders for launching at least one span distance laterally either side of the retrieve winch.

Main winch Performance and operation must exceed certain minima:-

1. Engine torque must be sufficient to haul the heaviest glider in the fleet to at least 1000ft in still air, otherwise "cable float" after release does not last long enough for a smooth retrieve phase entry. (This may require the addition of a small drogue parachute to the linking triangle - see Retrieve winch design (7).
2. Engine power, and the associated drive train, must be capable of accelerating and lifting the heaviest (and highest wing loading) glider rapidly above the retrieve wire. An automatic gearbox and torque converter most effectively applies engine power in a comfortably controlled manner, and needs coupling to a motor of at least 250bhp *(eg* for a K-13, K-7, Puchacz etc 2-up) or nearer 400bhp (*eg* for a K-21, Twin Astir, Janus, Super Blanik etc.
3. Reliably operated launching with a cable retrieve preserves the cable because the system is always under tension, and the total extent of reciprocal cable movement is minimised.

Winch drivers need to be properly and carefully trained and to remain in current practice, as a successful operation depends predominately on the ability of the main winch driver to land the cable skilfully after the glider's release, whatever the wind conditions. Also they must give accurate, power-controlled launches to at least 1000ft if without the drogue 'chute.

Retrieve winch design and operation. Some essentials are as follows:-

1. The retrieve cable drum mechanism must be capable of paying out the cable at high speed completely free of the transmission or brake drag.
2. The drum over-run brake needs to be carefully designed to provide instant automatic retardation when the cable slackens on reel-out, but only gentle braking on the completion of the reel-in.
3. To enable the effective timing of the airborne cable float, the drum drive should attain reel-in speeds shown in the table below.

Launch height	1000	1500	2000	2500
Retrieve spd (mph)	30	40	50	55+

4. Retrieve cable should never be reeled out on a launch unless it has been reeled on tight by retrieving the main cable.
5. It is imperative for launch safety that any slack retrieve cable is reeled on to the drum before take-off.
6. Warn members that a continuous cable system is across the field. It is advisable to put a rotating beacon on the retrieve winch with a temporary fence on either side.
7. A suggested method of a three-point cable connection is at the apices of a specially fabricated tubular triangle. (See Fig 1).

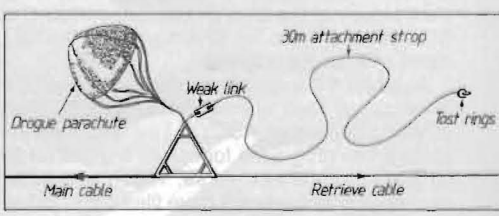


Fig 1. The layout of the connecting triangle.

Availability. For the first time in the UK, proprietary retrieve winches, engineered to a high standard and to an advanced design incorporating the benefits of long experience of our professional operation on the Long Mynd, are available from D & M Engineering, (see the advertisement on p129) They also make the Skylaunching winch, which is now in its second successful season at our club.

International Vintage News

In Germany Jochen Kruse has bought two. Condor 4s from Argentine. One is to be sold to pay for the restoration of the other. Jochen's previous Condor was destroyed when spun in by two instructors.

A second crate left Argentine at the same time with another Condor 4 and a Rhönbussard for Robert Gaines in the USA. Bob Gaines also has the third Weihe which Philip Wills brought to Britain (with the fuselage sawn up) in June 1945 and a Mü 13D-2 (taken from Germany in 1945 lashed to the superstructure of a Canadian destroyer) and a K-3.

News from France is that one of the legenmdary Avia 41PS has been discovered after 50 years in a barn in southern France. It was built in very small numbers because of its construction from 1932 and broke the French distance records flown by Eric Nessler - one flight being of 378km in 1938. It was influenced by Robert Kronfeld's Wien but is smaller.

It will be restored to become a static exhibit in the Musée de l'Air et de l'Espace at Le Bourget. Also, the Avia 40P in Britain has been bought by Francois Ragot and is being restored here to fly in France. This was France's only performance sailplane to go into production in any quantity during the 1930s.

The Rendez Vous Rally is from July 28-August 2 on the Wasserkuppe and the 21st International Vintage Rally will be at Zbraslavice, in the Czech Republic, from August 4-25.

CHRIS WILLS

The BGA Turning Point List

On going to press Ian Strachan, BGA TP co-ordinator, sent us the following corrections:

An amendment list to the 1993 BGA Turning Point list has been sent to all clubs consisting of corrections which came to light up to April 30. Most are minor, but note that for the following points either the grid ref or, more frequently, the lat and long have been corrected:-

England & Wales List; DUS, FAK, FIL, GRS, HVT, MIL, MOK, NWT, PRK, STB, SFB, TEM, TNE, TRN, WNW. **Scotland List;** BCY, BGA, DUS, JED, WHR.

Particularly if you are using GPS, you may want a copy of the amendment, either from the BGA office or from Ian Strachan - see the last issue, p97, for the address.

As usual it is available for the cost of postage in hard copy (two sides of A4) or on a PC disc in Word Perfect or ASC11. The disc files include a free progranne for converting grid ref to lat and long and vice versa, Those who have sent discs previously will have files corrected to the date of dispatch, but not necessarily to the closing date for the April 30 amendment.

It is not intended to issue any more amendments this year, but if you have extra points for the 1994 list, suggested changes or comments, do not delay in sending them in so that we can avoid a last minute rush just before finalisation of any changes for the 1994 list.

Please note that the BGA accepts no liability for the consequences of using the data it provides, which is offered in good faith for use by BGA members at their discretion.

BILL SCULL

ALPINE SOARING

In the last five years 42 pilots have been killed in the French southern Alps, usually through flying too close to the mountain, due to a loss of control, including stall/spin and the occasional mid-air collision. Most accidents are in good weather and collisions when there is no great concentration of gliders. In this article Bill reports on the training needs to improve safety

Despite this gloom, flying in the Alps is fantastic and has been written about in *S&G* and the *1991 Yearbook* by Bill Malpas. Soaring has a new meaning – the views, the strength of the thermals, the variety of soaring opportunity, the different conditions to be understood. People without alpine experience need a long time to appreciate the "meteorological engines" and have to be rather more careful than might at first seem necessary until familiar with the region over a series of visits. But, be warned, if you go once you will be hooked!

Alpine flying can offer you the most richly rewarding experiences but you may have to work hard and diligently to remain safe when conditions turn out be different from what you have envisaged. In this respect the answer lies in training.

Comprehensive training is not readily available and pilots may be led to believe that soaring in the Alps is easy. Not so! I was privileged to take a course at Gap/Tallard with the Association Francaise de Vol à Voile en Montagne (AFVVM) with the exclusive use of a Janus and attention of an instructor, Jacques Noel. My German counterpart, Matthias Borgmeier also attended, brought his own Janus and flew with Roger Biagi. The instructors have 6000 and 9000hrs gliding experience respectively, most of it in the Alps.

There are a number of sites in the valley of the Durance, St Auban, Sisteron, Gap/Tallard and La Motte, to name a few. Concern over the number of fatal accidents has resulted in a proposal to limit the number of gliders at any one site. This, in itself, is only a coarse control since such a limit can do little to prevent over-crowding of a particular ridge. As mid-air collisions only account for a small proportion of the accidents it seems unlikely that limiting the number of gliders will achieve very much.

The more specific problem is one of control. Can a visiting pilot, especially one flying in the Alps for the first time, be properly checked and supervised on a day to day basis? The answer – "probably not!" One local view was that there was no point in checking a 1000hr pilot at aerotowing and flying a circuit, or words to that effect. Best let him or her get on with it and that the pilot's instinct for self-preservation will on its own provide sufficient regulation to govern the safety of the flight. I will comment on that approach later.

First of all, what about a pilot's previous experience? If he has some hill soaring experience then won't that count? Sites such as Talgarth may give some relevant experience, but if so it's the only one that might. In my view the rest of the UK hill sites and ridges offer little that would count as preparation. So, what's the difference?

The single obvious consideration is the size. Mountains in the immediate area are up to 2000 metres or so and, even allowing for a take-off altitude of 600m, that's big. Perhaps more critical are the alternative types of lift – ridge, valley breeze and thermal. Also they may interact; thermals result in sinking air which can destroy the hill lift. Genuine valley breeze, the anabatic effect, requires the glider to be flown very close to the rock face which may be vertical. It decreases with altitude and is independent of the gradient wind which increases with altitude. Valley breeze and the gradient wind may combine or conflict. Get the picture?

The instructors of AFVVM put it simply. "Above the mountain tops you have all the advantages of the mountain but below, all the disadvantages." Flying in thermals at great heights and well above the mountain tops may be easy. The question is – what happens when you get below the tops? The answer is hot, sticky and stressed!

The AFVVM instructors, Jacques and Roger, have a philosophy. You must be trained to cope with the difficult situations first. In five days with one launch a day I flew for a total of 15hrs and was still learning at the end.

Although there are some outlanding areas and other airfields the problem once below the mountain tops is that you cannot see your escape options; there may be more than one. This is when it gets stressful. We did not land out but occasionally found ourselves in a situation described as "parking". The motoring implication

could not be less appropriate. One is working very hard indeed using weak and possibly limited lift while waiting for a thermal. In the meantime you monitor the height and distance to the escape options, based on a glide ratio of 20:1. This figure is chosen as the shallowest angle one can monitor visually and to allow an adequate safety margin.

Such basic reckoning of glide ratio sounds so simple. It is if you work in knots for speed and sink rate but the instruments are in meters so 8km at 20:1 needs 400m. Monitoring this in an actual glide, relative to the air, needs a conversion from km/hrs to m/sec; the figures are:

Km/h	*M/sec*	*Kt*
90	25	50
108	30	60
144	40	80
180	50	100

. . . the last row of figures is for pundits.
The mental DR for the glide now becomes distance (D)/height (H) so a distance of 6km at 20:1 needs, er, 300m.

In making a glide to an escape option you can see it is obviously vital to monitor progress. This leads to another possible problem; the direct route may not be the best. In general the route will follow the ridge tops and be anything but direct. When working close to the mountain side the indications given by the cumulus are of little importance. One relies on orientation, the mountain side, movement of leaves on trees, smoke and patches of sunlight. Only near cloudbase do the cumulus become important.



Once above the mountains it is more important to read the ground than the clouds.



Flying close to the rock face may be essential to get and stay in the lift.

Flying accurately is vital. There may be times when the lift is smooth; the evening valley breeze is describes as "laminar" and really is. For the rest you need margins – of speed and control authority. for example:

- Jacques reckons never to use more than one third aileron deflection when turning towards the mountain, the remainder is in reserve for contingencies in gusts, turbulence or thermals. However, the outward turn should be as tight as possible to minimise the turn radius to keep in the lift if possible. In some situations the safe speed will reduce the climb rate, or stop it; so in order to climb you will risk reducing the safety margin.
- Below the top of the mountain he never approaches at an angle greater than 45°. The general rule is not to circle until 80m above the mountain top but it is possible below given careful monitoring of the variometer and if there is no conflict with other gliders.

There are new airmanship considerations for most pilots without previous mountain flying experience. If you have the ridge on your left then you must give way to other gliders with the ridge on their right since they cannot alter course to the right. Going round a corner requires caution; move away from the ridge, especially if its on your left, to allow for the glider coming in the opposite direction. Also the need for awareness of the wind direction requires you to monitor drift at all times, thermalling, straight glides or following the ridges.

So in conclusion, can one rely on the pilot's instinct for self preservation? I think not. "Fly safely" is no use as advice if you don't know what the problems are. Consider:

- The demands for flying accurately are likely to be greater than any you have ever faced, and I mean ever. The "horizon" is changing all the time and is almost useless as a reference.
- The stress of being unable to see the escape options during "parking" impairs flying accuracy, decision making and mental dead-reckoning ability.
- Even the launch has its problems. The towplane plane pilot will probably fly quite close to the mountain or ridge. Sometimes uncomfortably so. The risk? If you don't follow he may be pulled into the ridge.

* * *

Flying in the Alps was better and more exciting that any of my previous gliding experience. To do it safely requires good instruction. You can get it with AFVVM at Gap/Tallard. Thank you Jacques!

Sunward facing slopes with snow are poor thermal sources. Photos by Bill.



AEROBATIC TRAINING

Sam, who is a senior aerobatic examiner, gives details of the BGA advanced aerobatic training syllabus which will be available to pilots throughout the UK

The last few years have seen advances in dual and single-seater glider design which makes some more suitable for advanced aerobatic figures. The K-21, Puchacz and Grob 103 Acro are cleared for rolling and sustained inverted flight. Also there are at least two L0100 unlimited aerobatic gliders in the UK and a number of modified Pilatus B-4s which are suitable for unlimited figures.

Competitive aerobatics have also become popular with World and British National competitions well established. So we now have suitable aircraft and a good deal of interest but are lacking an essential ingredient to allow us to proceed safely and competently. We have no standardised training as we do for every other aspect of our sport and that is what this article is all about.

Some years ago Lasham was lucky enough to have the services of Josef Solski, a professional pilot and member of the Polish Glider Aerobatic team, to run a number of aerobatic courses. They were very popular and covered all aspects of aerobatic flying from loops and chandelles through to advanced rolling and inverted figures.

Syllabus developed

Josef wrote a training syllabus which has been developed and adapted. It works well but it was recognised that teaching advanced aerobatics requires a greater level of awareness and competence than is needed for basic manoeuvres.

The BGA has also been concerned about the self taught method of learning to fly gliders upside down. Plenty of people have given themselves a very bad fright whilst attempting inverted flight and one has died.

What follows is the BGA approved advanced aerobatic training regulations to which all instructors who wish to teach advanced figures will have to adhere. You will note that this is for *advanced* figures only. The guide lines for basic aerobatics remain unchanged.

1. Instructors will be expected to demonstrate that they can fly the figures which they wish to teach, safely and accurately.
2. They will also be expected to recover the aircraft from unusual attitudes, especially when inverted, and demonstrate their ability to take early and decisive action if their student loses control.
3. They will be expected to have a thorough knowledge of the flight limitations of the aircraft used for training and be able to explain the flight envelope to their students.
4. They will have to understand the Aresti shorthand and be able to write simple programmes for their students.
5. They will be expected to remain in practice. Recency is defined as:
Less than 50 full aerobatic flights – two weeks.
Between 50-200 full aerobatic flights – one month.
More than 200 full aerobatic flights – two months.
6. Limited ratings may be issued to those instructors who do not wish to cover the entire syllabus or who need more practice at some of the figures.
7. Minimum equipment for gliders will be:
A five point harness.
Accelerometer.
Parachutes, which must be worn for all aerobatic flights.
Pitot extensions, if required by the flight manual.
8. The advanced aerobatic instructor's rating will be issued as an endorsement to either an assistant or a full instructor's rating and will specify the figures authorised as follows:
Half roll to inverted
Half roll to erect
Slow roll.
Inverted turn
Half Cuban
Full Cuban
Reverse Cuban
Stall Turn
Half flick (specific types only).

Further considerations

Clean cockpits are essential for safe inverted flight. If you can't vacuum the cockpit, wear goggles. And if you can't do either, don't fly upside down.

Equally, quite innocuous bits of cockpit junk – DI books, pens, papar bags etc – can be very distracting when they float about in front of your



Sam and Colin Short practising formation aerobatics i





s in Pilatus B-4s over Lasham. Photos: Terry Joint.



eyes. Batteries and derigging kits can be a lot more inconvenient. Remove them or ensure they are completely secure.

Local flying rules will probably contain guide lines for minimum heights when performing aerobatics, but whatever they are remember that inverted figures should be completed by 1500ft and great care should be taken if attempting loops at lower than 1000ft. In any event once you have decided what your minimum is, do not infringe it under any circumstances.

A visibility of three miles at 2000ft is the minimum which you should accept, mainly because of the likelihood of there being no visible horizon. Attempting to introduce students to inverted flight with an indistinct horizon is a waste of your time and their money.

Be cautious in strong wind conditions when there are thermals.

Reset the accelerometer when airborne then monitor it whilst on tow. If you see an acceleration of plus or minus ½*g* during the tow, reduce your planned sequence loading by 1*g*. This will give you a good safety margin and will only restrict you from flying high *g* figures. Rolling and inverted flight does not involve particularly high loads but it is the more demanding discipline and it is a good idea to practise in less than ideal conditions.

If you are interested in an advanced rating, would like to improve your basic aerobatic skills or would just like to find out more about aerobatics in general, contact the BGA office who will put you in touch with someone who can help.

Dick Dixon, chairman of the BGA Instructors' Committee, explains the thinking behind the advanced aerobatic instructor's rating

The BGA's forward plan deals with the teaching of advanced aerobatics but in recent years there has been no formalised coaching and no official BGA aerobatic instructor's rating. Therefore the Instructors' Committee have asked an experienced and skilled advanced aerobatic instructor to set up a coaching operation. This involves developing a coaching syllabus and mechanism for awarding instructor's ratings.



Sam Mummery.

I was very pleased when Sam Mummery, who flies at Lasham, agreed to take on this task. Sam is well qualified having had CAA display authorisation for the past five years. He flew in the 1989 World Aerobatic Championships and last year organised and flew in the first British Championships for 30 years. Sam is representing Britain again in this year's World Championships and organising the British Championships.



Lionel Sole.

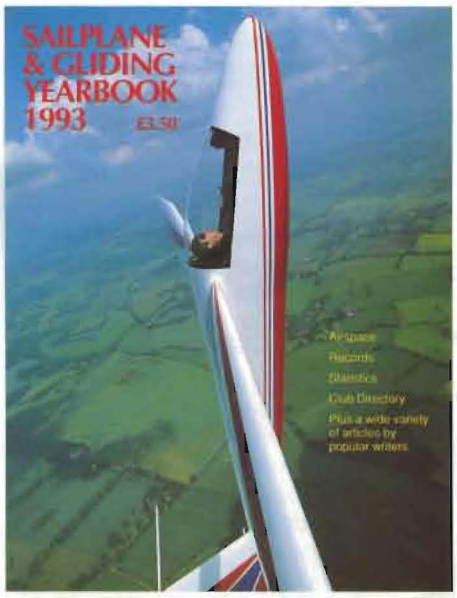
Clearly coaching, examining and appointing aerobatic instructors would be too much for one person so two additional examiners have been appointed to provide support and territorial coverage. Lionel Sole (Scotland and the North) has flown in every World Aerobatic Championship since they started in 1985 and is the current National Champion. Colin Short (South and West) will be flying for Australia for the third time in the World Championships and was runner-up in the Unlimited Class in last year's British Nationals.



Colin Short.

So with all this experience available we are ready to announce the new advanced aerobatic coaching arrangements which Sam describes in this article.

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This is the cover of the *S&G Yearbook* which is now available. It is really a seventh issue of *S&G* plus masses of extra information to carry you through the season.

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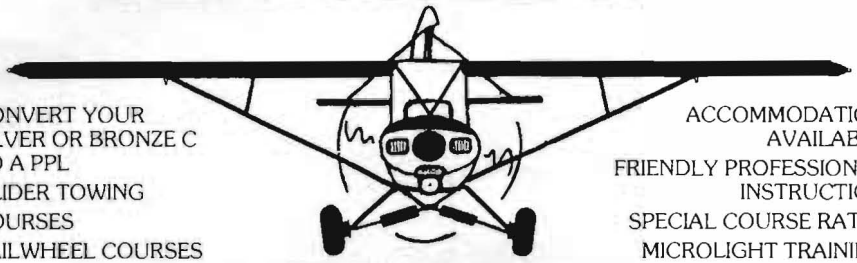
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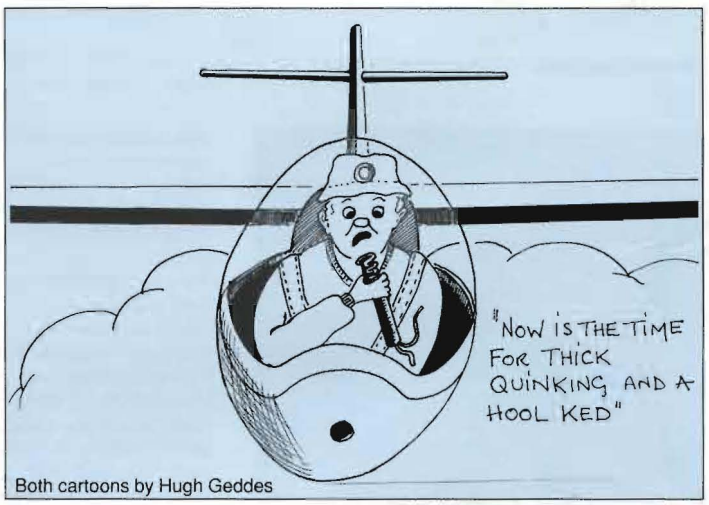
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WHY DO WE HAVE TO BUY GERMAN?

The first glass-fibre structure built in any quantity for an aircraft was the radome on the Lancaster bomber, but now nearly all the gliders on sale are built in Germany. This is not to decry the very considerable achievements of the German manufacturers but when nearly all the world's racing cars are built in this country, even Ferraris, why are we not building the best gliders?

Some of the main reasons are the larger market in Germany, greater popular interest and support and they have a five-year engineering course, the last three years of which include a project often involving the construction of a glider. In this country the course is shorter and the project only involves the last year, with the result that there is no continuity. Our courses produce good employees but few masters. Most of the development work is carried out by students, unpaid and in their spare time. We lost our way in this country when we went for light alloy since it had a higher modulus. We tried to get back with the Kestrel, but we fell behind and everyone concludes that the race is over.

Far from it; it is only starting. Better materials are becoming available, computerised design is becoming much easier and there are plenty of ideas about design and construction which can be tried. Modern gliders look nothing like eagles; possibly they should?

I am appalled when I hear of someone lovingly restoring an ancient Spitfire when with the same effort he could have made something new. British aviation spends its time contemplating its navel. If you write to a CAA official complaining about an anomaly in the law he replies to your letter as though you were a criminal. On the other hand I can legally cloud fly within 50 miles of Heathrow but nowhere in the USA or, wait for it, Australia. It's a funny old world.

The development of gliders in this country by a lot of unimaginative self-seeking people has killed every idea that wasn't their own. There should be a new set of rules so that people can build new designs rather along the lines of those they have in the US.

Everybody accepts the current set of rules as though they were as permanent as the second law of thermodynamics, but most of the rules were drafted by people who have never flown.

The medical decisions were often taken by an RAF officer who had never flown and considered that flying was a good deal more difficult than Grand Prix motor racing, and that anyone who had had migraine should never fly. Nearly everybody has had an attack of migraine sometime in their life so we should all be grounded.

Aviation cannot progress without some risks being taken. It is better that the rules should be made by the people who take and can estimate the risks than someone who sits in an office all day and thinks that all pilots are hell bent on breaking the law. Too many decisions are taken by people who are ignorant and incompetent.

I once told an MP that when flying a glider one rarely saw a powered aircraft, but he said he saw plenty, flying to Silverstone for the Grand Prix – about the only day in the year when there was any traffic about. I wrote a potted history of the Germany glider development in glass and graphite for a British periodical that dealt with composite structures, pointing out how they were ten years ahead of us, but they did not want to know as it might upset their advertisers.

There are large factories being demolished to save paying rates on them which could be used for experimental aircraft manufacture and there are plenty of talented people drawing the dole.

Before long commercial aircraft will be constructed completely from composite materials just as gliders have been for about 20 years. Composite structures "creak" under load so mapping the creaks is a simple means of plotting the heavily stressed areas so that they can be easily corrected. Whitcomb thought up area ruling and the Whitcomb winglet and there must be lots of talented people like him around waiting for an opportunity that will never come.

People feel that they are at the bottom of a vast hierarchy and that all those above them on the ladder are there because they are brilliant. I remember asking one of them why don't we make a version of the Skylark 3 with a reclining position for the pilot. He said the improvement would be negligible – then, of course, we got the Skylark 4 and a host of ships like the Foka and the Diamant where this principle was taken to extreme lengths with great advantage.

We should wake ourselves up and start to do something constructive. It is no good relying on those above us as they are mostly incompetent and lazy.

TRAVELLER'S TALE

AUSTRALIA

John McCullagh writes about gliding in Australia or, as he puts it, flying inverted

I supposed the image many British pilots have of gliding in Australia is of a spartan airfield in the middle of a flat desert populated by Germans doing 1000km flights every day in the blue.

This may be partly true at some sites, but in December I discovered the Lake Keepit Soaring Centre, where none of this image fits. It is about 300 miles north of Sydney and about 30 miles from Tamworth in New South Wales. Although you can fly up to Tamworth, I recommend hiring a cheap car in Sydney and driving up the Hunter valley, one of Australia's wine producing regions.

The lake and airfield are in the middle of a nature reserve complete with wild kangaroos and a huge variety of bird life. There is even a four foot goanna living near the clubhouse.

Beyond the reserve, the scenery consists of Hereford cows in green pasture. A little further away are small mountain ranges in every direction, rising up to 5400ft at Mt Kaputar. Eventually on the west side, the terrain levels out into a wide expanse of flat fields, known as paddocks, but some large enough to land a jumbo jet.

The club is run by three highly professional people – Ian MacPhee, Steve Smith and Garry Speight. They work full time instructing *ab-initios* and cross-country pilots, tugging, winching, administering, and maintaining a friendly, informal atmosphere.

Their aircraft are in good condition and available for visitors but you need to book well in advance. Some gliders belong to the club while others have private owners but which are for hire. The fleet includes an LS-7, SZD-55, Std Cirrus, Hornet, Libelle, Astir, SF-26, Twin Astir, and two Bergfalkes.

My visit was tacked on to the end of a business trip. This got the jet lag out of the way first at the client's expense. Perhaps, I thought, a leisurely 500 to limber up and then I would join the Germans doing their 1000km flights.

In reality, Australia was having a bad summer. The one day when a 500 may have been just possible, was regarded as being only mediocre. No one got too excited about it, despite fluffy white clouds disappearing into infinity, and a vario singing my favourite area, "6kts".

Although the weather was only 100% better than an English summer, the scenery in the shorter cross-countries made up for the lack of kilometres and I can now dream about what a good day must be like. I enjoyed myself immensely and must now adjust my pre-conceptions.

There was no flat desert, they get cumulus clouds, and the visitors were mainly Poms and Aussies (and a German). A 1000km flight is rare anywhere in Australia, though Lake Keepit do have a World Champion in Brad Edwards, so the weather must be good occasionally.

If you are interested, I suggest you fax them on 010-61-67-697681 and find out about glider availability. Their two best months are December and March except while I am next there to collect my tinnies of Tooheys for this article.

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ASA

This space is donated in the interests of high standards in advertisements.

LEAD ACID GEL CELLS

These notes only apply to acid gel cells – nickel cadmium cells have a completely different structure and chemistry

- Heat kills batteries. The longest service life is gained with an ambient temperature of 20°C. They can give off ignitable gases so must not be installed close to anything that could cause sparks.
- Their cases are made from impact resin so only clean them with water and washing-up liquid.
- Soldering wires to the terminals isn't recommended but if unavoidable, use a 100 watt soldering iron and keep the contact to a maximum of 3sec.
- Operating temperatures are from –15 to +15°C, but –5 to =35°C is recommended.
- Try not to mix batteries of different histories, manufactures and capacities. It is bad practice to even parallel two new similar batteries.
- Never attempt to dispose of a battery by fire or dismantle one as they contain sulphuric acid. Treat acid splashes on the skin with copious amounts of water. The eyes are easily damaged so wash with water and seek immediate medical aid.
- At room temperature the self discharge rate is about 3% a month. No electrolyte leakage should ever occur and batteries can be used in any position.
- Batteries need no maintenance; they have a low-pressure self sealing venting system if gases are produced. The electron-chemistry of a gel cell is designed to control the generation of gasses and allow the recombination of 99% of gas generated under normal use.
- With an average depth of discharge, over a 1000 cycles can be expected and if kept on a continuous trickle charge a battery should last four to five years.
- The amp hour rating of a battery is taken from the 20hr discharge rate – higher rates decrease the apparent capacity. A 6amp battery discharged in 10hrs would have 5.5amp capacity.
- The life of a gel cell is directly determined by the number of discharge cycles, the depth of discharge, the ambient temperature and the charging voltage.
- Proper charging is one of the most important factors and constant voltage charging is the most suitable. Under no circumstances should a car battery charger be used. Gel cells can be deep discharged, *ie* made completely flat, in which case the electricity taken out is about 1.5 to 2 times the rated capacity, so that a flattened battery will take a much longer time to recharge.
- A deep discharge battery won't initially accept a large charging current because it has a high internal resistance. But as charging proceeds the current increases rapidly over the first 30min and then normal charging characteristics will resume.
- Gel cell chargers should provide AC free direct current. AC (ripple) coincidentally present with the charging current will heat up the battery. The magic figure for a healthy long life is to regulate the charging current to a maximum of 13.5 to 13.8 volts for a nominal 12 volt battery, that is 2.25 to 2.3 volts per individual cell. Continuous float above 13.8 will seriously damage the battery.
- With a constant voltage charging system a large current will flow into the battery initially and decrease as charging proceeds. The final current will drop to 10 to 15 milliamps with a good battery.
- A common fault with chargers is that the three pole regulator isn't adequately heat sinked, which is life threatening for regulators.
- Chargers should have an ammeter in the output line. Observation of the meter during charging will give valuable indication of the state of the battery charge and the state of the battery.
- At the end of its life a gel cell will be sulphated and some cells may be worse than the rest. With an ammeter in the charging circuit the charging rate is abnormally low to start with and abnormally high when charging should have finished, because the battery potential can't get to 13.8 volts.
- The soundness of a gel cell can be a life dependent matter, especially when cloud flying. Generally the usual LED system, where the LED stops glowing at full charge, has only the advantage of cheapness. At current prices a heavy duty gel cell charger with an ammeter can be home-brewed for about £25. (Details can be supplied.)
- Solar cells exhibit constant voltage characteristics and can be used, but put a diode in the circuit to prevent reverse current flowing when the sun goes in.
- Measure the current drain in your particular application so you have an approximation of the number of flying hours from one charge. Fit an inline fuse close to the positive terminal of the battery and use a fuse with 2.5 times the maximum current drain, carry spare fuses, use polarised plugs and sockets to avoid reversing the battery and draw out a circuit diagram of the aircraft's wiring for the logbook.
- In general, the early death of a gel cell is caused by storing them in a discharged condition. Lead sulphate, in a non-conductive form, is made and has a direct effect on charge acceptance.
- Sulphation can be broken down by giving the battery a 12hr dose of constant current at 30 volts or so at about 10% of the amp capacity, *ie* 600 milliamps for a 6amp battery. Further charging at 15 volts for 5hrs may help. If this shows some success it can be repeated, but it is time consuming and it may be less trouble to scrap the culprit.
- The approximate depth of discharge of a gel cell can be empirically determined by measuring the battery's voltage – 13.5 for a full charge and 11.5 for a flat battery. The two volt difference shows a practically linear graph. Small volt meters can be installed in the glider's circuitry.
- The internal resistance of a battery is at its lowest when fully charged and increases as it is discharged.
- The cost of a new battery is a fraction of the aircraft value. It is important to determine the state of this low cost device and replace when necessary.



David, a doctor, has always been fascinated by radio and made his first wireless in his early teens. He took up gliding with his retirement, flies a tipped Vega at Black Mountains GC, plus the syndicate T-21 and Swallow, and has a Silver badge.

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BGA AGM

The BGA returned to the Forte Post House at Crick, Northants on the weekend of February 27-28 for the AGM, and a dinner-dance. As well as the AGM there was a discussion on such topics as airspace and publicity, Bill Scull's safety presentation and time left for visitors to mull over the coming season. But although the AGM was well supported attendance at the dinner-dance was disappointing.

Don Spottiswood, chairman, announced that BGA diplomas had been awarded to Rika Harwood, Les Cooper and Vernon Jennings.

Rika worked for the BGA and *S&G* in particular since the 1950s following the World Championships at Camphill. Her editorial contribution to *S&G* has been enormous and she also became a Nationals competitor, the holder of several records and a familiar voice on the competition startline for many years.

Les was chairman of Wolds GC for ten years from1980 and has been resident manager since1986. During this time the club has grown four-fold in membership and launches and acquired its own airfield with a clubhouse and hangars. The success of the club, which hosts the unique two-seater competition, is due largely to the personality and dynamism of Les. He has also found time to gain two Diamonds, to instruct and, with his wife Audrey, to provide a high standard of clubhouse catering.

For more than 20 of the 30 years the Upward Bound Trust has been teaching youngsters to glide the daily running of the Trust has been largely down to Vernon. Whether as CFI with a special interest in pupils deemed slow or unteachable, repairing gliders and winches or managing the finances, his total dedication has been complete and selfless. It is without doubt that the Trust's success and its standing within th gliding community is his doing.

Keith Mansell was re-elected as treasurer with Michael Brook, Mike Cater, Bruce Cooper, Terry Holloway and Ted Lysakowski filling the six places up for election on the Executive Committee.

At the dinner Don Spottiswood presented Albert Johnson with an inscribed silver salver in recognition of his long involvement with gliding. Albert retired in April as senior gliding instructor at the Air Cadet Central Training School and as DCFI of Four Counties GC. He has had well over 30 000 launches and 3500hrs, flying everything from Grasshoppers to the Nimbus 3DM.

The annual awards were as follows:- **Du Garde Peach** trophy (National Ladder Weekend winner) Phil Jeffery (Cambridge University); **Slingsby** trophy (2nd place on the Weekend Ladder) John Glossop (Cambridge University); **Enigma** trophy (National Ladder Open winner) and the **Seager** cup (longest distance in a two-seater) John Bridge (Cambridge University); **Firth Vickers** cup (2nd place on the Open Ladder), **Furlong** trophy (longest triangle) and the **Wakefield** trophy (longest distance) Tim Macfadyen (Bristol & Gloucestershire); **California in England** cup (longest flight by a female) Sue Woollard (Bristol & Gloucestershire); **De Havilland** trophy (maximum gain of height) Mike Throssell (Four Counties); **Frank Foster** trophy (fastest 500km) and **Manio** cup (fastest 300km) Justin Wills in New Zealand; **John Hands** trophy (outstanding services to competitions) Silvie Orr, control at the Inter-Sevices Regionals; **Rex Pilcher** trophy (first Diamond distance of the year) Simon Housden (Cotswold) and the **Volk** cup (longest 0/R) Michael Bird (London).

NEW FAI OFFICER

Eric Smith is the new FAI certificates officer for the BGA. His role is to scrutinise and approve all FAI badge claims; scrutinise and recommend for homologation all record claims and monitor the standards of BGA approved Official Observers.

The work is undertaken on behalf of the BGA Competitions and Awards Committee of which he is a member.

Eric flies his LS-4 at Wyvern GC, has all three Diamonds, 1600hrs and is a full Cat instructor. He is also a competition pilot and was 2nd in the 1991 15 Metre Class Nationals.

PR ACHIEVEMENTS

One of our aims is to attract more young people into gliding and after three months' hard lobbying, the BBC children's programme ACTIV8 are giving us a slot on June 1. It is geared to 11 to 16 year-olds and explores activities with which they might reasonably get involved.

The 15 year-old presenter was thrilled with his experience and I believe that we'll get a healthy influx of phone calls from eager potential glider pilots. Please, if you have student cadetships keep them going. If not, consider starting one.

We also wanted to build on the success of last year's press day at the Open Class Nationals and to do some good at the same time.

In my quest for compatible sponsorship, I approached Cosmetics To Go, a company with some of the most innovative, exciting and environmentally responsible products from sun protection to bath toiletries.

Their presence at the press day will ensure the elusive family and female oriented press contingent will show up.

If you would like to see just what they produce, ring their free toll number – 0800 373 366 – tell them you are a glider pilot and ask for their free catalogue

Merri Head, *BGA PR Committee chairman*

AN UPDATE ON BGA COURSES

There are still some places left on the **Soaring and cross-country course 3** at Challock (Kent GC), from August 2-6. It's a Monday to Friday course so bring along your club Astir, Junior or K-6 instead of leaving it in the hangar all week.

There are three places on the **Instructors' cross-country course 3** at Sutton Bank (Yorkshire GC) from July 18-24. If these aren't filled by the time this is published they will be available to non instructors.

The **Advanced competition course** at Booker from July 4-9 still has space available. This is for competition pilots who want to learn to win. The basic **Competition coaching week** at Bidford from August 16-20 is intended primarily for Junior Nationals pilots who feel the need of coaching before their competition, but other novice or aspiring competition pilots will be equally welcome.

The **Thermal wave cross-country course** at Portmoak (SGU) from September 5-11 has only three places left but there is plenty of room on the **Wave course** at Aboyne (Deeside GC) from September 26-October 30. Come along and get your Gold and Diamond height.

There are only six instructor course places left at the time of writing but we can arrange further courses if required. Contact Tiffany at the BGA for details.

Chris Rollings, *senior national coach*

BGA 1000 CLUB LOTTERY

The results of the **March** draw are: First prize – P. Cockerill (£119.25) with the runners up – C. B.Hogarth, S. Brown, S. Robinson, J.T.Morgan and M. Blackburn – each winning £23.85.

April: First prize – W.V.Barwell (£119.50) with the runners up – P.Coresham, M.K.Jessett, Mrs Karen Wright, J.R.Crosse and G. Bacon – each winning £23.90.

* * *

The BGA 1000 Lottery is coming to the end of its first year in June and members are invited to take part for a further year from July 1. The tickets remain at £1 per month so please send £12, payable to the BGA, in order to be entered into the 12 monthly draws.

At the time of writing we have almost reached 500 participants monthly so there is plenty of room for a further 500 to boost the lottery to its intended maximum of 1000.

To remind you, every month half the proceeds are given away in cash prizes and the other half is put into the Philip Wills Memorial Fund, which is a trust fund used to make loans to member gliding clubs for the development of sites and club facilities.

Please contact the BGA for further details and don't forget to renew.

Barry Rolfe, *BGA administrator*

SUCCESS OF CHURCHILL AWARDS

We mentioned in the last issue, p96, that the BGA Executive Committee had decided to make £100 awards to pilots achieving their Bronze badges before their 18th birthday. Their club is given the money to set against their flying fees.

The scheme has been so successful that 13 have already qualified for the 20 awards made possible by the £2000 left in the Churchill account.

The Executive are eager to keep it going as they feel it is an excellent way to encourage pilots and are hoping to find a sponsor willing to contribute £2000 to £3000 per year. If anyone can help or has an idea of how this can be achieved, would they please contact Barry Rolfe, BGA adminsitrator, at the BGA office.

ASW-20FL WINGTIPS

Centrair have now designed a modification to the wings of their ASW-20FL to allow the use of the wingtip extensions again. The cost of the modification is 21 000fr. Owners are requested to contact Centrair for further details.

ADVERTISERS PLEASE NOTE



Debbie, your contact for display and classified advertisement.

As most of you now know, the BGA office (tel 0533 531051 fax 0533 515939) has taken over the advertising for *S&G*.

August-September deadlines

Display advertisements - June 22

Classified advertisements - July 2

Editorial copy is needed long before this. Our main deadline is May 31 with club news and letters accepted up to June 8.

Giallian Bryce-Smith, editor

GLIDING PRINT FOR SALE

Margaret Kahn's award winning painting of a Skylark 3 under a magnificent soaring sky has been produced as a limited full colour print. and being sold for £10. The profit generated will be donated equally to the Philip Wills Memorial Trust and the Lasham Trust.

You can order copies from the BGA office, your club secretary or direct from Wally Kahn, c/o Lasham Gliding Centre, Alton, Hants GU34 5SS. Please make cheques payable to W.A.H.Kahn adding £3 for p&p in the UK.

BGA ACCIDENT SUMMARY

Compiled by DAVID WRIGHT

Ref No.	Glider Type	BGA No.	Damage	Date Time	Place	Pilot/Crew	Age	Injury	Hrs
143	K-6E	4640	M	27.7.92 1300	Sutton Bank		36	N	102

The aerotow combination took off in turbulent conditions towards the edge of the ridge. The tug climbed sharply, as expected in ridge lift, and the glider pilot kept low waiting for the lift. When it came he could not stop the glider climbing above the tug. Fearing a "tug upset", he released and had to make a field landing in the valley.

144	K-7/13	1729	S	20.6.92 1605	Feshiebridge		29	N	1600
						P2	24	N	0

The early student was handling the winch launch ground run when the glider veered slightly to the right where the cable had been laid along a vehicle track. He corrected with rudder but the right wing lifted, helped by a cross wind, and P1 took control. The wing tip caught the ground and P1 did not release soon enough to prevent a ground-loop.

145	Bocian 1E	3529	S	19.8.92 1044	Halesland		28	N	685
						P2	15	N	0

P1 put his student into a low circuit position then handed over control. The glider then encountered sink and P1 took over again as he thought that the return would be marginal. More sink made this impossible and, too low to select a field or move into the valley, the glider was landed across stone walls and substantially damaged.

146	ASW-19	2502	S	19.8.92 1044	Nr Long Mynd		39	M	287

Soon after starting a cross country the pilot flew to an area of poor fields and tried to thermal in a bowl. This did not work and the pilot chose the best field available, intending to land into wind across the diagonal. During the approach the glider's wing caught on power wires, bringing it down.

147	K-13	-	M	19.7.92 1128	Parham		49	N	960
						P2	25	S	45

During simulated cable break training P1 released at 40-50ft and P2 responded by pushing the stick forward rapidly and fully opening the airbrakes. P1 closed the brakes but was unable to prevent a heavy landing. P2 injured his back despite the energy absorbing cushion. The club has now banned simulated cable brakes below 50ft or 50kt.

148	Nimbus 2	1722	S	10.8.92 1300	Raglan		52	N	631

The pilot chose a large grass field with a slope and made a normal approach and landing into wind. Unfortunately, the grass was 12 to 15in high and concealed deep ruts. The glider's wheel caught and followed a rut, causing the right wing to drop and catch in the grass. A groundloop followed which damaged the glider.

149	K-7	1287	M	31.7.92 1708	Brentor		38	N	0

On his first solo the pilot made a good circuit but then landed slightly longer than briefed through using too little airbrake. This placed him in a narrower part of the airfield near a rough patch which he had been briefed about. He saw a bunch of ferns ahead and,thinking this was the rough area, applied rudder to turn. The glider groundlooped.

150	ASW-19B	3870	M	22.7.92 1730	Saltby		45	N	136

After a cross-country the pilot returned to the airfield and went through his normal downwind checks. He operated the undercarriage lever but, because he had forgotten to raise it at the start of the flight, he retracted it and landed on the concrete runway wheel up.

151	Stemme S10	M/G G-STEN	M	10.8.92 1100	Abingdon		66	N	2260
						P2	48	N	-

While landing on the grass alongside the runway the motor glider pilot applied too much wheel brake and the aircraft tipped forward on to the nose. Unfortunately he had chosen to land with the (nose mounted) propeller running and this hit the ground. The aircraft stopped with the tail in the air and damaged propeller blades and nose cone.

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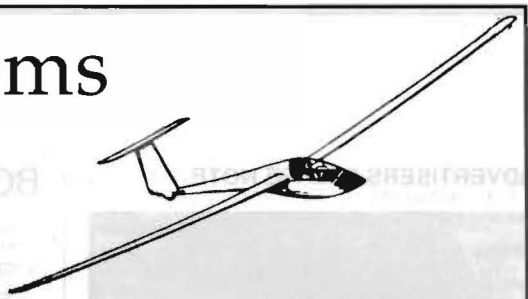
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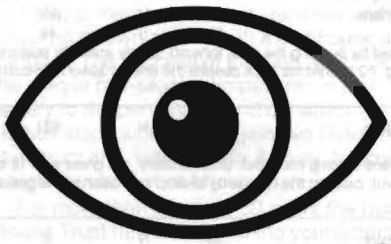
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ALL THREE DIAMONDS

No.	Name	Club	1993
393	Murphy, T. J.	SGU	21.2

DIAMOND DISTANCE

No.	Name	Club	1992
1/583	Meeks, D. B.	Avon	28.7

DIAMOND GOAL

No.	Name	Club	1992
2/2086	Limb, R.	Booker (in France)	4.8
2/2087	Walker, E. R.	Cotswold	28.7
2/2088	Nunn, A. W.	Lasham	18.7.90
2/2089	Meeks, D. B.	Avon	28.7

DIAMOND HEIGHT

No.	Name	Club	1993
3/1121	Thompson, S. R.	Deeside	20.1
3/1122	Kovacs, J. P.	Deeside	4.2
3/1123	Murphy, T. J.	SGU	21.2
3/1124	Mossman, A	Cairngorm	20.8.92

GOLD BADGE

No.	Name	Club	1992
1661	Limb, R. J.	Booker	4.8
1662	Triplett, D. A.	Shropshire	14.8
1663	Nunn, A. V	Lasham	18.7.90

GOLD DISTANCE

Name	Club	1992
Limb, R	Booker (in France)	4.8
Walker, E.R.	Cotswold	28.7
Nunn, A.V.	Lasham	18.7.90
Cartwright, I.	Booker (in France)	4.8
Meeks, D. B.	Avon	28.7

GOLD HEIGHT

Name	Club	1993
Fox, C. M.	Glyndwr	17.1
Triplett, D. A.	Shropshire	14.12.92
Wright, I. P.	SGU	7.11.92
Brockington, M. P.	Black Mountains	20.2.92
Hodkinson, N. W	Derby & Lancs	9.9.92
Le Roux, D.	Devon & Somerset	12.7.92
Foreman, N. R.	SGU	21.2
Goodall, J. T.	Yorkshire	20.3
Crocker, R.	Portsmouth	2.1
Crocker, M. J.	Fenland	17.3
Borthwick, R.	Borders	11.4.91

SILVER BADGE

No.	Name	Club	1993
9064	Gough, S. C. L.	Lasham	13.11.91
9065	Jackson, R. J.	Welland	29.8.92
9066	Read, A. J.	Avon	1.9.92
9067	Akrill, P. J.	Shenington	21.2
9068	Blair, S.	SGU	27.2
9069	Dreyer, B.	Two Rivers	28.6.92
9070	Cartwright, I.	Booker	4.8.92
9071	Farrant, C. G.	Yorkshire	6.5.92
9072	Christie, A. N.	Angus	21.3

UK CROSS-COUNTRY DIPLOMA

Complete

Name	Club	1992
Mossman, A.	Cairngorm	7.8

Part 1

Name	Club	1992
Bradford, S. W.	Norfolk	5.9
Mills, J. F.	Cranwell	29.8
Goldsworthy, D.	Newark & Nott	18.8.91

AVIATION ART EXHIBITION

The Guild of Aviation Artists have their annual Aviation Paintings of the Year exhibition at the Carisbrooke Gallery, 63 Seymour Street (behind Marble Arch), London from July 12 to 23rd when gliding will be represented.

152	SF-27	3687	S	29.8.92 1515	Nr Swaffam	36	N	57

On his first 50km cross country the pilot had to make a field landing. The field he chose had power cables across the end but these were seen and overflown safely. However, there was another set of wires diagonally crossing his path which he did not see. The right air-brake caught the cable and slewed the glider around causing it to crash.

153	K-8B	2912	M	19.8.92 1428	Long Mynd	32	N	33min

The pilot, who had first soloed the day before, had a check flight and three solo flights in the K-13 before being sent off in the K-8. During the take-off run he held the stick fully forward and the glider failed to get airborne. It then groundlooped when the winch driver cut the power. He had misinterpreted advice given before the flight.

154	Discus Turbo S/S	3607	M	28.8.92 1340	Nr Long Mynd	47	N	350

After failing to find any ridge lift the pilot selected a landing field he had previously inspected on foot. In the circuit he found heavy sink and adjusted it accordingly. The pressure and extra workload lead to him forgetting to lower the undercarriage, even though the warning was working, and landed on the glider's belly.

155	Std Cirrus	2015	W/O	5.9.92 1415	Sandhill Farm	52	F	82

The **fatal accident** occurred during the initial stages of a winch launch. After a normal climb to about 75ft the glider turned left until, at about 150ft with wings vertical, the cable released. It continued to turn and dived vertically into the ground. The pilot had apparently slipped back into soft cushions, lost control and could not release.

156	K-2B	1026	S	29.7.92 1315	Wormingford	50	M	1118
					P2	53	S	0

The glider was rotated into the climb at 15-20ft when the winch driver, finding he selected the wrong gear, aborted the launch. The instructor lowered the nose to a normal attitude rather than too steep a dive as the glider was so low, but he was unable to prevent a heavy landing. His restricted view from the back may have slowed his reaction times.

157	Dart 15	1164	S	15.8.92 1647	Halesland	54	N	122

The pilot made his final approach rather slowly, at about 50-55kt, to a crosswind landing in conditions known to produce wind shear. At about 10ft the airspeed decayed very quickly and the glider landed heavily, breaking the fuselage aft of the wing.

158	ASW-15B	3618	M	6.6.92 1545	Haddenham	41	N	590

The pilot joined the circuit and noted two gliders blocking the left and centre of the narrow landing area. Rather than landing further up the strip, as taught in training, he chose to land to the right so as not to impede operations. After touchdown the glider's right wing caught in long grass causing a groundloop.

159	PIK 20B	2164	S	12.8.92 1120	Thurnham	51	M	800

While ridge soaring in windy conditions the pilot flew through a heavy rain shower. The glider's performance was reduced such that the ridge lift would not maintain it. The pilot did not make an early decision to leave the ridge and make a field landing. He finally overshot a small field and had to crash land, narrowly avoiding serious injury.

160	K-7	1499	M	6.8.92 –	Hinton-in-Hedges	68	N	1300
					P2	0	N	0

The broad shouldered student was having his first winch launch when at 300ft a bump was felt and the front canopy opened. This allowed the back canopy to open and break the perspex. P1 released, closed the front canopy with the students help, and landed safely. It is possible that P2 inadvertantly knocked the catch which had a slightly weak spring.

161	DG-300	3308	M	1.9.92 1730	Lleweni Parc	52	N	300

Due to a landed glider and a tractor the pilot chose to land short on a slightly upsloping area of the airfield. During the approach, with a large amount of airbrake, he allowed the speed to fall. This, and wind shadow/curl over near the ground, resulted in the glider dropping heavily on to the ground from about 10ft.

162	DG-500	–		8.92 1422	**Incident Report**	57	N	1250
					P2	57	N	210

After a short cross-country P2 joined the circuit, briefly opening the airbrakes during the downwind leg. On finals P1 prompted "more brake" but then noticed that the brakes were not extending. P1 skillfully turned to lose height then landed safely with only slight damage despite no wheelbrake. A butt weld in the control linkage had failed.

163	Pegasus 101	3594	S	28.8.92 1300	Nr Cheltenham	47	N	602

After finding strong sink the pilot pressed on to reach a ridge, beyond which there were landable fields. He could not reach these because he was too low and there were power cables in the way so chose to land downwind but uphill. He was unable to land directly up the steep slope and the glider's wing caught, breaking the fuselage.

164	ASW-20L	2707	S	9.9.92 1800	Aboyne	61	N	515

While flying at about 8000ft in wave the pilot experienced a "somewhat violent bump". His head hit the canopy and he heard a sharp slapping sound. He was flying at 60-70kt with –6° of flap. After a normal landing it was found that the right aileron had a transverse fracture and the wing root ribs were damaged.

165	ASW-19	–	N	8.92	**Incident Report**	38	N	600

The pilot strapped in while the tail dolly was still on the glider in case they had to clear the runway. This was overlooked and the launch commenced. A stop signal was given but not relayed by the forward signaller until the tug had passed. The pilot was informed by radio, assessed the handling, at height, as OK and landed safely.

166	K-6E	1449	M	29.8.92	Aboyne	29	N	47

The tug was just getting airborne when the glider's trim lever moved from full forward to fully back. The pilot attempted to move it forward but could not. As the glider was ballooning the release was promptly pulled and a landing made straight ahead. The glider stalled from about 10ft and then groundlooped. The trimmer friction lock was poor.

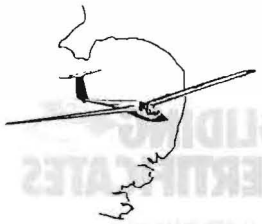
167	T-21	3324	S	16.9.92 1352	Lleweni Parc	47	N	1600
					P2	48	N	0

After a cramped circuit the instructor briefed his student and flew another circuit. This time the student was allowed to extend the downwind leg too far and P1 decided he could not get back to the airfield. The only field available was very small and so P1 dug the wing in to stop. The glider cartwheeled and was substantially damaged.

F=Fatal; S=Serious; W/O=Write-off; M=Minor; N=Nil.

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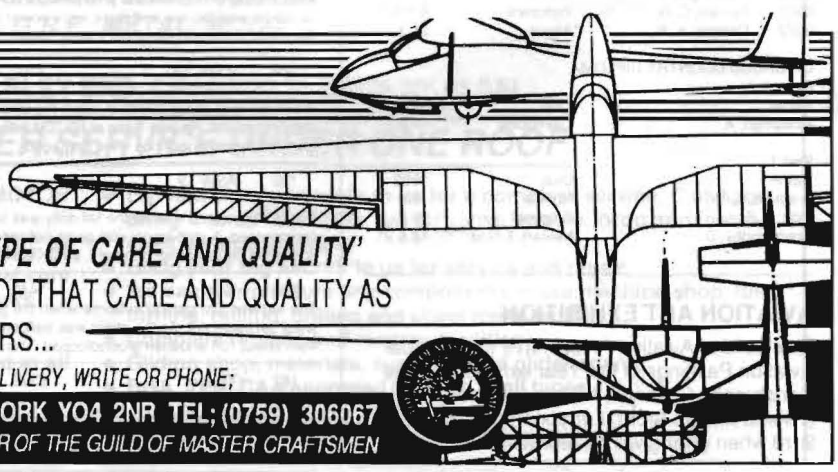


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CITROËN ARE FLYING HIGH WITH THE BGA



Citroën's new Xantia with a Blanik.

The BGA are pleased to announce a new annual sponsorship deal with Citroën UK starting in May.

Citroën have a reputation for getting involved with action sports such as their sponsorship of Judy Leden, Britain's world beating hang glider pilot; their stunning roadshow "The Xantia Ski Show" involving the world's best freestyle skiers and the Xantia Hot Air Balloon. You could say that this new involvement is a natural development of this type of sponsorship for one of the UK's fastest growing car companies for *whom it seems the sky's the limit.*

Gliding is an exciting and stylish way to take to the skies and Citroën see this image reflected in their products – in particular the new Xantia. This new model looks like a superbly smooth, solid and stylish performer as well as an excellent towing vehicle.

The BGA are, in fact, the owners of two of the very first Xantias on the road. Taking delivery of these two cars heralded the start of the sponsorship deal which will involve some exciting developments for everyone at club level and support some of the BGA events.

Those of you who know Chris Rollings, senior national coach, can ask for his thoughts on the Xantia right now. Those who don't can read his test report in the next issue of *S&G* to see how the Xantia measures up as a towing partner for his new glider outfit.

There is no doubt that Citroën now appeal to a large proportion of the towing market and have won the hearts of a substantial number of UK drivers with products such as BX, AX, ZX and XM.

The BX, which will continue in estate form, has proved to be a particularly good towing car as demonstrated by the number in any club car-park on a good gliding day. This has been attributed to the tremendous Citroën suspension system, which has the capability to level out no matter what the load and can even make up for the odd pilot error when towing!

Xantia is bigger in every department, is solidly built, looks stunning and, wait for it, has an even more effective suspension system.

There is no doubt that Xantia is a towing partner with features on various models that you and your glider outfit won't want to be without:

Self-steering rear axle.
Computer controlled suspension.
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The end result is a "live" chassis which adapts to any driving style or road condition to satisfy all drivers from the enthusiast to the functional.

Can't wait to get your hands on one? Even better, what about winning one?

Over the next few months the Citroën Glide and Drive team will be visiting some of the UK clubs with the chance for members to try the Xantia for themselves and to enter a free prize draw to win a stunning new Xantia or a one-week BGA gliding course. (Your club will be receiving details shortly.)

The BGA welcomes Citroën as a new sponsor. Look out for Chris Rollings in his stylish new Citroën branded SZD-55 glider/Xantia combination.

Starting Them Young



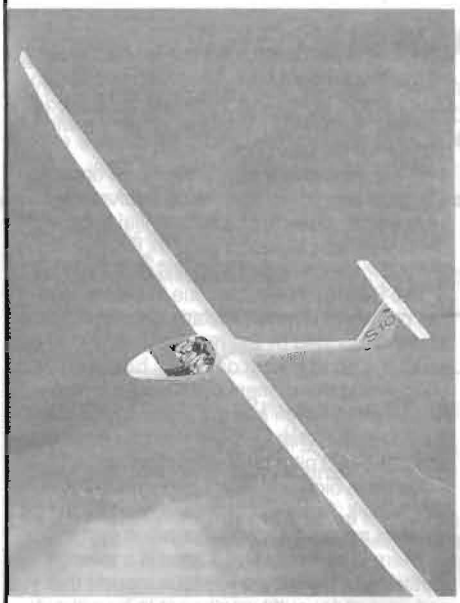
There is nothing like starting our readers in the *S&G* habit as soon as possible. Stephen Fiorentini, aged six months, certainly likes to get his hands on the magazine before his parents, Kate and Chris, who fly at the Surrey Hills GC. Then he has all the back copies to catch up on.

DEFINITELY A BACHELOR'S HOME!



Tony Davies and his syndicate partner, Tim Cushion, both of the Bath, Wilts & North Dorset GC, needed somewhere to fettle their Skylark 2 over the winter "The ideal place that came to mind" Tony said " was my living room which has French doors at the end. The centre section also went in with about a foot to spare either end. Do I really need to say I'm not married?" he asks.

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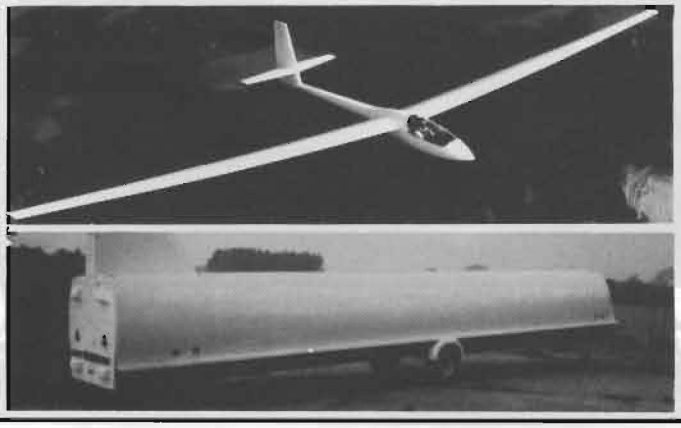
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INTERNATIONAL GLIDING COMMISSION

Extracts from Tom's report of the meeting, held this March in Cape Town, which he attended as the BGA delegate

Only 21 countries were represented because of the distance and it was felt that in future most of the IGC meetings should be in Europe.

World Championships – Omarama 1995.New Zealand, 1995. Entrance fees will be no higher than for Sweden and it was confirmed that tasks would be set in wave conditions and so oxygen would be needed.

World Championships, – Borlange, Sweden. Considerable time was spent on whether it would be permissable to have winglets. The rule introduced a few years ago to prevent last minute modifications to gliders giving pilots unfair advantages (Annex A, clause 9.5) states that type certification of the sailplane must be completed four months before the Championships. If the modification is not type certificated and as long as the glider carries a permit to fly, even if issued the night before the Championships, then everthing is apparently OK.

It was agreed that rule 9.5 should be scrapped but this would only come into effect this October. In the meantime a large number of wingletted machines were expected to show up at Borlange and the organisers were asked to do their best!

World Championships 1997.Poland (at Lesno) and France (St Auban) presented bids for 1997 . The decision will be taken next year but it was decided to restrict the bids to these two countries.

Motor gliders. Piero Morelli (Italy), chairman of this sub-committee, reported that the growth rate of motor gliders was greater than pure gliders but only represented a quarter of the glider market. Other comments included the statement that while initially in mixed pure and motor glider competitions the pure glider pilots felt they were at a disadvantage because those with motors could fly over unlandable teriitory, the motor glider pilots felt disadvantaged by the weight of the engine in weak conditions.

World Air Games – Greece, 1995. Fred Weinholtz (Germany) is representing the IGC in the arrangements for gliders to take part in the Games. There seems to be little enthusiasm and the FAI have said they will only consider competing if they are organised in the same way as international gliding competitions. At the moment the proposals are for a very high fee for competitors and crews.

Flight certification, GPS. The trials of GPS flight verification equipment at this year"s World Championships will be voluntary and non-interfering. Official proof of rounding TPs by GPS will not be used, even as a back-up.

Club Class. This is still dominated by the practices in Germany. A new formula was accepted bringing the LS-4 and DG-200 into the Class.

World Class Glider Competition. This item was surrounded by some political tension. Piero Morelli, chairman of the organising committee, is no longer supported by the Italian Aero Club. Their Velino had serious defects when tested last September but they had since modified and greatly improved the wing/fuselage areas. which greatly improved the fault. They brought a video and technical staff to the meeting to explain what they had done, but it was agreed to approve the recommendations of the judging panel and the Polish PW5 was voted the winner.

European Championships 1994, will be held at Rieti, Italy.

Sporting Code. The temporary status of the approval of electronic barographs is now a permanent rule.

Medals. The Lilienthal medal goes to Frances Kepka (Poland) and the Pelagia Majewska medal to Georgette Litt-Gabriel (Belgium).

* * *

Besides the three days of IGC meetings, the Soaring Society of South Africa provided "optional extras" (at delegates own expense) both before and after the meetings.

Most notable in my experience, were visits to the Magaliesburg GC at Orient, an hour's drive west of Johannesburg. Opportunities for flying were laid on with generous lending of private single and two-seater gliders. In March the winter season is approaching. This does not mean putting the gliders away for a few months. It remains dry and there are plenty of thermals, but they are blue and there is usually a "low" inversion of around 4000ft agl. It is in their summer (our winter) when all the record flights are done.

The Magaliesburg Airfield is impressive – probably approaching a 1000 acres of flat land. Part of it is wooded and provides shade for the trailers. But also there is a large clubhouse, generous grass runways, swimming pool and of course hangars. Of the 165 gliders kept at the site (nearly all private) all but a few are kept fully rigged in hangars. Some of these private hangars are most impressive, with polished floors, insulated roofs and many with luxury living accommodation attached at the back.

But apart from the gliding and the glorious sunny weather, South Africa provides many other things. The SSSA laid on visits to game parks (which seem to be widely scattered) and to diamond mines (ditto). Cape province is usually considered the most scenically beautiful part of S Africa and we were shown vineyards, a fantastic botanical garden near Capetown and of course we are treated to a visit to Cape Point on the Cape of Good Hope – a feature on the face of the earth that even the most inadequate of geographers amongst us knows about.

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CLUB NEWS



Connel GC's " new tug" with Paul Keegan, the pilot, and members. Photo: John Anderson.





Two young Bicester pilots after going solo – "Dusty" Miller and Camilla Reed.



Above: John Smith in the Culdrose GC's Prefect after its test flights following a 11 year rebuild. Below: Nick Leaton, Paul Shelton, Damien le Roux and Leslie Kaye photographed by Mary Meagher celebrating their new status during a recent instructors' course at Bicester.



Copy and photographs for the August-September issue of *S&G* should be sent to the Editor, 281 Queen Edith's Way, Cambridge CB1 4NH, tel 0223 247725, fax 0223 413793, to arrive not later than June 8 and for the October-November issue to arrive not later than August 17.

GILLIAN BRYCE-SMITH
April 12

ANGUS (Arbroath)
C. Wight was elected chairman at the AGM and Alan Black continues as CFI. We are in a reasonable financial position with launches and hours about the same as in 1991 but would like more members.

We are negotiating for a new site at Drumshade near Glamis Castle, Kirriemuir which should give better soaring conditions. A number of members have flown in the SGA ASH-25 at Portmoak and Aboyne and we have an excellent club fleet – Bocian1E, SF-24, Std Jantar 2, K-6CR and the use of a T-21B and Swallow. Private aircraft include a T-61 Falke, Vega and Pirat.
G.N.

AQUILA (Hinton-in-the-Hedges)
Our thanks to Bob Murray for organising a well attended annual dinner in February. Prizes went to Neil Scarborough (most promising pilot – solo to nearly Silver); Brian Babb (clubman of the year – enthusiasm and competition flying); John Cooper (best height – Gold height) who also won the soap box award; Mel Eastburn (best flight – Diamond goal) and Ian Scarborough (wooden spoon – a very long 50km).

The committee were re-elected at the AGM and joined by John Cooper. Our K-8 has a new canopy and we are making full use of our new grass area.
S.K.

BANNERDOWN (RAF Keevil)
Recent months have seen a vast improvement in facilities and prospects at Keevil. Power and secure doors were installed and an extensive concrete apron laid in front of the glider hangar.

Northerly winds have allowed us to sample the nearby ridge and the surrounding country has been inspected on odd thermic days. Sadly our first Easter course was restricted by wind and rain.
D.C.F.

BATH, WILTS & NORTH DORSET (The Park)
Paul Wade, Mark Hawkins and Alan Nichols have gone solo and Dave West has resoloed after an 18 year break.

We have a newly formed K-6CR syndicate and are extending the trailer park to take more new gliders. The club K-6E wings have been re-covered by members, organised by Dave Pengilly. We now have three dumper trucks to ensure the prompt retrieve of gliders from the

landing strip. This contributes enormously to the high launch rates during the short winter days.
S.G.

BICESTER (RAFGSA Centre)
Despite poor weather we have had a successful few weeks with Ron Smith and Max Kirschner completing their full Cat ratings and Dave Kearns and Alison Grimsdell their Silver badges during a Long Mynd expedition.

Three young pilots all went solo within 30min – Camilla Reed, "Dusty " Miller and Andy Roberts.
Y.E.

BLACK MOUNTAINS (Talgarth)
We had two excellent soaring weeks at the end of March with the 25th and 26th exceptional for cross-countries. We also learnt some interesting lessons about field landings and had practice in mountain retrieves.

We have already had several expeditions this year – two from Lasham and one from North Hill. Visitors are always welcome to share our enjoyment of this great site. We have a task week in May.
S.R.

BOOKER (Wycome Air Park)
We wish the Booker, er sorry Andy, British World Championship team all the best in Sweden. There should be enough pilots left at Booker to give a decent Regionals.

We have had several successful weekend expeditions to the Mynd and the usual gaggle went to Cerdanya. Our season started remarkably well with 300km flights in March and a 5000ft cloudbase in February.

The club fleet is having its instrumentation improved ranging from LNavs in the Pegasus to audios in the K-13s. We have leased a Falke and are acquiring another two-seater. Also, the BGA fleet lives here and when it's not away is normally available.

We are very pleased to see Mike Williamson back so soon after his incident and wish him a speedy recovery.
R.N.

BORDERS (Galewood)
Mike Crews has his 5hrs , thanks to wave and good hill lift. The launch point caravan has been re-furbished and is bright yellow, thanks to the efforts of Andy Bardgett and Derek Robson.

We are looking for a good performance tug to back up our Super Cub 180.

We may face major probems in the near future with British Gas seeking planning permission to install a pumping station at the end of our main runway. Because of emergency venting creating an exclusion zone around the station of half a mile to a height of 3000ft, as well as radio masts, this would effectively close us down.Even although we have planning permission to fly from the site, we anticipate a major fight but expect to win the day.
R.C.

BURN (Burn Airfield)
We have recently had a welcome upturn in



Staffordshire GC's new site at Seighford Airfield.



Tim Milner and Roy Kirk flying the Wolds GC's K-21 on a glorious wave day on March 19.



Gavin Groudie of the Scottish Gliding Union who soloed on his 16th birthday.



Above: Ann Edwards (Midland GC) after a field landing during a competition. Below: Some of Stratford GC'S Thursday Group with CFI Dave Benton, far left, and the chief marshall, Fred Price, far right. ➡



young new members, possibly helped by our subscription remaining at £106 with lower rates for those under 25 and over 65 years. Aerotows are £8.40 to 2000ft.

March 20 was our best wave day this year with the K-13s going to 8000ft above the site.

The damage when our clubhouse was broken into exceeded the cost of the actual theft.

Michael Flannery has a Churchill award, Bill Jepson has become a tug pilot and we are running a number of summer task weeks.
P.N.

CAIRNGORM (Feshiebridge)
Alan Mossman has achieved a new UK motor glider height record of 26 281ft in his PIK 20. Andy Carter and Nick Norman have a Ventus B and Alistair Robertson a Bronze badge.

Our midsummer task weekend will include a barbecue.
T.C.

CAMBRIDGE UNIVERSITY (Gransden Lodge)
We now have 55 privately owned and ten club gliders. The blue K-13 is back and, thanks to Sandy, completes the major refurbishment of the entire club fleet.

Howard Franks has his full Cat and Duncan Bray, Chris Hawkins, Alastair Murray and Colin Smithers have AEI ratings. Geoffrey Sumpter and Jagdip Grewal have gone solo and Julie Ballock and Steven Whaley have resoloed.
J.L.B.

CLEVELANDS (RAF Dishforth)
Spring has brought wave and thermals and a welcome influx of members.

Mark Evans has his full Cat and Dick Cole has become an AEI examiner. Our first AEI course is planned for Easter.
J.P.

COTSWOLD (Aston Down)
We had good thermals in February and winter aerotows proved we can contact wave, with climbs to very respectable heights.

We have had major earthworks lengthening the landing area at the north end of the field. This entailed digging up a large portion of the disused cross runway and replacing the rubble with soil prior to seeding.

We are operating seven days a week for the summer, holiday courses are running and we welcome visitors.

Mike Levitt and Mike Oliver have AEI ratings.
M.S

COVENTRY (Husbands Bosworth)
The following were the first flights of the season – a 100km on March 6 by Tony Pozerskis (LAK 12) ,a 300km on March 25 by Steve Crabb (LS-7) and Silver distance by Tony Head (K-6CR) on April 4.

The club has a fourth Puchacz, we are replacing the SF-27 with a Discus and have sold another Bocian leaving us with one.

The open weekend was a great success with soarable weather on the Sunday resulting in many courses booked and a few new members.

The grading of the centre of the airfield has removed nearly all the ruts and mounds caused by recent winters The evening courses on Tuesday and Thursday are well subscribed and Harry is providing task setting and Met every day for cross-country pilots in addition to our satellite weather receiver.
T.W.

DARTMOOR (Brentor)
The AGM elected Phil Jarman as chairman and the trophy for the best flying performance went to Steve Bolt (John's son) who started with us as a schoolboy.

We have agreed to lease another adjoining field which will permit launches of 1500 to 2000ft.
F.G.M.

DEESIDE (Aboyne Airfield)
Peter Coward retired at our AGM after four years as chairman during which we have had many improvements. Bruce Wyer was elected to take over. The chairman's trophy was awarded to Joe Kovacs.

Angus McNicol has gone solo and Bill Neil has Diamond height. February saw us at 23000ft and March was better with 24000ft achieved in the westerly wave.

The CAA safety evening presented by David Hockings was well attended and gave us food for thought.
G.D.

DERBY & LANCS (Camphill)
Visitors are invited to fly our brand new glass-fibre fleet of three two-seater Puchacz and two single-seater Juniors. Our friends at Husbands Bosworth and Southampton University have had a successful flying week with us.

Tony Goldsmith, Marcus Hodkinson, Ann Williams and Richard Dance have gone solo; Martin Whalley and Mick Sheehan have resoloed and Miles Newman and Richard Clare have AEI ratings. We welcome Jack Steven, our new holiday course instructor.
J.B.

DORSET (Eyres Field)
With improved weather and more of the field coming into use, we are winching and aerotowing with a full fleet apart from the Grob which is on hire to another club. We are attracting the interest of passing motorists who have occasionally been persuaded to have a flight.

Ken Besent, Ted Andrews, Jack Priddle and Derek Cracknell are doing a great job preparing the airfield – approaching pilots beware of the tractor towing large rollers! And Gary Shaw has done excellent work painting the equipment container and control caravan.
G.G.

DUKERIES (Gamston Airport)
Graham Goucher and Mike de Torre have Bronze badges and Peter Uden is a BGA inspector. We are flying on Wednesday afternoons until October and had a second club expedition to Portmoak in April.

A large portakabin is in position for renovation as a clubhouse.
J.C.P.

Obituary – Eric Marshall
We are very sad to record the sudden death from a heart attack of Eric Marshall, one of our founder members.

Eric was a veritable tower of strength, tackling any task with great energy and with a wide range of skills. He served on the committee for years and his contribution to building the hangar was invaluable.

He flew an Oly 2B which he treated with loving care. He will be greatly missed by his many friends. We send our sympathy to his widow and family.
Tim Bowles

ESSEX & SUFFOLK (Wormingford)
We had four successful days aerotowing over Christmas with a Wilga supplied by Dave and flown by Richard Kimberley. We followed our first ever dual tow by several more.

We are considering buying another two-seater with the University GC. Martin Hall (University GC) and Mark Bainbridge have gone solo and Jerry Hain has an AEI rating. Our best wishes to Norreen and Jerry Hain who are settling in the USA.

As always visitors are welcome.
M.F

FOUR COUNTIES (Syerston)
We made good use of the tug and motor glider on the few flyable days early in the season with several wave climbs over the site to 10 000ft.

Steve Walker has a Bronze badge, Keith Cheshire is an assistant instructor and Mark Davies gained Gold height at Sisteron during a club expedition in March.

Our best wishes to Albert Johnson on his retirement after a long and distinguished time with the GSA and the BGA.
R.M.D.

GLYNDWR (Denbigh)
Our annual dinner was a great success. Geoff Glazebrook won the award for the most meritorious flight (300km) and Jessica Pennant the trophy for the younger members' contribution. "Porki" Conyers was thanked for his first successful year as CFI.

Chris Jackson and Ian Skinner have gone solo and Kenny Cleworth has his 5hrs.
G.P.

GRAMPIAN (By Laurencekirk)
Recent winch launches to 2000ft and height gains to around 6000ft have shown further site potential. We also have several members progressing to badge legs and others coming up to solo standard.

New members and visitors are welcome any weekend weather permits flying.
J.D.C.

HUMBER (RAF Scampton)
We are well up on last year's launches and hours, many have converted to the Acro and when the K-13 is fitted with another T&S full instrument training will start.

Contractors have dug up many parts of the airfield, limiting us to our main run, so everyone is getting plenty of practice in strong crosswind landings. John Goodwin has gone solo and

gained a Bronze leg and Trevor Marshall has resoloed.
D.M.R.

KENT (Challock)
At our AGM Tim Gardiner was again elected chairman. Nick Leaton is an assistant Cat.

On some outstanding spring days only the TMA restricted us going higher and further. One of the four PIKs has been replaced by a Discus.

The August task and fun week, to which neighbouring clubs are invited, is already well supported .
A.R.V.

LAKES (Walney Airfield)
The annual dinner was again a great success. Alan "Dave" Dennis, Dave Bull and Gordon Furness have gone solo and Rod Murfitt has part 1 of the cross-country diploma.

An LS-6 is joining the privately owned fleet. Our thanks to the members who helped with the club aircraft Cs of A.
P.G.

LASHAM (Lasham Airfield)
With over 100 cross-country flights by the end of March and one of the earliest Silver distances on record (February) we have had an inspiring start to the season.

At our AGM trophies went to Mark Thompson (most meritorious flight – 675km); Steve Jones (highest placing in the Standard or 15M Class Nationals); Clive Mansfield (earliest Silver distance) and Sarah Harland (outstanding progress).

We have aerobatic courses throughout the season run by the British Aerobatic team but Josef Solski is unable to be with us as previously stated.

Nan Worrell's Wooden Glider Club has generated a lot of interest. A "perpetual dispute" plate (in wood, of course) with Nympsfield will be up for grabs shortly.

Our best wishes to Jill Burry for the Women's European Championsips in Czechoslavakia in July.
G.N.G

LINCOLNSHIRE (Strubby Airfield)
We have imported a superb K-7 from Denmark to replace our T-21 which had one heavy landing too many. March produced some remarkable soaring conditions from very unpromising days. It was like this when Dave Armstrong and Eric Hughes both flew Bronze legs and Mick Fairburn claimed the "first hour" trophy.
R.G.

LONDON (Dunstable)
We are pleased to welcome University College GC who are operating a K-21.

The season was kicked off by our Easter competition and we have soaring weeks from June 21-25 and July 16-20 to which all are welcome with no extra fees beyond normal flying charges.

We have a Vintage Glider weekend on June 18-20 and are hosting a Regionals from August 21-29 when our updated Met equipment will be used. Our course bookings are up on last year.
S.B.M.

MENDIP (Halesland Airfield)
After a quiet start we seem to have taken off. We will soon be flying from our new field extension and Bill Scull, on a visit to present a safety lecture, was most enthusiastic about our developments.

George Lodge has a Bronze leg and CFI Peter Turner is a regional AEI coach and PPL motor glider examiner.
G.W-S.

MIDLAND (Long Mynd)
In February John Collins gained Silver height, Paul Stanley Gold height and George Owen completed his Bronze badge.

We had an excellent start to the course season with visitors gaining a duration and two Silver distances, and Roy Abigail soloed .The best day was March 25 with Chris Harris flying a 300km triangle for Gold distance and Diamond goal which was one of many cross-countries that day. George Owen gained his 5hrs the next day and 2400km were flown during those two days.

At our AGM Bob Neill stood down as chairman. We thank him for all his hard work and welcome our new chairman, Paul Garnham. David Ince was the guest speker at the annual dinner-dance and prizegiving.
A.R.E.

NENE VALLEY (RAF Upwood)
Recent local newspaper publicity brought us visitors and new members.

Roger Morrisroe is temporary CFI following the retirement of Horace Bryant. Our thanks to Horace for his dedication over many years.
G.P.

NORFOLK (Tibenham)
We started the season well with some good soaring flights and have a full social and flying calendar including the Eastern Regionals at the end of May and the Vintage Glider Club visit in August.

Our K-21 and Supacat were bought with the generous assistance of the Sports Council and the Norfolk County Council. One of our K-13s has an adaption for paraplegics and has been put to very good use.

We enjoyed flying the BGA Discus and sharing our dinner-dance with the national coach. Awards were presented by Doc Souper, a much loved member now in her 80s, and Pete Ryland collected a hat trick.
E.P.

NORTHUMBRIA (Currock Hill)
We had a promising start in March with good wave when Ben Moor gained Silver height. Dave Humphries and Ian Hunter have soloed. Ian the first in the Puchacz, and Wilf Turnbull flew 5hrs at Portmoak.

Thanks to Bill Jeffels we have a trailer for the Puchacz and have been experimenting with a retrieve winch system to speed up launches.

Ediinburgh University GC are visiting us after Easter and in May we have a joint task week with Borders GC, tasks being flown from both sites. Our now annual visit to the Metro Centre shopping complex with a club glider gave us some new members.
J.T.C.

NORTH WALES (Bryn Gwyn Bach)
We had superb wave on Saturday, March 20 with nearly everyone having a memorable flight. With six gliders and 25 launches, we had over 28hrs and a cumulative height gain of over 50 000ft.

The Super Blanik is proving to be excellent for our site and able to utilise to best advantage our strong ridge and wave. We don't find it a disadvantage not aerotowing as we are so close to the ridge lift it can be easily reached from the winch and once there the transition to wave is usually fairly easy.

We are selling the K-8, K-7 and Bocian to upgrade the fleet with a modern single-seater.

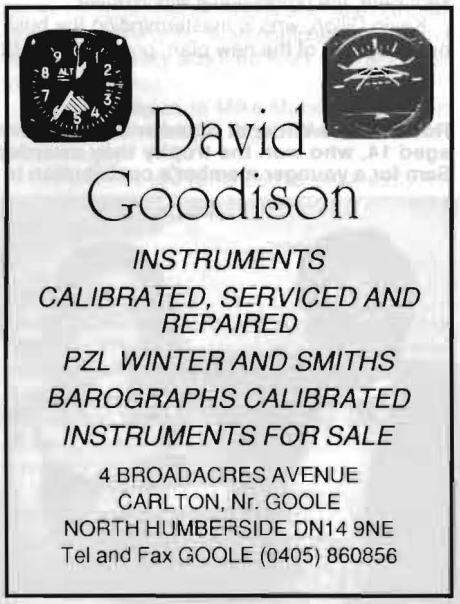
Ray Pittaway has gone solo.
D.J.

OXFORD (Weston on the Green)
We have bought a Grob Acro Twin 2 for advanced training.

A particularly good day in mid-March with a cloudbase above 5000ft allowed us to start the cross-country season and 16 year-old Mallory Woodcock to get his first Bronze leg and climb to 4200ft – considerably higher than his father who was flying at the time.
F.B.

PORTSMOUTH NAVAL (Lee on Solent)
Ben Bennett is now CFI with Martin Heneghan as DCFI – Martin and Derek Ballard have their full rating and Nigel Gilkes is an assistant instructor. Our thanks to Phil Moore, outgoing CFI, for services to the club.

We had some excellent soaring to above 5000ft in February and March. Glyn Jaques, Phil Taylor, George Bell and Tony Sowersby have resoloed; James Hasker has a Bronze badge and Richard Croker gained Gold height ➡





John Concannon, chairman of The Upward Bound Trust, presenting a brass clock to Vernon Jennings on his retirement.

at Aboyne. We also had an enjoyable expedition to the Long Mynd.

Martin Heneghan's lecture programme resulted in ten passing the Bronze paper. Our thanks to all the instructors and to Steve Wilkinson, Geoff Clark, Graham Tucker and Phil Taylor who have readied the fleet.
K.S.

RATTLESDEN (Rattlesden Airfield)
Our thanks to Mark Wright for organising a very successful dinner when cups were presented to Mark, Gordon Chalmers, Brian Griffiths, Roger Davis and Martin Raper with the best achiever cup going to Richard Page.

After years of devoted service DCFI Humfrey Chamberlain has handed over to Martin Raper, a newly qualified full Cat. We all wish Humfrey a happy retirement.

Martin Yates has gone solo and we have expeditions to North Hill in July and the Long Mynd in September.
M.E.

SCOTTISH GLIDING UNION (Portmoak)
Rumours that we are dead or dying are rife – but we are glad to say we are very much alive. However, heavy financial burdens have prevented further modernisation of the fleet and improvements to facilities.

Sadly it has meant full time staff have been made redundant including Roy Dalling, now CFI at Wolds, who did a great deal of good at SGU. We have closed our workshop with the loss of two staff, although there is a chance this will become a private venture, but have kept Pete, the professional winch driver.

Kevin Dillon, who is masterminding the business aspects of the new plan, predicts all debt cleared this year and a cash surplus for improvements in 1994.

We have a full programme of courses and plans to improve the launch rate.

On February 21 Trevor Murphy(ASW-20) climbed to 19 700ft, Al Greensmith (ASH-25) to 21 000ft during an O/R to Cairnwell and Kevin Dillon landed 88km short of a 500km.
G.McN.

SHALBOURNE (Rivar Hill)
We have finally had some serious ridge flying in strong northerlies for two weekends running in February with many hours flown and most of the privately owned gliders joining the club fleet.

Peter Mortimer and Alan Brind have passed the Bronze badge paper and Bronze legs have been flown by Eddie King, Elizabeth Warner and Rob Sharpe. Eddie King and Rob Jarvis have Bronze badges and David Owen flew Diamond height at Aboyne.Verity Murricane organised a successful skittles evening.
J.R.



Jack Stephen of Deeside GC photographed this formation of a DG-600, Vega and Kestrel in wave over Loch Muick – now on sale as a postcard.



From l to r, Phil Jarman, Norman Wood, Ray Boundy, aloft Dave Hooper the "foreman" and Alex Andrew at work on Dartmoor GC's building which they rescued from being scrapped.

SOUTHDOWN (Parham Airfield)
We have already had some fantastic ridge days and some wave. Bob Adam reached 7500ft; Rick Filipkiewicz has gone solo; Mike Hutchins, Neil Irving and Howard Aldridge have Bronze badges; Colin Robinson has an assistant instructor rating and Roger Coote is an AEI coach for the south-east.

At our AGM Nigel Hancock retired as treasurer to be replaced by Sue Hill.

We have new syndicates with a Discus, Cirrus and a Pegasus.

Our fees haven't increased and are the cheapest in the south – £12 fo r a 2000ft aerotow. Visitors are very welcome.
W.S.

STAFFORDSHIRE (Seighford)
The AGM on March 29 marked the end of the move and the beginning of our first full year at Seighford Airfield. Tony Boyce, who gained all three Diamonds last year, won the Ken Sheriff trophy.

We have cleared and levelled the ground to allow longer cable runs and smoother landings. The Tost winch has been upgraded for a two drum operation and the standby winch overhauled. Mains electricity will soon relegate the

Rod and Sue Witter at Glyndwr's annual dinner with Jessica Pennant, aged 14, who won the trophy they awarded in memory of their son Sam for a younger member's contribution to the club.



Flying for the disabled at the Norfolk GC. Stephanie Ash is in the glider with Evan Harris, instructor, while Ian Duncan in the wheelchair waits his turn.



generating set for emergency use. Both club K-13s and the K-18 have had tail wheel mods .

Peter Gill's safety presentation was well attended and we were joined by power pilots who fly from the farm strip at the other end of the airfield.

A big thank you to chairman Geoff Oultram and members who this winter gave up Thurday evenings for construction and maintenance work.

CFI Charles Wiggins again plans to increase the instructors and upgrade the ratings of the current assistant and AE instructors.

We welcome weekend visitors and have task weeks from June 14 and July 26.
I.G.P.M.

Obituary – Dennis Dalby

On March 31 Dennis Dalby died of cancer after a short illness at the age of 68.

Dennis was a faithful friend and self-reliant character. He was an RAF wireless operator during the war followed by five years in the Australian Army. He started civilian gliding with the Avro GC in the early 1980s and was a courteous pilot in wood and glass, but his favourite was the T-21.

He was social secretary and instrumental in moving the Avro fleet and equipment from its temporary home at Lleweni Parc to Seighford in 1992 . In the two years between the closure of Woodford and the move to Seighford, Dennis also flew with the Derby & Lancs GC.

His quiet good nature and patience made Dennis someone you could always talk to whether you were a pundit or *ab-initio*. He was responsible for the launching cables and equipment and with enthusiasm and competence helped us achieve a record number of launches in our first year at Seighford.

Dennis will be remembered for many things, not least his ability to see and do what needed. to be done without prompting, but most as a good husband, father and loyal friend. Our thoughts go out to his widow Jean and children David and Annie.

H."Will" Scarlett

STRATFORD ON AVON (Snitterfield Airfield)

Steve Hargreaves and Brian Tebbett have gone solo. The Bronze badge lectures were well supported with 14 passing the examinations. CFI Dave Benton 's plans for the season include running P1 and AEI rating courses and placing a greater emphasis on cross-country tasks.

The cross-country and Inter-Club League presentation by Martyn Davies, Diana King and Brian Marsh was well attended and showed the great enthusiasm within the club.

We now have a club Blanik; Roy and Sandra Wood have refurbished a K-6CR and Bob Russon an Oly 463. Fred Price is our new chief marshal. We are delighted Brian Marsh has been selected for the Junior European team.
G.J.B.

SURREY & HANTS (Lasham Airfield)

Having experienced depressing weather like everyone, our spirits were lifted with the first cross-country of the year when Sue Sagun flew a K-8 to Old Sarum for Silver distance on February 23.
J.S.

SURREY HI ILLS (Kenley Airfield)

The good weather produced a crop of Bronze legs with our CFI flying his first cross-country of the season in February (nearly 200km) and Alan Frost gaining his 5hrs in a club K-8 in wave.

We are now flying from Monday to Friday and welcome Chris Hancock as our full time professional. At our well supported AGM awards went to Mike Hughes, Alan Frost, Steve Dawes and Dave Williams.

We now have ten gliders on site and welcome visitors.
P.A.P.

TRENT VALLEY (Kirton in Lindsey)

Our annual dinner and prizegiving was a welcome respite from trailer manufacture. The tug has a new propeller and reconditioned engine and the SF-26 is flying again, under new ownership.

We are buying a second-hand Tost winch from Germany and new instruments for the Puchacz. We had a valuable BGA safety presentation.
M.P.G.

ULSTER (Bellarena)

After the usual nine-day Easter camp, being supported by the traditional heavy Dublin contingent, a contractor will be laying the foundations and a 150x100 concrete floor for the hangar on our new field.

The Easter camp was thus to be the last on the first Bellarena field; Bellarena Mk 2, half a mile to the north, should open later this year. There have already been occasional aircraft movements there.

Harry Boyle will continue as chairman for another year to pilot us on to the new site.
R.R.R.

UPWARD BOUND (Haddenham Airfield)

The Trust came to the end of an era when Vernon Jennings retired as CFI after 22 years (see the BGA News). To mark the occasion he was presented with a brass clock at our annual dinner (see photo).This is thought to be the longest term as CFI in British gliding.

Vernon, who started gliding with the Glider Pilot Regiment in 1945, will continue to instruct. His successor is Brian Bushell.
P.C.

VALE OF WHITE HORSE (Sandhill Farm)

Our annual dinner was most successful with a very humourous speech by Ralph Jones.

March was a fine start to the year with good local soaring. We are sad Lindy is retiring as secretary and thank her for her tremendous service – Pauline Leach is taking over. Also after many years as a key member, Eric Winning is giving up gliding.
S.M.F.

VECTIS (Isle of Wight Airport, Sandown)

Following one of the worst winters on record Mike Squibb went solo after a training interrupted by the weather and the Super Cub being re-engined.

The south-easterly breeze has allowed several impressive flights on the cliffs and hills behind Ventor with the longest by John Chape who gained his 5hrs for a Silver badge.

Jim Britton has become an assistant instructor to bring our team up to strength. Visitors are welcome to join our midsummer celebrations on June 19-20. The club expedition will be to Thouars, France in July.
J.C.B.

VINTAGE NEWS

Restoration has been rapid on Ted Hull's Scud at Dunstable and it is ready to fly. Mike Beach is doing well with his Scud 2 and will soon be restoring his Willow Wren, Britain's oldest (1931) original glider, which he acquired with the Falcon 1 replica from Mike Russell.

Mike Birch is working on his Krajanek with the aim of taking it to Czechoslovakia for our International Rally in August – it was a Czech intermediate sailplane designed in 1947 to replace the very many Grunau Babies.

There has been some spirited Tutor flying at Booker by Mike Beach and Graham Saw and the restoration at Lasham of Keith Green's Weihe is progressing well.
C.W.

WELLAND (Lyveden)

At our recent successful dinner awards were presented by our landlord, HRH the Duke of Gloucester, to Sue Harris, Nigel Betteridge, Keith Scott, Ken Payne and Andy Parrish.

At our AGM Barry Chadwick was thanked for his services as secretary – Andy Parrish has taken over. We are running several one week courses.

We were sad to hear of the death of Doug Pythian, a long time honorary member, and send our condolences to his wife and family.
R.H.S.

WOLDS (Pocklington)

Many pilots enjoyed glorious wave on March 19 with the best climb by Alan Hunter (ASW-20) to 18 300ft. Derek Roddy and Alan Grinter gained Gold heights, Alan completing his Gold badge. Our newly acquired K-21 was also well used (see photo).

Many apologies to Mike Munday – he won our most meritorious flight award and not Derek Roddy.

Competitors are reminded to book early for our now famous Two-seater Comp which is from August 22 to 28.
N.R.A.

YORK (Rufforth)

John Learoyd, Ian Johnson and John Dee have gone solo. A team headed by Kevin Williams and Brian Mennell have extended the clubhouse with a new office and briefing room. We are now fitting the winches with more powerful engines.
H.McD-R

YORKSHIRE (Sutton Bank)

The season started well with good wave in March giving Adrian Hatton a 500km, Mike Brook 450km and Gold heights for John ➡

Goodall and Tony Mason.

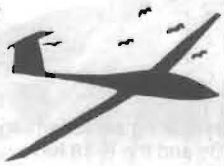
Karl Perkins, Steve Kerslake and John Carter have gone solo and Caroline Roberts has a Silver badge.

We have already welcome clubs who have come to sample the goods advertised on the inside front cover of *S&G*.

At the annual dinner-dance in April Mike Carter was among the trophy winners for his 336km O/R in a club two-seater to the Scottish border.

C.L.

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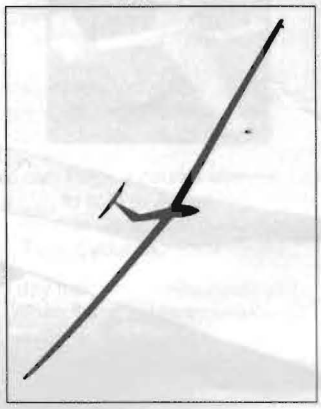
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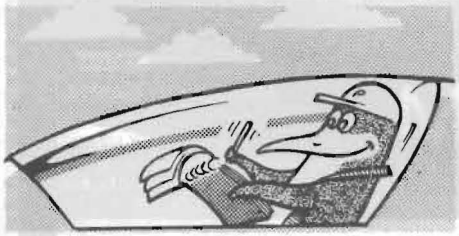
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Rats in savage grandeur

Race, if you must, round closed circuits in soft and undemanding summer-time southern England but *real* soaring, as God intended for the eagles, is best experienced on what political and media loud mouths scathingly dismiss as Britain's Celtic fringe.

Members of one of the BGA's two remote north-western outposts made it to the other for the first time one weekend in early April, visiting the little publicised Connel GC. It ought to be a great deal better known and patronised, given its magnificent location on the coast of Argyll.

I had just described to a local member the setting and the terrain en route as "stunning" when the heavy tailgate of a Rover 3500 towcar crashed down on the unprotected and unsuspecting Penguin pate. So "superb" will do instead.

Given good visibility and a few hundred feet below the bum, you can see the Paps of Jura from both Bellarena and Connel. So we'd always felt like neighbours, even if a slab of the North Atlantic intervenes.

We both operate on the seashore, Connel from long, wide and perfectly flat tarmac runways beside the Firth of Lorn and the narrow mouth of Loch Etive. It would be silky smooth, but thousands of shattered seashells crunch underfoot as smart arse gulls and copycat hooded crows carpet bomb the tarmac with mussels and other molluscs to break their shells.

From an asset like this, Connel makes good use of Ireland's gift to the gliding world, reverse autotow launching, developed through the 1950s and 1960s with literally thousands of launches at both the Ulster and Dublin clubs but now abandoned on the island of its birth by the move of both clubs to grass fields.

So it was good to enter "RAT" again in the "type of launch" column in my logbook after a lapse of umpteen years. Even my second Puchacz launch to a height of scarcely 800ft after the towcar hiccupped was sufficient to place it for some interesting and very intimate rock polishing on the lower slopes of Beinn Lora, the 1010ft local ridge. This is the first stepping stone towards majestic mountains, including many Munroes, which on our visit glinted under a light dusting of overnight snow to the north and east.

Club mate Jim Lamb did even better with DCFI Alex Fleming, scratching away from a cable break at only 700ft for a 55min sortie along Loch Etive and back to soar over the snow covered Ben Cruachan, and its hidden dam.

Beyond Ben Cruachan the higher Ben More jutted skywards like an icing sugar fang.

Sudden twangs

Sudden twang cable breaks are, of course, the downside of the highly economic and effective piano wire RATs, which give £2.50 launches at Connel.

But at Connel they handle them with more learned grace than I remember us ever displaying at Long Kesh.

As he rigged a new drogue 'chute to the header rope and got both his knickers and its risers in a twist, Libelle owner and microlighter Billy MacLean declaimed a phrase from Robert Burns: "From scenes like these old Scotia's savage grandeur sprang."

Connel GC cohabits in apparent harmony with a very active microlighting group on the same field. Some of its prominent members are masters of both modes. Thus it was that while Jim and Alex were driving into the mountains and back in the Puchacz, I was touring the lovely neighbourhood in the front seat of Billy's CFM Shadow.

In April Connel's members were putting the finishing touches to a comfortably furnished clubhouse, which they had made from a redundant and resited pre-fab school. It backs on to the hangar, with windows on three sides giving a panoramic view over the airfield and the Firth of Lorn to Mull.

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Small and hospitable, just like us, and similarly a weekends and public holiday operation run wholly by its members without paid staff, Connel gets large numbers of air experience customers coming in, literally, off the street. But since they are invariably tourists from places far to the south and east, hardly one is ever seen again.

Of committed and experienced soaring people it sees relatively few. And like Bellarena, it is not only Connel's distance that lends enchantment.

It is the North Atlantic, in all its whimsical power; the wide sea-scapes and skyscapes; the juxtaposition of mountains and sea loughs (or lochs, we're not fussy) and the presence of good ridges at circuit height that lead on to higher things which give them both such tremendous appeal.

So next time you're planning a long range safari forget the blasted *autoroutes* and their extortionate *péages*.

Think NW, not SE.

Soar Celtic. Fly the Fringe.

In the swim?

À propos the above, those who do come over will be reassured to know that Benone Strand retains its EC Blue Flag status and place in the *Heinz Good Beach Guide*.

It is Ireland's longest beach, where visiting pilots almost always choose to make a landing and take-off or two, and where they like to park their families. So it's good to know that it is also one of the few beaches in the UK certified to be really free of sewage pollution.

Sometimes when you're beach bathing elsewhere, the suspicion arises that you're not really swimming in sea water at all but merely going through the motions.

Sir Humphrey calls

We had an intriguingly absurd visitor to the site a few weeks ago, who might drop in on you. He arrived at 11am on Saturday, when no flying was taking place but four or five members were doing maintenance odd jobs in the hangar.

He was vaguely Sir Humphreyish and reeked of Whitehall. Carrying a clipboard, he announced he was from the Home Office. Bespectacled and wearing a brown suit (a brown suit? – doesn't sound like he's destined for a knighthood), he then started questioning the brightest looking member of our working party – the one with the cleanest hands – about the possibilities of our site being the focus of illegal immigration.

"Could that aircraft there," he asked, gesturing towards the Super Cub, "fly to the continent without having to refuel?"

This begs the question whether illegal immigration is about inward movement at all. Maybe the Home Office wants to stop some of us getting out.

Did we know of other fields in the area where aircraft could land?

You bet! I've been caught out so often I've ➡

landed in half of 'em myself.

His line of daft questioning and fevered scribbling continued for several minutes before – whether satisfied or not he didn't say – he drove away.

It is likely other sites may be similarly visited if, as we were led to believe, this was part of a countrywide Home Office exercise.

If the Home Office suspects that a small field which is just about as far from continental Europe as it is possible to get in the UK – and that a Super Cub is a likely choice for a go-and-get-'em operation – it merely shows that the aeronautical incomprehension which for decades has been an occupational qualification in Whitehall is as alive and well as ever. Not to mention paranoia.

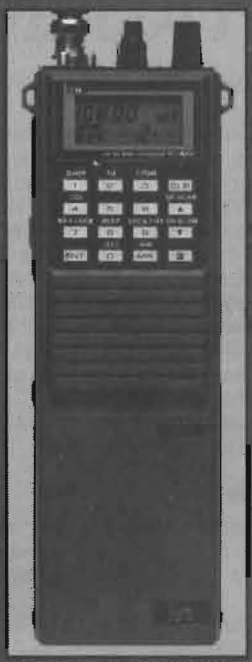
But if any illegal aliens should make the trip, they'll face two immediate obstacles on landing. If they can understand the accent spoken locally, then good luck to them. And whether Asians, Somalis, Kurds or distressed Bosnians, they'll stick out just about as prominently as Binevenagh itself.

SEPTEMBER ICARUS

This was written by Michael Erdman, a Southdown GC member, and dedicated to the RAF in celebration of their 75th anniversary

For Britain, they were not surprised to see
Their sky so dirty with the sullen fire
Of anti-aircraft guns; they did not flee,
But flew, these mighty Few, towards this mire
In which the many foes concealed a byre
Of flames. Then, they are not surprised as we
Should be, to see their land revolve as free
As did their Merlin engines roaring ire.

From clouds below and ground aslant above
The Enemy appeared and dealt them age;
With lines of tracer marked my son, your love
And sent them to the wings of their last stage.
Burnt planes and harness all have had their way,
The Peace holds England, won by men now clay.



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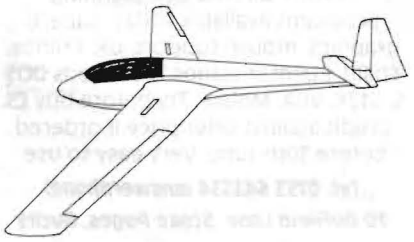
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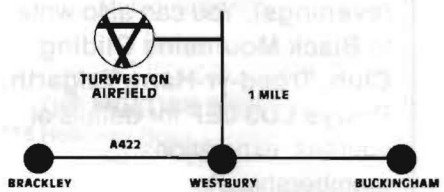
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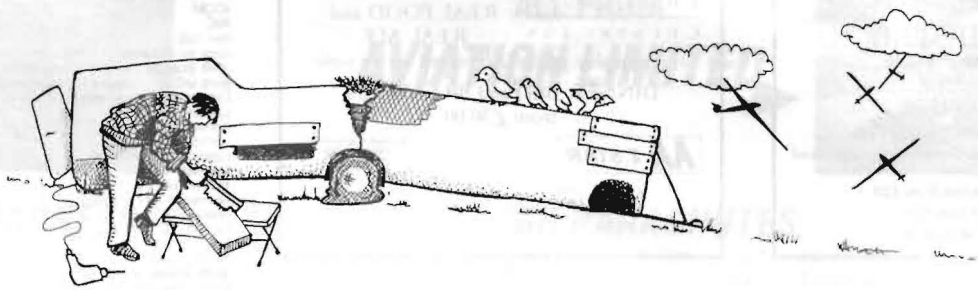
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