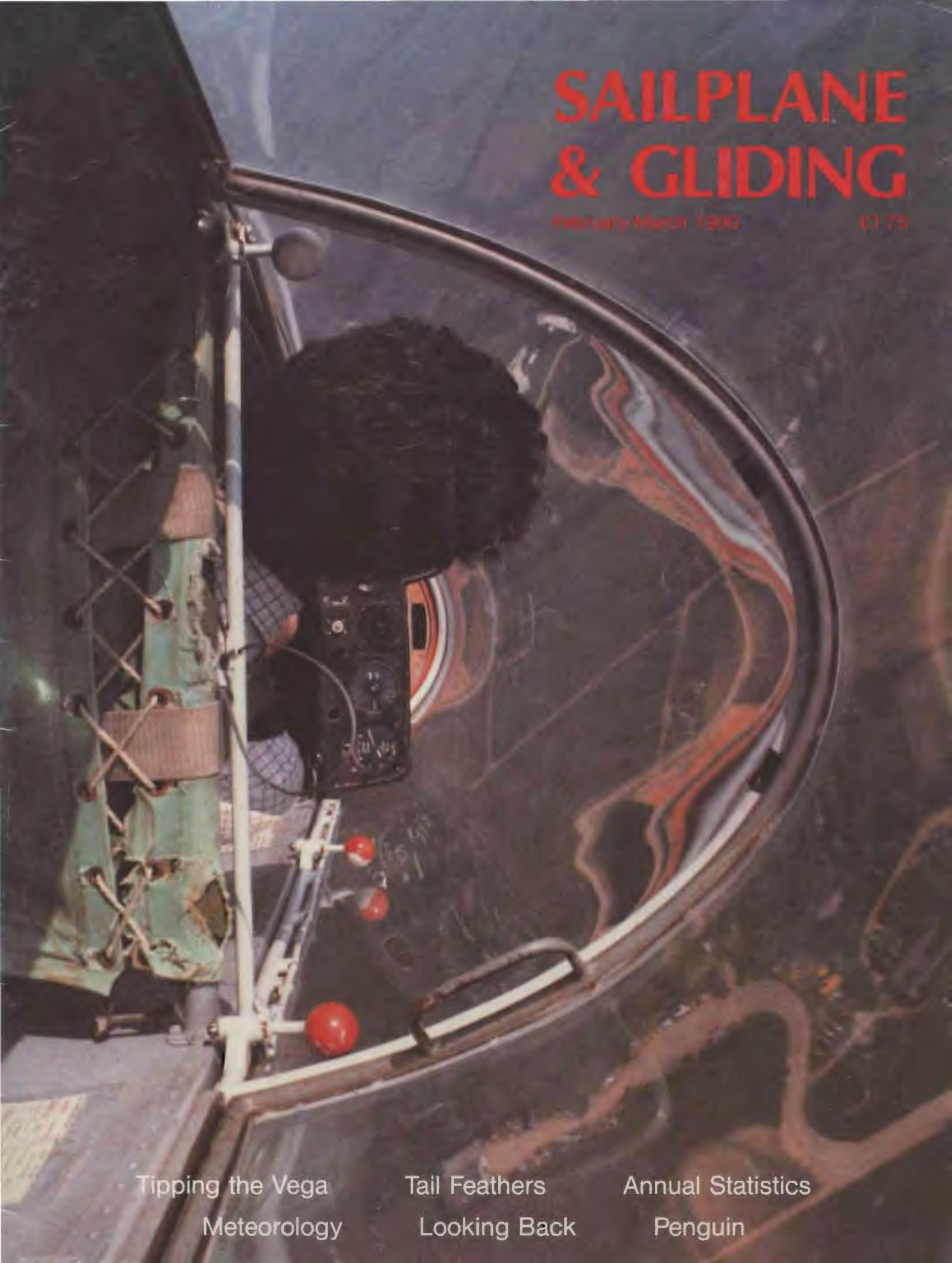


SAILPLANE & GLIDING

February-March 1990 £1.75

Tipping the Vega
Tail Feathers
Annual Statistics
Meteorology
Looking Back
Penguin

THE RIGHT APPROACH

..... to making a perfect landing is having the right insurance for when you don't.

At **CENTRE LINE** *we're here to give you the best insurance deals on the market . . .*

- **IMMEDIATE COVER**
- **PROGRESSIVE NO-CLAIMS BONUS**
- **GENEROUS INTRODUCTORY BONUS**
- **NO PREMIUM LOADING FOR COMPETITION PILOTS**
- **AGREED VALUES**

CENTRE LINE SERVICES

20, Middle Road, Park Gate, Southampton, Hants SO3 7AL

Tel: 0489 885998
Fax: 0489 885889

Magazine of the
British Gliding Association

Kimberley House, Vaughan Way
Leicester, LE1 4SG
Tel Leicester 0533 531051

February-March 1990
Volume XLI No. 1

Cover: The photograph comes from a sequence taken by Gordon Murray during a chandelle in a Bocian over Husbands Bosworth. The camera was mounted in the rear and operated by a button taped on the airbrake lever. The odd sitting position is due to his arm being slightly too short to reach!

SAILPLANE & GLIDING

Member of the
Royal Aero Club and the
Fédération Aéronautique
Internationale

Leicester Printers Ltd., Leicester.

YOUR LETTERS

IS THE FUTURE BLEAK?

Dear Editor,

As a long serving member of the Dorset GC I am frequently asked "Why do we have to suffer the sins of others and have the vagaries of the BGA and Instructors' Committee etc inflicted upon us?"

A question I cannot answer but may have been in a better position to do so a few years ago when we had regular visits from regional examiners etc and as a direct result had a much closer contact with the invisible ones through them.

Gliding has seen many changes over the past 25 years in gliders, club operations and training methods and sadly I feel that clubs like my own, purely amateur with a weekend only operation and no site security, have been unable to maintain the same rate of progress as larger organisations.

So saying the Dorset GC has a strong numerical membership, a good balanced fleet in excellent condition, winch and aerotow facilities and money in the bank. A rosy picture indeed, or is it?

The club has always had a strong training facility and plenty of instructors willing to give their time and dedicated to turning out good safe pilots, but the situation is changing rapidly and the future looks bleak. Nature takes its toll, people grow older and cease instructing. Others in a different age group move away to new jobs and transfer their skills to other clubs, whilst the reverse of that situation does not appear to happen to us. Younger pilots with the ability and necessary hours discover the pleasures of cross-country and competition flying and are unwilling to give the time, or are unable to find the fees to take an instructor course. Others with great potential but too few hours may struggle on for two or three years to achieve that end or become disillusioned along the way.

Our present instructors with a couple of exceptions may be called middle-aged, even elderly, and may not be able or willing to carry on for much longer in such a demanding role. With no one able to come forward and gain sufficient experience in the intervening period, the club could grind to a halt. It all sounds very dramatic and unlikely but has to be faced as being a possibility.

I do not know the answers and can only offer the following as a first step; put instruction and safety firmly on a regional basis with experienced instructors supervising a small group of say three clubs and visit on a reasonably regular basis, say four times a year, and fly with instructors and those about to take courses, generally acting as a buffer between the club and anonymous names on committees. A similar situation to that of 25 years ago but on a closer and more personal basis.

I believe the time is right to rethink along these lines so that clubs can work together to a common goal and indeed in the instructor situation may be able to pool resources, helping each other out with both instructors and clubs gaining benefits as a direct result.

DENNIS NEAL, *Wimborne, Dorset*

PROFESSIONALS VERSUS AMATEURS

Dear Editor,

Reading the line up for the last World Championships one is struck by the preponderance (about 30%) of professional pilots – commercial pilots, military pilots or gliding instructors.

I think it would be a good idea to introduce a new Class to give us amateurs a fair chance. This factor makes Justin Wills' achievement all the more notable, although we must of course disqualify him on grounds of heredity.

BRENNIG JAMES, *Marlow Common, Bucks*

DESIGN STANDARDS FOR NEW GLIDERS

Dear Editor,

A recently imported AS-20CL was involved in an accident as a consequence of a ball connection to a flap becoming disconnected as the flaps were lowered while turning finals. The accident could have resulted in a low spin with serious consequences. Luckily only relatively minor damage was incurrred.

This represents one of many reported accidents caused by careless rigging. A decade ago, gliders such as the Mini Nimbus were designed with automatic connection of the major controls. Rigging accidents could be abolished if all new gliders were required to have automatic connection of the controls. Is it not time that all new gliders were required to have automatic rigging before being granted a C of A?

On a similar note, can an undercarriage warning system be a mandatory fitting on all gliders with a retractable undercarriage?

JON WAND, *London*

Dick Stratton, BGA chief technical officer, replies: Only the pitch control is specifically recommended for an automatic connection system (JAR 22.685). Market pressure by the gliding fraternity upon the manufacturers might influence the design of a more costly means of automatically connecting everything. However, pilots must take all reasonable care to prepare themselves for flight. We have on record a Kestrel which was flown with the main wing rigging pin omitted and severe spinal injuries to an Astir pilot due to the malfunction of the undercarriage warning device. This resulted in the controls being mismanaged on contact with the ground! A wheels up landing would have been preferable in all respects. Once again, if you want gear warning systems, fit a reliable one.

DIY TASK SETTING

Dear Editor,

How unkind of your printer to transpose a couple of vowels in the fourth line of the third paragraph of my letter in the last issue, p279. In support of Tony Watson I had written *compliant as my view of the BGA attitude on airspace. Complaint* is more appropriate to the Competitions Committee and their rules *vide* Derek Copeland. If Derek is seriously in favour of developing the use of photographic evidence to reduce outlandings he should add his support to my proposals for DIY task setting as explained in the April 1985 issue, p79.

A more serious risk is, of course, collision, and gaggling resulting from the FAI rules is a major contributor to this and a self-evident risk. For the most part collisions have been at survivable altitudes but the possibility of collision at a non-survivable altitude is very real and is most probable near finish lines.

My analysis of finishers on June 9 at the 15 Metre Nationals at Dunstable shows that 40 competitors finished within 30min and 19 of these finished within 5min. Within this 5min, 12 arrived within 1min 57sec of which six finished within 48sec and three of these were within 5sec. Shadowing a rival must inevitably increase gaggling and although understandable is a debatable attribute in Champions. Thus the mandatory rule requiring all starters to radio their start within 30min should in my view be abolished.

It resulted in the only protest to require a stewards' meeting in the above Championships. That event also saw the usual *ad hoc* forum for competitors to express their views and a show of hands gave a clear indication that the majority was in favour of fundamental change in the rules. In the absence of any defined starting line little progress was made upon this topic. May I suggest that my *S&G* article I mentioned might serve as a useful and more fruitful basis for any future discussion.

CHARLES ELLIS, *Ilford, Essex*

MORE ON PHOENIX, THE SKYLARK 2

Dear Editor,

I was delighted to see in the June issue, p113, the modified Skylark 2 No. 391, which, as John Richardson explained in his letter, I rebuilt at Dunstable over a two year period 1965-7. It is good to know that 391 is still in regular use and it has been kept in perfect condition for the last 22 years.

I can add a few small details to John's account. When I bought the wreckage (for £50, I think) the fuselage from the trailing edge of the wing forward was contained in tea chests. Those bits are deeply buried now where the gulley at Dunstable was filed in. Most of one wingtip went the same way except for the aileron. The centre section was broken into two pieces. Vic Ginn spliced the main spar for me, since I did not feel I could tackle this difficult and vital part of the work. A new tip spar and some ribs came from Slingsby.

On stripping the covering and paintwork from the remnants I found many traces of Derek Piggott's adventure in the storm cloud. There were dents filled in along the leading edges of the wings and tail, and in a couple of places on the fin there were small holes which had never been discovered or repaired.

As well as the changes mentioned by John, reduced fuselage height and "Hörner" wingtips, I modified the aerofoil section at the leading edge, using microballoons and resin,

The unkindest cut. . .

Is not always the obvious one! It can happen some time after the event; perhaps when your attention is drawn to that crucial line in the small print!

At Mowbray Vale we try to make sure our customers know where they stand *before* they sign anything. We still believe in a friendly approach and the somewhat outdated notion that the customer matters!

Which may have something to do with the fact that we insure more UK registered gliders than the rest put together!

Contact Carol Taylor or Stephen Hill on
Thirsk (0845) 23018 – 24 hr. Ansaphone Service.

Or write to:

MOWBRAY VALE INSURANCE

8 Castlegate, Thirsk, North Yorkshire YO7 1HL.
Telex: 587470 *Represented at Lloyds* Fax: 0845 25483

to the improved shape suggested by Professor Wortmann. The large skid, heavily shod with thick steel for the runways at Lasham, was replaced by a small nose rubbing block, which saved a good deal of weight. The position of the Ottfur release relative to the wing and tailplane had to be preserved, so a new mounting under the seat had to be designed for this.

The angle of incidence of the wing was also slightly reduced to cut parasitic drag at high flight speeds by aligning the fuselage a little more with the airflow at low angles of attack. I did not expect this, or the other alterations, to make any detectable difference in performance at low speeds but I thought there might be a tiny improvement when dashing to the next thermal. Some of these changes were inspired by another modified Skylark 2 which was (and perhaps still is) flying from Nympsfield at the time.

When the rebuilding was finished I thought it very appropriate to resurrect the name **Phoenix,** which had been applied in the aircraft's time at Lasham. The emblem of the Phoenix rising from flames on the nose was designed for me by Elizabeth Hargreaves. Some unkind LGC members promptly referred to my aircraft as the exploding chicken, so I emigrated to Australia and Elizabeth went off to the Hebrides.
MARTIN SIMONS, *Stepney, South Australia*

STUDENT GLIDING

Dear Editor,

Commenting on Steve Brown's article in the August issue, p181, it identified some problems common to all college gliding clubs, namely apathy and lack of active members. Maybe increased advertising and publicity and more social activities could be some ways of alleviating the problem of insufficient members.

One other major problem we as a college club experience is convincing Jo Student that gliding is not a sport reserved for the rich.
MIKE ENTWISLE, *Trent Polytechnic GC, Nottingham*

STALL RECOVERY

Dear Editor,

May I comment on John Pressland's extract from the **RAF Instructors' Handbook** which – as one would expect – sums up concisely the correct movements of the controls in this situation. (See the last issue, p279.)

Where the benefit of a propeller slipstream on the rudder and elevator is absent, as in a glider, more pronounced control movements are required. In practice one finds that full stick forward and full opposite rudder – both of these only momentarily of course – are required for minimum loss of height.

When teaching this recovery from what must be about the most dangerous situation an aircraft can get into, I can see nothing against stressing the vital necessity of unstalling by training our pupils to move the stick forward **first** with opposite rudder following **within half-a-second.** They will lose an extra few feet in the process against the simultaneous movement of the two controls, but this is unlikely to be a serious matter. In any case they will soon omit the slight pause, instinctively, when practising this exercise – especially if they happen to be anywhere near the ground!
DUDLEY STEYNOR, *High Wycombe, Bucks*

WHY NOT A CLUB CLASS NATIONALS?

Dear Editor,

Several other European countries run handicapped Club Class National Gliding Championships. Since even a competitive Standard Class glider now costs close to £30 000 as a complete outfit, can I ask the BGA Competitions Committee through this letter why Britain cannot follow suit?
DEREK COPELAND, *Rickmansworth, Herts*

John Taylor, BGA Competitions and Awards Committee chairman, replies: The Competitions Committee's policy is to run UK Nationals in the same Classes as the World Championships. There is a European Club Class Championships, but we do not believe there is enough UK interest to justify entering an official British team or to justify running a UK Club Class Nationals. If enough competition pilots show an interest in the Club Class we would be happy to reconsider this position.

DON'T FORGET THE WRINKLIES

Dear Editor,

We are always agonising how we can get more young people into gliding but there is a growing mass of the population perfect for our sport – the retired. They have time to wait around for launches, fewer financial commitments in life and would no doubt welcome a new challenge.
ONE OF THE EVERGREENS

BOOK REVIEW

UK Airspace – Is It Safe? by David Ogilvy, published by Haynes Publishing Group and available from the BGA shop at £5.95 or £6.50 including p&p.

David Ogilvy's latest book is a compulsive read. It poses a lot of questions in some of the chapter titles, notably "What is Safety?, And Who Cares?, The Villain of the Piece?, Airmisses – Why the Drama?, Who Creates the Myths?, Who are these Fun Fliers? Where is all this Air Traffic? and Whose is the Problem?". In the introduction the author states the aim of placing airspace and safety in a balanced perspective.

With a subject as potentially contentious as this the author must take a balanced view and this he has achieved. Any pilot who has a grouse about the inexorable increase in regulated airspace should read this book; it explains the problems in detail with sufficient basic information for a passenger rather than a pilot to understand the issues.

A recurring point throughout the book is the right to protection at any price. A fun-in-the-sun passenger on a holiday flight should not, he argues, be given total protection at the expense of others, particularly sporting aviation. Sporting and general aviation is, to a great extent, the source of airline pilots.

The term "airmiss" generates a lot of drama. The inclusion of a paper by the chairman of the Joint Airmiss Working Group to the Royal Aeronautical Society puts the issue in proper perspective.

The longest chapter is on "Avoidable Problems". Although air traffic control exists with a statutory duty . . . to expedite the flow of all traffic (*"all" not "selected"*), increasing traffic has created an attitude where control seems almost an end in itself. A number of specific and recent examples are considered, the Cross-Channel Special Rules Area, London City Airport and the increasing problem of flying under controlled airspace which causes contravention of the low-flying rules.

In looking to the future and trying to answer the question in the title the final chapter is "Outlook Unsettled". The problems of fun-in-the-sun demand, now on a downward trend, the failure of the authorities to provide solutions, the press and political pressures are all factors influencing developments. He has a kind word for the CAA since most of the problems concern national air traffic services. His final words put the whole scene into a true perspective – "To be completely safe you must sit on the fence and watch the birds . . .", but you can be very nearly as safe in the air. I take much comfort from that.

A book for every aviator's bookshelf.
BILL SCULL

ENCOUNTERS WITH THERMALS

Part 1

Tom Bradbury prepares you for the coming season with this two part article

Thermals are probably as individual as fingerprints, many share common features but no two are identical. Their scale ranges from 50ft diameter columns, usable only by seagulls and buzzards, to mile wide monsters sucking thousands of tons of air a second into giant cu-nim clouds. This describes a few of the medium to small sized variations one may encounter.

Laboratory studies of thermals

Until a cloud forms there is almost nothing to show the shape or size of a thermal. Atmospheric thermals are too big to be studied in a laboratory but one can produce similar motions in a water tank using fluids of different density. Many experiments were done by releasing salt water (made visible by a white precipitate) into a tank of clear water. A series of photographs was taken as the denser saline cloud sank through the clear water. These pictures, when inverted, looked remarkably similar to a real cumulus cloud. The experiments led to the now familiar picture of a thermal bubble rather like a vortex ring but not exactly similar.

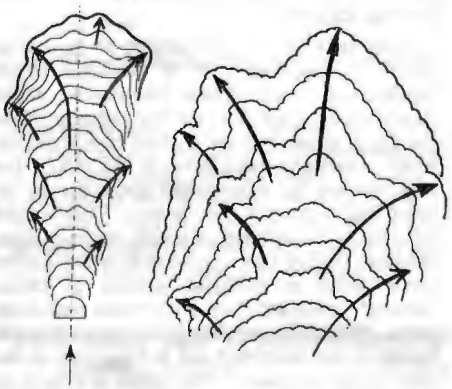


Fig 1(a) Fig 1(b)

Fig 1(A) shows successive two-dimensional outlines of a water tank "thermal". The arrows show how protuberances which started near the centre line fanned out sideways. In three dimensions this showed that the circulation was formed by fluid rising up the middle of the thermal, spreading out in all directions at the top, and then sinking down the outside. The vertical motion in the core of the bubble was about twice that of the cap.

Fig 1(B) shows outlines of a developing cumulus with individual turrets being displaced sideways as new turrets rise up from within the body of the cloud to take over. Real clouds have also been found to have their strongest upcurrents rising about twice the speed of the cloud top.

The vortex ring

Some laboratory models show that the artificial "thermal" forms a vortex ring circulation before it dies out. Part of the surrounding air is pulled into the circulation of this expanding ring diluting the thermal. Eventually the weakening thermal loses the rest of its energy trying to accelerate this additional air. The ring ceases to rise and presently decays.

Flow into a thermal bubble

Fig 2 shows a highly simplified diagram of how a rising thermal bubble can incorporate outside air into its circulation. The circle in the centre represents the bubble. Pecked lines show how air from above flows round the thermal. The numbered black lines above and round the side show how an originally flat layer of air is distorted as the bubble comes up through it. (1) shows the undisturbed line, (2) and (3) shows the upward push developing as the bubble approaches. Notice that a small upward push occurs before the bubble actually arrives. If the air is already very moist this may be enough to form a thin lenticular cap called "Pileus". At (4) the line is broken by the bubble. Some of the air is mixed into the rising cap while the rest slides round the edge. As it nears the bottom of the thermal bubble (5) the line is distorted by the curving inflow. This inflow takes drier air back up into the bubble. In some cases the arrival of drier air turns the bubble into a sort of doughnut ring with a clear hole in the centre (when viewed from above). The flow in and around a real cloud is not as simple as this. The complete vortex ring pattern seldom appears

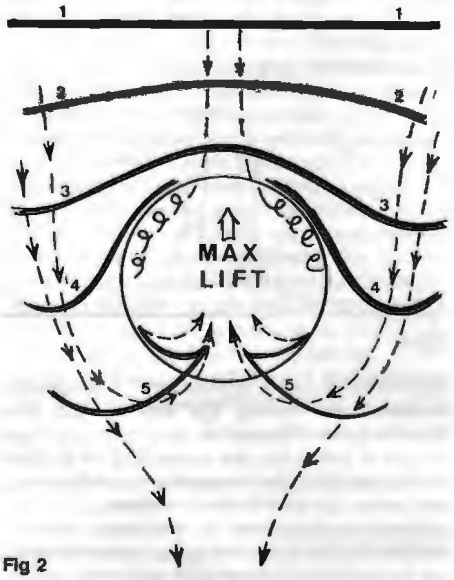


Fig 2

unless the thermal is forced to rise fast; for example due to some massive burst of heat such as an atomic bomb.

Nuclear explosions and thermals

The most dramatic example of a thermal bubble is given by a nuclear explosion. Photographs taken after the initial fireball has cooled show a long column extending up from the ground capped by the well-known mushroom cloud surging upwards. Fig 3 is a sketch of two stages in the life of an atomic cloud. On the left the original fireball is still too hot for any moisture to form a cloud. The bubble has a tail of debris swept up from the ground. On the right hand sketch the expanding mushroom has expanded and cooled enough for moisture to condense forming a white cloud. The underside of the mushroom shows how the outside air is being drawn up into the core from below, just like the model thermal. The column below consists of extra moisture sucked up from lower levels and condensed into cloud as it cooled.

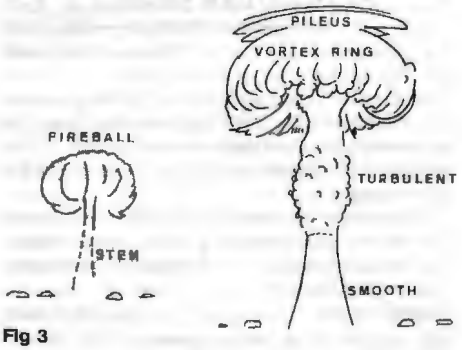


Fig 3

Pileus

The speed of ascent has also produced a smooth lenticular cap (called Pileus) formed from outside air pushed up ahead of the mushroom cloud. Pileus sometimes appears above ordinary cumulus if the air aloft is very moist. The prethermal lift which causes it appears in Fig 2 as a bend in lines 2 and 3.

Double bubbles

In another water tank experiment a second "thermal" bubble was released after the first had risen some distance. This is illustrated in Fig 4. A-A is the first thermal. B-B is the follower. Timing of BB could be critical. If released at the right time BB would rise through the centre of the expanding vortex ring formed by AA and accelerate upwards. However, if the delay was too long BB tended to break up in the turbulent wake of AA and never got through the sink. ➡

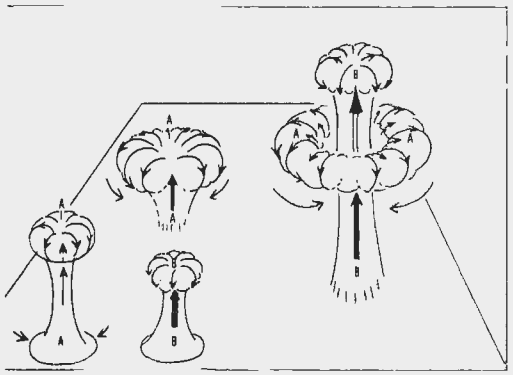


Fig 4

The theory of a thermal bubble seems to be supported by the experience of pilots circling in the central core of a thermal who find it possible to close the gap between them and gliders higher up. Those at the upper level only go up at the speed of the bubble but in the core lower down the air rises twice as fast. Eventually everyone is left circling round at the top of the bubble in weak lift. Occasionally a newcomer picks up a fresh bubble lower down and catches up the gaggle. If this sailplane is in a BB type thermal everyone else will start to climb faster when the new bubble arrives; if not all will stop climbing at about the same height.

The idea of consecutive bubbles can be comforting to a pilot searching round at low level in the decaying dregs of an old thermal. Quite often patience is rewarded and a new and vigorous bubble comes pushing up. However the following bubble does not necessarily rise directly beneath the original one. One may have to shift the search upwind.

Thermals and cloud forms

Once cloud has formed the latent heat of condensation releases an extra supply of heat which invigorates the thermal. The shape of a cloud provides an excellent marker showing how much air has been affected by the thermal. The rising cloud dome is covered with lots of smaller protuberances like tiny thermals. These mark the region where drier outside air is being mixed into the thermal and diluting it.

Time lapse films suggest that although most clouds show similarities to the laboratory models the larger clouds are usually complicated by the existence of several originally separate thermals. The cloud shape is distorted by collisions with inversions and twisted by the effect of vertical wind shear. Since most clouds persist longer than thermals their shape reveals more about the past history of the thermal than its present condition. Lift under a cumulus is usually confined to a relatively small area where an active plume enters. The rest of the cloud just marks where ascent took place some time ago.

Plumes and bubbles

Fig 5 shows what probably occurs in the atmosphere starting with a large but relatively shallow reservoir of warm air. Level 1 is the initial state; levels 2, 3, 4 and 5 are stages in the ascent of a column of warm air. Such a rising column has been termed a "plume". It represents the stage before the circulation at the top develops into a detached thermal bubble. Notice that as the plume accelerates upward (levels 3 and 4) the diameter of the column narrows for a time before widening out and then developing a mushroom like shape at the top. This narrowing is why one often has to turn much tighter to climb away in thermals low down. Higher up the mass of air comprising the thermal grows wider but the lift is confined to the central core. The airflow at the top of the thermal is continually spreading outward but any vortex ring pattern is only partially developed in the early stages.

By the time the supply of warm air is exhausted, (level 6) the full circulation of the thermal bubble has developed. This is shown in more detail at the top. The shaded area is where most of the mixing takes place. The circulation carries the diluted mixture down the sides of the bubble and eventually some is drawn into the base. The mixing process is called "entrainment". This reduces buoyancy by diluting the thermal and also absorbs some of the spin as slow moving air from outside is pulled into the vortex ring. As a result the initial bubble often slows down and disperses well below the level it could reach if undiluted.

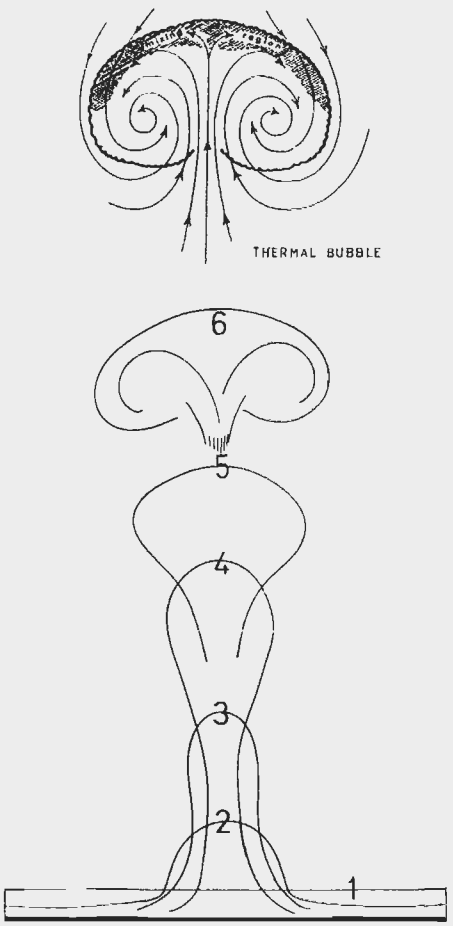


Fig 5

There is sometimes an argument between people who feel that a thermal is better represented by a tall plume of rising air rather than a bubble. It seems likely that both forms occur, with the bubble being the most likely shape after the supply of warm air from the surface has been cut off.

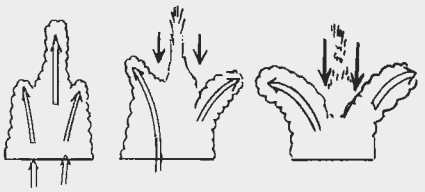


Fig 6

Any ring circulation usually disappears when the cloud top ceases to rise. In many cumuli this circulation seems to be so slow that it never becomes a complete ring. Distortions due to encounters with wind shear and inversions usually prevent a symmetrical ring forming. The tops of many dying cumuli look inert. Not only does any ring circulation vanish but the cloud top may fall back into the main body of the cloud as an evaporation downdraft develops. Fig 6 illustrates the destruction of a central column of cloud in this manner. Such a downdraft tends to reverse the original circulation at the cloud top.

Evaporation downdrafts and holes in the clouds

Water tank models are unable to reveal the effect of evaporation in a cumulus cloud. Evaporation occurs where the growing cloud incorporates much drier air from above. When the dry air enters it forms pockets of evaporation which eventually make holes in the cloud. The heat needed for evaporation cools the air so much that regions of sink develop. Researchers have found these holes on a wide range of sizes between 10 and 100m growing to 500m. Larger holes occur in multi-cell groups of cloud. Generally there are more small holes than large holes. They produce sink going down into the middle of the cloud (not just at the edges as the basic model suggests). This central sink tends to disrupt any strong core of lift in the middle of the thermal bubble. Soon the circulation no longer resembles the basic model. If you watch the cloud shadow you may see the solid black area break up into a ragged "fish-net" pattern as evaporation erodes the cloud and the sink takes over.

Sloping thermals

Unless the air is practically calm for several thousand feet thermals are likely to be tilted over by the wind. However, the amount of tilt depends to a great extent on the strength of the thermal. A soarable thermal contains thousands of tons of air and this mass has considerable inertia. If this mass starts off with a low ground speed it tends to maintain its original speed even when it rises into a stronger wind. The upper winds are then diverted round the side or deflected over the top of the thermal. This is why some cumulus can produce lift in the clear air on the windward side and transient waves over the top of the cloud.

The influence of wind shear is sometimes visible in the shape of clouds. While they are growing strongly they usually remain fairly vertical. When the thermal dies the stronger winds aloft tend to topple the cloud over. It then starts to evaporate in the strong sink on the downwind side. This alters the look of the cloud. The grow-

ing side keeps producing clear cut bulges while the sinking side develops a fuzzy outline as evaporation starts to shred the cloud.

Effects of wind shear above shallow cumuli: hook shapes

The distortion produced by wind shear depends on the rate of ascent of the cloud and the amount of shear. On most good soaring days the tops of cumuli are limited by a layer of stable air higher up. If there is a well marked inversion there may also be a noticeable wind shear above it. The cloud top quickly stops rising when it reaches such an inversion and any part which overshoots tends to be twisted over into a hook like shape as shown in Fig 7. One may see

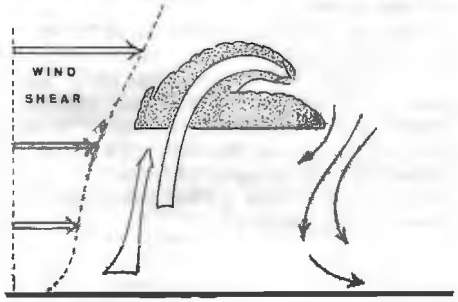


Fig 7

several little hook shapes appearing briefly on the up-shear side of these clouds. As soon as the end of the hook starts to turn down it begins to evaporate so one cannot see the full effect of the sink which develops on the down-shear side. Sometimes almost all the cloud evaporates leaving just a puzzling narrow hoop shape.

Wind shear with deeper instability

There are occasions when, although the air is unstable to 10000ft or more, the surface heating is only just enough to set off thermals. With only a small excess of heat these thermals rise slowly at first. When they reach the condensation level so much extra energy is released that the cloud starts to shoot up rapidly producing long thin columns. Cumulus clouds formed over tropical oceans sometimes behave like this. There is very little lift underneath these oceanic clouds except close to cloudbase. Once into cloud the lift often becomes strong. The clouds remain narrow if the surrounding air is fairly dry. However, tall thin cumuli usually have a short life and such clouds are soon tilted over by stronger winds aloft. Fig 8 is a sketch of a series of thermals which produced similar tall cu over the Cotswolds on September 24. On this day the wind was almost calm at low level. Clouds were chiefly confined to high ground with large blue areas over the Severn valley. The numbers in Fig 8 show a succession of plumes breaking off into individual bubbles. Number 1 furthest downwind is in the decaying stage. Two and 3 show how the tilt increased with time. The originally firm cloudbase degenerated into a ragged skirt marking sink under 3 and beginning under 4. Cloud 5 was still growing well but the lift beneath was shut off. Only cloud 6 was accessible from below.

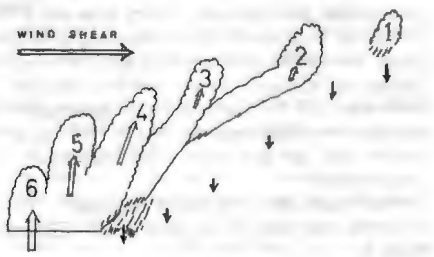


Fig 8

Very deep instability with a jet stream aloft

Tropical clouds sometimes illustrate features which are difficult to observe in temperate regions like the UK. Fig 9 is a sketch of developments over the Equatorial Indian Ocean. It shows a developing cu-nim which started as a long thin column of cloud shooting up particularly fast. At first it resembled the idea of a thermal plume. It then rose through a strong wind shear associated with a jet stream. The top section, now looking more like a typical bubble, was blown off sideways as the rate of ascent slowed down. The second and third bubbles behaved in a similar fashion. However, a trail of cloud remained connecting bubbles to the originating cloud. Finally the lower section of the cloud grew old and fat and developed into a more conventional cu-nim. Radar showed that the first bubble eventually went up to about 35000ft where it was carried away by the easterly jet stream.

This example is rather rare. Most cu-nims are many times broader and contain very wide updrafts. When these reach high levels they produce the familiar anvil of cirrus cloud. Jet streams can carry the anvils for hundreds of miles.

Stubble fires and thermals

It can be instructive to watch the behaviour of smoke from a stubble fire. Of course the extra heat put out by these fires varies enormously. Much depends on how the fire was lit and whether the flames have to work their way feebly upwind through a sparse cover of stubble or are allowed to sweep downwind through piles of deep straw. It is worth noting that unless the air has neutral stability (a dry adiabatic lapse rate) even the fiercest stubble fire is unlikely to send up a soarable thermal. I have watched a stubble fire lit long after sunset which produced six foot flames but the smoke trail only made a feeble hump in the nocturnal inversion. The fact that most stubble fires do seem to initiate a thermal is because farmers usually wait till the overnight dew has evaporated and the straw is really dry before lighting up. The majority are set off fairly late in the morning and through the afternoon. The air is usually unstable by then.

Feeble fires

With the weaker type of fire the smoke plumes frequently seem to rise in a series of pulses rather than one solid column. This is particularly noticeable with long lasting fires when there is a fresh breeze blowing. After one upward surge has risen the smoke starts to trail along the ground almost horizontally until another surge is set off. This looks as if a series of thermals is moving

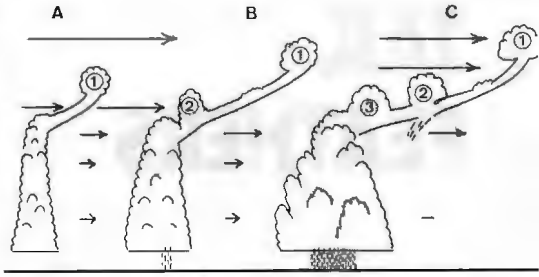


Fig 9

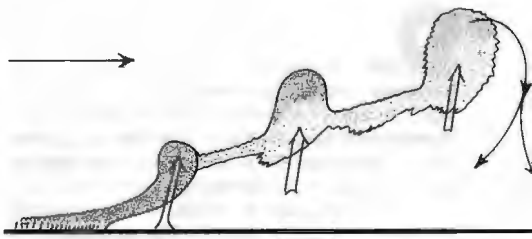


Fig 10

across the stubble fire and the arrival of each thermal is marked by a fresh hump of smoke. Fig 10 illustrates the idea. Flying upwind towards the source of the smoke one can find the thermals well below the puffs of smoke. This suggests that the lift is not entirely due to the hot air from the fire. Feeble fires like this do not seem to produce mushroom clouds.

Fierce fires

Farmers seem to be more cautious nowadays and one seldom sees the really monster stubble fires with a vertical column of black or grey smoke towering up into a mushroom cloud. Some have minor whirlwinds spinning round at the base. Inside the plume the lift is astonishing but the air so rough that one has very little control of the aircraft. Large clumps of burning straw appear and go rushing by. Occasionally they become doubled over the leading edge of the wing and are reluctant to slide off. I have sideslipped a thousand feet to get rid of such unwelcome hitch-hikers.

The fiercer the fire the shorter its life

Astronomers tell us that many of the biggest and brightest stars use up their store of hydrogen quicker than their smaller brethren. After a brief surge of brilliance as a "super-nova" they subside into a much dimmer object. This is sometimes true of stubble fires too, especially those one sees many miles away. I have watched pilots fly past a 5kt thermal under a nearby cumulus in their urge to sample a distant stubble fire. Sometimes they come back, very much lower down, to the cloud they had spurned fifteen minutes earlier. As moths make for a candle flame so pilots divert to stubble fires. I have diverted to a fire whose flames were high enough to be clearly visible more than ten miles away. When I arrived all that was left was a charred field and an inert pall of smoke much higher up.

(To be continued in part 2.)

TAIL FEATHERS

THE SEVEN DEADLY SINS NUMBER 2: AVARICE

This playlet "2000" was written as the middle section of a dramatic trilogy with the titles 1999, 2000 and 2001, which in turn formed part of the Great Dunstable Christmas Revue on December 9, where musical performances and comedy acts delighted an audience that was clearly several drinks ahead of the cast. The other two parts of the trilogy are considered seditious and obscene respectively. (Besides, there's not enough room. ED.)

2000

Open to almost deafening sounds of birdsong – obviously a beautiful soaring day. A sign on the club noticeboard welcomes new members to the LGC: it is tastefully decorated with a picture which at first sight looks like an eagle soaring for joy but on closer inspection is in fact a vulture looking for lunch. At some point in the performance it should be arranged for another notice that is partially obscuring the welcome sign to drop off, revealing that LGC stands for

Lift
Generates
Cash

A pilot is seen impatiently struggling to get his parachute on, whilst staring ecstatically out of the window.

Pilot: This is *it* – the day of a lifetime – could be a thousand kms! Let's get launched! Where's the manager?

An opulently dressed figure – white suit, white shoes (or better still, spats), Panama hat, lots of jewellery, giant Havana cigar – materialises at his side.

P: You the manager?

Manager: Well, manager, proprietor, owner – what's in a name?

P: So you're the landlord?

M: Well, *air*lord, to be pedantic.

P looks puzzled.

M: I own all the airspace over this site to the bottom of Amber One. And a real packet it cost me, I can tell you.

P: You're a lucky man. I've been looking forward to a day like this for years!

M: (with heavy significance) Me too.

Where's the manager?

P: Well, I must get airborne toot sweet. As it says in your *S&G* ad, "Standard Launch Price, £10 payable in advance". Here's my cheque for ten, so I'll . . .

Manager stares at the proffered cheque in obvious disbelief and disgust.

P: Nothing wrong with my cheque?

M: (with brutal irony) Nought wrong with it, nought wrong.

P: Well, that's all right then. I'll get going.

M: (wearily) I mean, there's a *nought* short.

P: A *hundred* quid?

M: That is correct, sunshine. The penny, or rather the pound coin, has finally dropped in your skull. You have grasped my message.

P: What about the Standard Launch Price? That's why I came here!

M: (brandishes arm towards the sky) And I suppose this is a Standard day? I seem to have just overheard you wittering on to yourself about *(mockingly)* "the day of a lifetime!" A *much* above standard day, squire; accordingly, a *much* above standard price.

P: They told me at Booker they'd undercut any price of yours, after being bought by John Lewis Stores. "Never knowingly undersold" is their motto – and they're only 20 miles from here.

M: Look, John, now that the Tring Road is a six-lane turnpike it'll take four hours to get there.

P: Is the traffic that dense?

M: No, it's the unemployables that operate the twelve tollbooths between here and High Wycombe that are dense. Let's face it, it's my price or take up tiddlywinks.

Take up tiddlywinks.

P: I never thought it would be cheaper to stick to wine, women and song.

M: If you're serious I could fix you up in those departments: this is after all a *fully-equipped* leisure centre.

P: Yes, I've seen your commercial on BBC television *(corny mock-American accent)* "Get rid of *your* complex at *our* complex!" No, thanks, I came here to fly, but a hundred quid . . .

M: I can arrange a substantial discount.

P: Oh?

M: Just sign this kidney vendor card which we took the liberty of printing up when we saw you coming – I mean, when you arrived at the office

P: You mean a donor card?

M: Nothing is *donated* round here any more, young man. Everything is for sale; that way we all benefit: *you* get a reduction of £15; all the spare parts clinics get your declaration form on the fax; and *I* get a commission.

P: What do they do with my declaration?

M: That depends on the state of their coldstore inventory and customer demand. They either just wait by the phone or they send out the refrigerated vans on spec, sort of thing, and listen in on decimal-one.

P: It sounds a bit macabre. But, what the hell, if you're stone dead, who's to mind?

M: Hm, I wouldn't be too sure about *stone* dead; some of the cowboys are a bit over-zealous. I wouldn't even doze off while waiting for the retrieve, that's my advice. Stay high, and if you do hit trouble, stuff it in properly; no broken ankles or concussion. But forget it, think about the flight! Where are you heading?

Over-zealous.

P: I thought I'd make for the Black Mountains, then –

M: Ah!

P: Ah?

M: A teensie problemette, squire. All the airspace from Talgarth up to Alpha Centauri belongs to a syndicate. *(Picture of John Jeffries with wadding in his cheeks projected on wall.)*

P: Like a gliding syndicate, all helping each other?

M: More like a Mafia syndicate, all knifing each other – same difference. Anyway it'll cost you the proverbial upper and lower limb to use the wave today.

P: They won't know I'm there if I'm at 17000ft.

M: Want a bet? *(Holds up black box)* This new electronic wonder is a mandatory combined transponder and taximeter. Every time you enter a piece of airspace it starts counting time and height, and debits your account accordingly and credits *his* account. *(Nods towards picture of Godfather JJ.)* Any tampering is automatically detected, in which case my little remark about it costing you an arm and a leg ceases to be metaphorical.

P: How much will a Diamond cost me?

M: As the man said, if you have to ask, you can't afford it.

P: I might run out of money just at the last moment.

M: Then you'll hear this *(pushes button on black box). Alarm bell rings. Metallic female voice:* You have exceeded your credit ceiling! Your variometer has been disconnected! You have ten minutes in which to land safely or negotiate a second mortgage on your house; call 129decimal85! After ten minutes divebrakes will be deployed automatically! *(Increasingly shrill.)* Come on, dozy, you have *nine* minutes ...

P: I give up! Farewell, gliding! Goodbye, Dunstable! *(Sobs. Turns to leave.)*

M: Hold on, young fellow, if you have championship qualities they might even pay *you*. Turn professional! Join the multi-millionaires *(picture of Robin May)* now that soaring is the world's biggest TV spectator sport. Prize money, sponsorship from suppliers *(picture of John Delafield against background photo of giant RD Aviation warehouse)*, fees for opening supermarkets, seats on the boards of companies.

P: What ever happened to Wimbledon?

M: Not for today's audiences. No blood. And you know how the viewers love tantrums; when they found glider pilots had manners that made John McEnroe look like John Geilgud, well ... *(Gets out pad and pencil.)* I'll put you down for next year's Open Class Nationals. Navigator all right?

P: Oh yes, that's great!

M: P2 in a multi-seater in the Open Class is the lowest form of human life, but you have to start somewhere. *(Licks pencil, fills in form, gets pilot to sign.)* And since I've taken a shine to you, I *will* let you fly for only ten quid today.

P: Brilliant! You're so kind

M: Well, as your agent for 50% of all takings from next year onwards *(taps signed document)* I mustn't let you get rusty. *(Puts model glider into hands of bemused pilot and retreats into distance with reel of string.)* Now, all clear above and behind? Take up slack ...

Fade out. The music of Delius blends with the swelling birdsong.

Weather forecasting sketch

Dramatis personae, four: Jackson, Boss, Glider Pilot, Big Sandra.

Scene: Various posters and notices make it obvious that this is the Dial-a-Showa telephone weather forecasting service office. Bits of microphones, answering machines etc litter the table.

Jackson is listening to a tape of Jackson's voice:

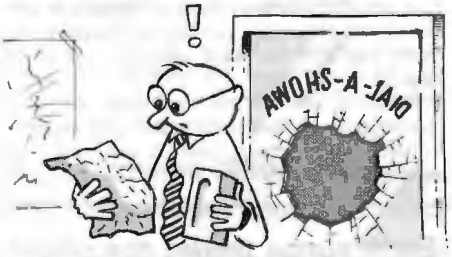
Welcome to Dial-a-Showa, the user-friendly telephone weather forecasting service for those people who are too thick to remember at what times the *free* forecasts can be obtained on radio or television. You obviously have less sense than money, which suits us just fine! This Dial-a-Showa forecast will cost you 38p a minute, so I will talk ve-ry slow-ly and as-sume that you are a com-plete id-i-ot who by the time we have finished will have for-got-ten why you had wan-ted a fore-cast in the first place. That means that I will spend at least 76p – sor-ry, at least two min-utes – tel-ling you about all the hy-po-thet-ic-al things you might like to do in the pre-dic-ted con-ditions, when of course in-tel-li-gent peop-le only pay for a fore-cast when they al-read-y know perfect-ly well what they want to do. We will tell you, for ins-tance, that this af-ter-noon will be an i-deal oc-ca-sion to visit a fa-mous Bed-ford-shire coun-try house or an art gal-le-ry or a bow-ling alley or an old girl-friend who is an ea-sy lay and makes a nice cup of cof-fee, all of which is by way of in-form-ing you that it is simp-ly going to pre-ci-pi-tate worse than a Glas-gow ur-in-al on a Sat-ur-day night, ex-cept that our way is more long-wind-ed and costs you more, and makes pat-ron-is-ing as-sump-tions about your per-son-al cul-tu-ral tastes and sex-u-al pro-cli-vi-ties in-to the bar-gain ...

Jackson switches off tape as Boss comes in.

Boss: Jackson, can I have a word with you?

Jackson: Yes, Mr Nash?

Boss: Jackson, we've had some complaints from the glider pilots about your service.



Some complaints.

Jackson: Oh I am sorry, sir. I try to please the customers, consistent of course with screwing out of them the most money for the least information, so as to please *you*, sir.

Boss: I appreciate that, Jackson. But if they stop ring-ing us up for weath-er fore-casts we will not be ab-le to screw an-y mon-ey out of them at all.

Jackson: Oh. *(Thinks)* How about this sort of thing: "Glider drivers: rain all day. Goodbye!"

Boss: Don't be an idiot! That will earn about fourpence in peak hours and even less at any other time.

Jackson: (Thinks some more) How about: "Rain all day, but don't go away, because Big Sandra will now breathe lecherous fantasies in your ear until the sun comes out!"?

Boss: They are not interested in that kind of thing, Jackson. Over the years their parachute straps have been done up too tight or they've had too many heavy landings. They want technical stuff about freezing levels and all that *(puts on mock WWII RAF accent and twirls imaginary handlebar moustache)* bang-on wizard gen. Put a bag of sub-zero precipitation on your head and come up with something better than that *(taps J's tape-recorder heavily).*

Interlude

Split stage. Jackson and Boss one side; Glider pilot on the other

Glider pilot picks up phone and starts dialling a long number – a ridiculously long number – on a circular dial phone

Jackson, holding typescript in hand: I'm just about to tape the new hi-tech forecast I got from the boffins

Boss: Splendid, let's hear it.

Phone rings

Jackson: Damn! That's a customer and the tape's not ready.

Boss: Well, just read your forecast to them live, they won't know it's not a machine.

Jackson grabs phone: Welcome to the Dial-a-Showa Hi-Tech forecast for glider pilots in search of that elusive Diamond!

Pilot (to himself): Wow, that's fantastic!

Jackson: I thought you'd be pleased.

Pilot looks at receiver, slightly surprised.

Jackson: The dry adiabatic lapse rate in zones 14, 17 and 21 will remain unchanged –

Pilot (to himself): Hang on, what's a dry adiabatic lapse rate, and where are zones 14, 17 and 21?

Starts frantically leafing through Wallington, Piggott and other books on Met, and staring at map in confusion

Jackson: Don't ask me, I don't write this rubbish, I'm only the bloody answering machine.

Pilot (to the phone): Sorry!

Jackson: The SALR above the jetstream sheerline at 20000ft msl at 1300 GMT in zones 11 and 12 –

Pilot (to himself): What are those initials?

Jackson: It says here, the Saturated Adiabatic Lapse Rate.

Pilot (to himself, almost in tears): I don't understand a word of this. Come back old low-tech Dial-a-Showa, all is forgiven. It was crap, but I understood it.

Jackson, joyfully: You really mean that?

Pilot: Sure I do!

Jackson: Well, all I need to say is, it'll p*** down all day, but don't go away, because Big Sandra here wants to talk to you.

Scantily clad girl comes in, picks up phone from Jackson.

Sandra (very sexy voice): Hello, darling!

Pilot: I'm sorry, I don't want to listen to a girl on a tape-machine.

Sandra: I'm not a machine, I'm real. Why not come around to my place till the rain stops?

Pilot: What for?

Sandra (rolls eyes heavenwards): Dar-ling, I make the most *a-ma-zing* cup of cof-fee ...

... fade out to sound of torrential rain.

Torrential rain. Drawings by Peter Fuller.

No Platypus wasn't trying to be extra special clever for Christmas by leaving his name and title off his centre-spread article in the December issue, or hoping a parchment background would be enough for readers to guess the wording "Olde Plattypuffe's Almanacke for ye Yeare of Oure Lorde 1990 wherein diverf happenningf in ye worlde of foaring & failplanes are foretolde righte uncannilye" in best Old English script. It was just one of those unfortunate mishaps where an overlay was left off in the printing.

AVOIDING ACCIDENTS

Doug Carter had an accident at Talgarth some years ago when flying his PIK 20D which has left him a paraplegic. He says he made several mistakes in that flight but there was an important omission made by many glider pilots which would have saved him from this disability

Accidents can, and indeed should, be avoidable. For every accident there is an explanation but in the gliding world few are examined in enough detail to ensure that no one else has another exactly like it.

We should be absolutely honest about our shortcomings where safety is involved. How many of us are? It is human nature not too be too keen to let others see what clowns we can be on occasions!

Isn't it more likely that our pride prevents admission of errors? How often have you had a near miss which went unobserved? Did you try to analyse the incident for your own benefit, never mind the benefit of others?

My war time experiences with the RAF taught me to be absolutely professional with regard to airmanship. If I made mistakes, I was expected to account for them in great detail. Fortunately I never made a serious one and the enemy didn't get me either. But gliding, even after twenty three years, did. I will explain:

It was Easter weekend 1984. Instructing in a K-7 most weekends, I seldom had an opportunity to take the syndicate PIK 20 on a decent cross-country flight. It was all up, round and down and foot slogging back to the launch point, emphasising such basic safety routine as keeping the speed up on the approach and the importance of adequate height on the final turn.

In spite of all this experience and accumulated knowledge of more than forty years' involvement with flying, I was heading for Talgarth that weekend and potential disaster.

On the Good Friday we arrived too late to get in a check flight but not having flown there before arranged to do so the next day. We rigged carefully, checked everything twice and tethered the PIK securely for the night.

That evening we met at the local for supper and intent on the possibilities of wave the next day, retired late after watching satellites traverse the bright starlight sky. Mistake number one, perhaps - I should have retired early.

Next day dawned sunny and bright. A stiff breeze was expected to make the launch a bit rough and approaches should be from a circuit height of 800ft and fast down towards the upward sloping undershoot area into a small but adequate landing area.

A check flight in the Blanik soon reminded me of previous experiences at the Long Mynd and Sutton Bank but clearly the Black Mountains would be much more demanding. With my experience, and long standing confidence in my capability, there was no question in my mind about my ability to cope. Mistake number two, perhaps - over-confidence.

My wife suggested she should spend the day in Brecon and I drove her there, the return trip taking longer than I expected. Slightly irritated, I got back to find everyone high on the mountain and wave forming. The tell tale bar of white stratus was way up there beckoning and pleading to be challenged. Mistake three, possibly - irritation mixed with haste?

I checked the PIK again - some of it twice and buckled on the parachute, a lumpy looking back pack model, strapped in, set the altimeter to 900ft and signalled away.

I wasn't aware of doing anything wrong at this stage. The parachute was new and serviceable. The altimeter set to the airfield height of 900ft seemed sensible and a full set of maps for the area would enable me to land out anywhere without mental arithmetic. Actually at this point mistakes four and five were already lined up for later on.

Three hours and 20min later I was still tied to that ridge. It had been some of the roughest flying I had ever experienced. Exhausting but exhilarating.

Each surge thrust the glider up and back beyond the lee face of jagged looking rocks

The airspace was full of gliders, all trying to break away in the thermal surges coming from the upwind, up sun face of the mountain slope. Each surge thrust the glider up and back beyond the lee face of the razor back of jagged looking rocks and the waving hikers exploring the mountain on foot. Every time we locked on to the gusty thermal the turbulence sent us all scraping back on to the upwind face and relative security.

I got tired of the struggle. A two-seater passed on tow up the gully to disappear in the direction of the wave bar, still clearly visible but quite unattainable unless we could get off that ridge. That seemed to be the answer. Get down, rest, have a bit to eat and organise a late afternoon tow to where it was really happening. Mistake number six. I wish I had stayed put long enough to plan the retreat and review the basic circumstances with a little more regard for the unusual surroundings.

My home airfield is in flat country at the foot of the South Downs. Years of circuit bashing there had lulled my sensibilities to the point where every circuit had become routine. Judging height there was second nature and altimeters were always zeroed on to the field. I was about to make the classic mistake.

Judging my height to be more than adequate, the Talgarth airstrip seemed to confirm the need to lose some altitude and the valley floor to port reinforced the feeling of excessive height. A glance at the altimeter indicated 1700ft - and at that moment the chain of events began to unfold.

I threw a circle in what momentarily looked like a strong thermal which rapidly changed to massive sink half way round. Too late, I realised that the perspective angle for the airstrip was becoming acutely dangerous. I recalled a bit late that I had set the altimeter for airfield height and had barely enough time to read 1100ft, accept 200ft as the reality and realise that I was too far out for comfort.

I reckoned I could still make it. I had already cut the corner and approached directly for the steep up slope adjoining the cottage. Over the boundary, level with the top, reach for full flap, 50kt, instant drop to 30kt and still less - no room to put the nose down to recover - stalling in flat from around 80ft ... VHL! (Very heavy landing.) Crump!!

At this point the undercarriage collapsed. My back took the shock where the bottom end of the parachute pack ceased to give support. The result was distracting, to say the least, and the PIK, relieved of command, decided to fly itself by rebounding through 120° and flying off down hill and groundsliding into the hedge at the bottom.

The various lessons to be learned are obvious. Experience can negate vigilance to an alarming degree. Take nothing for granted. If you fly regularly in flat country with a well defined horizon, then a low level approach into a mountain site needs great care, particularly at the last moment when an up slope on the approach and mountainous background can give a false impression of the glide angle.

The false feeling of adequate glide angle may combine with wind sheer off the high ground in front to promote a rapid and irretrievable loss of airspeed - the classic low and slow syndrome.

If you set the altimeter for airfield height, particularly when you seldom do so normally, make sure you can remember this in a crisis situation, especially where judging height can be seriously affected by terrain. Make it part of your landing check list.

Reaching for flaps at the last moment should be avoided. Most GRP sailplanes have a flap lever on the same side as the dive brakes. The PIK 20D has both. In a crisis, when trying to extend the glide a little, the possibility arises that

the pilot is tempted to revert to his early training whereby closing the brakes is beneficial to the glide angle.

I am told that my PIK flaps were full positive after the accident, but I still have a nagging feeling that I may have pushed forward into negative before realising the mistake. At a critical moment, when glide angle, wind sheer and airspeed were all in the negative phase, negative flap would have done nothing to help.

Very heavy landings are survivable. My VHL would have ended with a red face and a buckled undercarriage if it hadn't been for that parachute.

Those who have read Tony Segal's excellent paper on spinal injury (see also *S&G*, February 1985, p12 and June 1986, p132) will know what I am going to say next.

That landing damaged my spine. The T12 vertebrae was cracked at the lower edge of the parachute back like breaking a stick across your knee.

Take heed. The consequences of back injury can be very serious indeed and VHL is the primary cause coupled with the lack of cushioning in the average glider, cushioning which is too soft and parachute packs which are too lumpy.

Read Tony's research paper again and again and act on his recommendations. As a family doctor and a keen glider pilot he knows what he is talking about. As a VHL victim, a registered disabled person (paraplegic) and a former gliding enthusiast I feel qualified to underline this advice. Take great care at all times. Take nothing for granted. (See also footnote, p24.)

COMPETING IN THE ALPS

A Standard Class pilot's view of the Alpine Soaring World Cup competition at Vinon, France last September

Ten knot thermals, 300km tasks and a host of diversions for family and crew characterised the 22nd Alpine Soaring World Cup competition. The venue was, as always, Vinon in south-eastern France.

The Vinon competition is an international event with an established reputation for a high competitive standard. The French and Swiss were strongly represented with such prominent names as Lherm, Lopitauz, Chenevoy, Navas, Leutenegger, and Badum on the entry list, though British and Germans pilots were present only as minority contingents. The competition was held in the three FAI Classes, though this report concentrates on events as seen through the eyes of a competitor in the Standard Class.

The Provence has excellent soaring conditions on most days of the summer. It provides in addition a host of attractions for crews and families alike: sports and recreational amenities, cultural events and superb restaurants all abound. The difficulty is often deciding on which day not to fly in order to just enjoy being there. Fortunately, during the competition one rest day is compulsory.

The airfield is in the Durance valley at an elevation of 275m. The weather is generally dry and sunny, though infrequent thunderstorms can be a threat. In daytime, the maximum temperature averages between 30 and 35°C, but cools to a pleasant 15°C overnight. Strong heating ensures a good depth of convection and, as the rules do not limit starting height, start photographs were taken at altitudes between 1800 and 2800m over the nine competition days.

Tasks from Vinon are most often set into the southern French Alps. For the Standard Class the approximate task area envelope was the town of Apt in the west, then north to Die, north-east to Bardonecchia (Italy) and Fayence to the east of Vinon. The terrain includes high mountainous regions with peaks in excess of 4000m. Two excellent articles by Bill Malpas, published recently in *S&G*, give a lucid description of the meteorology and soaring tactics applicable to this region.

The task for Day 1 was a 380km triangle around St Andre and Modane. Despite difficult blue conditions around the second TP, a winning speed of 96km/h was achieved.

Start pictures taken at 8000ft cloudbase

Day 2 was a straightforward 304km triangle around Briançon and Jauciers, with a winning speed of 108km/h. Start pictures could be taken at cloudbase 8000ft above the airfield.

Day 3 was more challenging, with blue conditions and a limited depth of convection around the first half of the 276km triangle, turning at Serres and St Paul/Ubaye. The winner's speed was 77 km/h.

TPs at Jauciers and Larange defined the 243km race for Day 4, won with a speed of 81km/h. Strong lift and cloud streets over the high terrain gave way to wave and blue thermals over the lower ground.

Forecast thunderstorm development lead to the shortest task of the competition with TPs at Apt, Aiguines and Digne for a 189km circuit. In practice, conditions were largely blue again. The task was won at 99km/h.

After a rest day with thundery weather, Day 6 gave an interesting 254km task around Chorges, Serres and Moustier in good lift with cumulus developing to congestus and showers. The winner's speed: 112 km/h.

A pilot option task was also set. Three zones, each containing three TPs were briefed. Pilots could choose one, two or three TPs. Each TP had to be taken from a different zone, but could be flown in any order. Points were awarded for both speed (25%) and distance (75%). The highest scorer on Day 7 was a flight of 546km at an average speed of 90km/h.

Day 8 was again a good race around Castillon, Chateau Queyras and Larange for 317km. Cloudbase was 2600m at the startline, rising to 3500m near the second TP. The winning speed was 119km/h.

The 9th and last task was a 314km O/R to Plampinet. Hoping for improving conditions, the leaders delayed starting until after 1430, which paid off with a winning speed of 118km/h.

The Standard Class in summary: 9 tasks, average length 320km and no outlandings, the latter being appreciated by both pilot and crew. The winner was Simon Leutenegger (Switzerland), closely followed by Fischer (Germany), Badum (Switzerland), Davison (Monaco) and me (Great Britain).

The best news of all is that they are taking bookings for 1990 – anyone with more than 100hrs or so of alpine soaring should consider entering this competition. The address is: AAVA, The Aerodrome, 83560 Vinon sur Verdon.

The 15 Metre Class winner was Navas (LS-6s) and the Open Class winner, Kuntz (ASW-22), both from France.

MIKE CUMING

TIPPING THE VEGA

Or re-inventing the Kestrel

"Fly it? I wouldn't walk underneath it!" – C. Rollings.
"Haven't you heard about Baer Selen's wings coming off at Rieti?! – almost everyone.

At first sight the Vega may appear an unlikely candidate for detachable 17 metre wingtip extensions: so look closer.

Produced in the late 1970s and very early 1980s as Slingsby's entrant in the then new 15 Metre Class, this sleek and clever design incorporated a carbon spar, thin (15%) wings and retractable tail wheel and ought in principle to have had a successful racing career. In fact the Vega never enjoyed any significant competition success although it was built in reasonably large numbers.

Early Vegas – the model T65A – had waterballast capacity of up to 160lb which is more than enough for UK conditions, while the later T65D was built for the US market with thicker wing skins and a larger 360lb water capacity. I don't know what happened to the B and C models. Later still Slingsby produced the Sport Vega – a club version with no flaps, fixed wheels and a heavier but cheaper glass-fibre spar.

All the 15 Metre and later Standard Class gliders have broadly similar performance (obviously the 15 Metre gliders cruise rather faster), but some have always been regarded as more or less fashionable than others and this – in today's yuppie gliding world – has lead to quite remarkable price variations from type to type.

The Vega in particular has become especially unfashionable, due in part to a series of unfortunate early episodes including the famous one when Dutch World Champion Baer Selen was unexpectedly deprived of his wings on a final glide at Rieti in his brand new Vega. Luckily his brand new parachute was rather better built.

This turned out to work to my advantage, however, since it resulted in a comprehensive series of tests – and consequent modifications – such that the Vega is now a well proven and sound glider. But the reputation still lingers and this was the background against which any tip proposal would have to be judged.

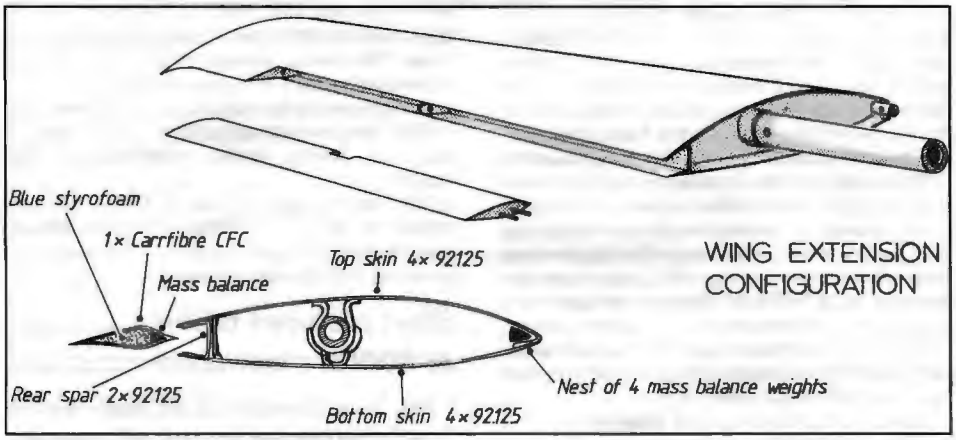
Being a skinflint, I decided – on the basis that it was a good buy and could be made a better one by judicious application of tips – to acquire a rather nailed old Vega then being touted around by Mick Boyden on behalf of the RAFGSA.

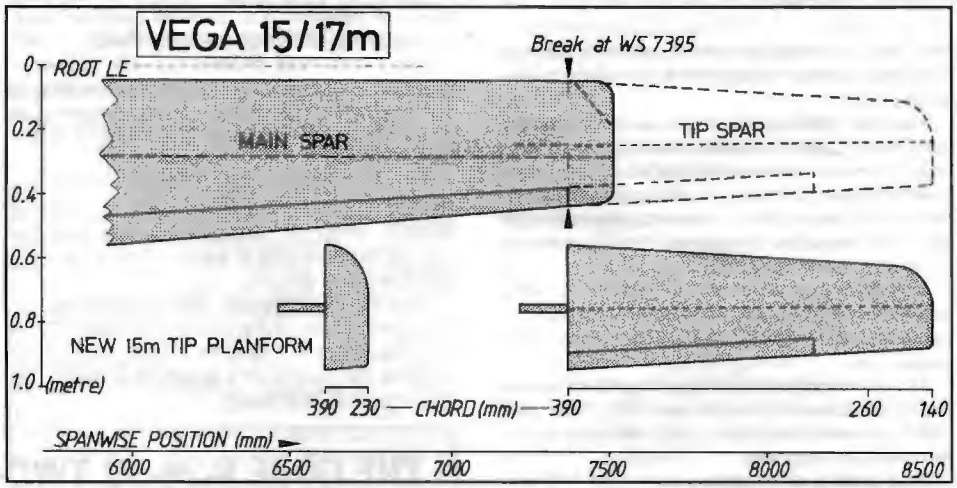
This was later described by Slingsby's as the worst maintained glider they had ever seen, and they may well have been right. One day the airbrakes jammed open, another day only one of them opened. One day all the flap hinges broke in flight.

Since then, however, I have glued, welded, rubbed and polished the glider and it is now as fine an example as you are likely to see. Honest.

Then I encountered Jerry Odell at the Inter-Services Regionals at Roanne; Jerry – being even more tightfisted than myself – not only bought a Vega but had bought it as wreckage and rebuilt it. He, too, had toyed with the idea of tips and between us we had just about the right mix of workshops and pen-pushing skills to do the job. We hastily began collecting old orange-boxes and other suitable building materials as the project began.

Now the word "collaboration" acquired sinister overtones during the last war but it worked well enough for us. Apart from a good deal of advice and help in the flutter front, which I got from my then colleagues at British Aerospace, we were able to do all the work ourselves.





We decided to go for the full 17 metres, even if it meant putting a bit of lead in the tips to relieve the wingroot bending loads, and settled on cranks in both leading and trailing edges. This enabled us to keep the tip spar in line with the main wing spar, have a decent size "aileronette" in the tip and keep the tip chord reasonably large (think Reynolds numbers, folks), while going for a sexy sweepback on the leading edge.

Many people have asked me about the precise reasons for sweeping the tip back and I always reply that we ran out of blue foam while making the mould. This is true. We don't know what the best L/D is with the tips on (we don't know what it is without them either), but it is certainly about 10% better in best L/D and may be rather more.

The improvement in L/D really shows up in the ability to dolphin fly on relatively weak days – which is when you put the tips on. Wearing the tips on booming days is strictly for the under-confident, as one would expect.

The detail stress analysis of the tipping exercise was simple but time-consuming and – in order to halve the workload – Jerry and I decided only to do the sums for the no waterballast case. There is plainly plenty of strength in hand but the Vega carries its water very close in to the root. This means that we really would have had to check it all very thoroughly before clearing the carriage of tips *and* water. So we didn't bother.

"Shep" Sheppard flying his Vega with the tips, photographed by Mike.

the Vega – unlike, say, the Pegasus – doesn't carry its water well, anyway.

Conveniently, the 7lb of lead we put in each tip could be used for aeroelastic "tailoring" which is pretty high powered stuff in this context; and we were able to keep the predicted reduction in flutter-limiting-speed almost to nothing by putting the lead right in the tip leading edge (using a length of central heating piping). So don't drop one of our tips on your foot!

This was supposed to be a winter project but the usual lethargy meant that it was Easter before we finally had enough sums worked out to think about a prototype. We grew very sceptical about some of Slingsby's data – with some justification – and conducted a series of wing bending and wing twisting tests, not to mention a truly horrendous weighing attempt to try and locate the wing C of G position at various stations from root to tip.

Finally, we could delay no longer so I dragged my glider up to Norfolk to hack the tips off and peer inside. By golly it was a mess – full of rubbish! To cut a long story short, it took a full weekend (working late to jig things up so they'd go off while we rested) to fit all the stuff we had designed. It would have taken a lot longer but for the preparation work Jerry had done.

There were a few nasty moments during the static testing process but nothing broke and it wasn't long before we rigged the finished product and were obliged to fly it. I must, by the way, acknowledge here the co-operation of Mowbray Vale and T. L. Clowes – my insurers – who took a very broadminded view of the proceedings.

A small crowd of scoffers had gathered of course to watch the first flight but everything went smoothly and I took the glider up to 100kt and +2/−1*g* with great confidence. −1*g* is very unpleasant.

It was just enough to offset the loss of roll rate

The Vega had originally been tested in accordance with British Civil Airworthiness Requirements (BCAR) section E but we found that with a little extra work we were able to meet the rather more modern Joint Airworthiness Requirements (JAR-22) for gliders. The test flying was soon done: everything went faultlessly and we were able to demonstrate both analytically and by flight test that the glider was quite strong enough and flutter-free despite what the scoffers had forecast.

The articulated outer aileron we built in the tip was just enough to offset the loss of roll rate associated with extending the span, and there was an additional – and unexpected – handling bonus of slightly improved attitude control when thermalling. This is rather subjective but I think the narrow chord ailerons (like those on the Libelle) tend to stall and snatch during steep turns, resulting of course in a "nodding" tendency viewed from the cockpit.

Presumably the rather larger ailerons operate with smaller deflections and so just back off this irritating "snatching" regime. Incidentally I fly the glider quite fast while thermalling (with or without tips), quite commonly at 55-60kt. It seems to work.

The articulated aileron joint is an engineering triumph due to Jerry (I said it wouldn't work!). We wanted to have plenty of aileron in the tip but we didn't want to crank the spar, so Jerry developed the articulated joint. He even came down to London and built a prototype (with cardboard and sellotape) on my dining room table to prove it would work. This was some months before I got married, of course!

We thought at length about the flight limitations for the 17 metre glider. There was no reason at all to reduce any of the limiting speeds but people seemed to expect something. In the end we kept all the Vega limitations just the same except V_{NE} which we reduced, arbitrarily, from 135kt to 125kt, just to please the scoffers.

The glider is still fully aerobatic even with its tips on – although the Vega remains (tips on or off) one of the few gliders that genuinely won't spin, it just sits at an alarming sideslip angle while the nose nods about and the altimeter unwinds.

I must say I became quite thoughtful as we got close to the more exciting flight tests. Although I've done quite a bit of test flying before, the Vega was the first genuine flutter testing I have done and I couldn't find anyone to ask who had done that sort of work before. So I had my parachute repacked, took lots of high tows and went in very gentle stages. The first few loops were a bit thought provoking, too, but there was not the slightest hint of trouble and the mod to apply tips is now officially incorporated into the aircraft type certificate.

Would we do it all again? Well, the K-21 looks as if it might go rather well with tips on ...

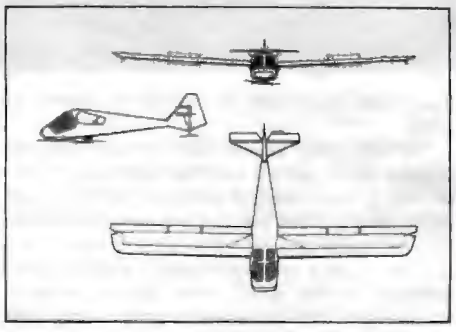
SAILPLANE NEWS

"SUPER BLANIK"

Peter Clifford and Co are the sole UK agent for the new L-23 "Super Blanik" two-seater from Czechoslovakia. Said to be a greatly improved version of the familiar L-13 trainer, it has a T-tail and no flaps.

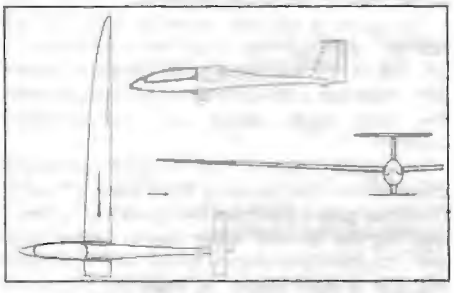
It is an all metal construction (empty weight 310kg, AUW 510kg) with a 6000hr approved life and all control surfaces are fabric covered. The wingtips are turned down and strengthened with steel to act as a skid to protect the ailerons on landing. Cockpit visibility has been improved and the airbrakes are larger with more movement. It should soon arrive in this country and we hope to have a test flight as soon as possible.

HUNGARIAN TRAINER



At last a new glider that doesn't look like all the others. The Hungarian R-31, an all metal side-by-side two-seater with just a 13m span, can apparently be used for basic and advanced training.

SZD-55



This new Polish Standard Class glider was seen for the first time at the Wiener Neustadt World Championships and is a competitor for the Discus. Its claimed best glide is 44:1 at 119km/h (max AUW). Tomas Rubaj of Poland flew a SZD-55 to victory in the European Junior Championships at Cambrai, France.
MAX BISHOP

NEW AEROBATIC GLIDER

The Celstar GA-1 manufactured by Celair of S. Africa made its first appearance at the 3rd Glider Aerobatic World Championships at Hockenheim, W. Germany and was a winner. It was flown by Peter Celliers, the force behind the project who was at the competition with his aerodynamicist, Francois Jordon. He had less than two weeks to practise and came first in the unknown section and second in the known compulsory flight. This 11.05m glider, built in a glass-fibre composite, was tested to a static strength of +/−10g. The photograph and details by Peter Sellinger.

BARTER DEAL

The latest addition to the 14 gliders in the club fleet at the southern Hungarian city of Szeged is this Soviet LAK-12 Lietuva 21 metre Open Class machine, of which over 40 have been made. The Szeged club – bidding to host the 1992 European Championships on its immense grass airfield with runways three-quarters of a mile long – obtained it last spring in a straight barter deal for a mere dozen locally made sporting parachutes. The Soviets then air-delivered it aboard a four-engined turboprop freighter, right to the hangar door. So much for eastern bloc economics.

The Lietuva (*trans:* Lithuania, where it is made) has a wing area 158ft² and an aspect ratio of 28.5; a Wortmann FX67K-170 airfoil; an empty weight of 795lb; a max flying weight of 1433lb and can dump its 53 gal full ballast in seven minutes. Aileron droop is combined with full-span flaps which can be set from −7 to +18°. VNE is 121kt or, with max flap 94kt – which is also the max manoeuvring speed. Optimum towing speed is given as 65kt; crosswind limit is 10kt and a 48:1 glide ratio is claimed.

A 25 metre version with three-piece wings is reportedly under development.

Szeged's Lietuva lives in what Penguin, who took the pictures, says is probably the ritziest glider hangar in the world. The prototype of a design by a local enterprise which it now hopes to sell around the world, the 100×120ft aluminium hangar has powered doors and three walls entirely of heavy cast-glass panels. "It's like a crystal palace when you're inside" Penguin says.

All clubs in Hungary offer a variety of air sports – in Szeged's case gliding, hang gliding, power flying including advanced aerobatics, parachuting and a hot air balloon which was about to be added when he was there last July. It is the home of Hungary's civilian formation aerobatic team, *Bukfenc Brigád* – the Looping Brigade – which flies four Zlin 726s and has been invited to tour the UK and Ireland this year.

MEXICO TO VANCOUVER

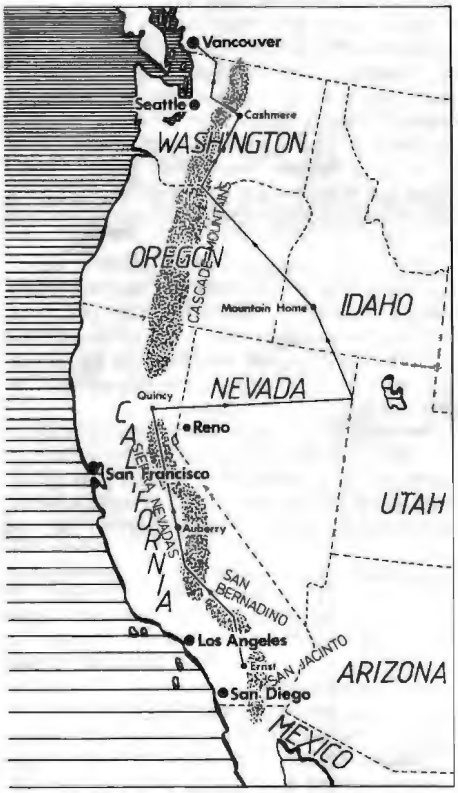
Tug Willson writes about his five day cross-country flight of more than 2500km in his new DG-400 during which he only used the engine for the take-off each morning

Tug retired from the RAF in 1974 and joined Cathay Pacific Airways in Hong Kong. Because of the geographical limitations of Hong Kong he has, over the years, embarked on several adventure soaring epics. These have included soaring through Europe, through the length of Japan, from Sydney to Perth across Australia and now from the Mexican Border to Vancouver.

Having completed the trans Australian flight I sold my PIK 20E in Perth and the proceeds were used towards purchasing a superb new DG-400. I was now ready to go for the one that I had long been working to – Hong Kong, through China and over Everest. Sadly, that adventure has to remain in the too hard category. One very thick file bears testimony to a monstrous story of bureaucratic woe! Nothing daunted, it then became a case of what next.

Perhaps it was the urge to cover the globe that lead me to California. No matter the root cause, the outcome was truly magnificent, a wonderfully challenging spectacular flight along the length of the American west coast . . . And so, with all the preparation behind me, in early September I set off from a small strip close to the Mexican border.

As so often happens, the weather on day one was disappointing. A very large storm system had moved into Mexico and the advancing high level cloud had moved in overnight obscuring the sun. Fortunately, just enough heating was able to filter through to allow a tiptoe departure just before midday. Conditions gradually improved as I gingerly made my way up the western side of the San Jacinto mountain range. The Beaumont Gap is the trunk route between Los Angeles and Palm Springs. It was evidenced by a pool of LA contaminated marine air below an inversion level. By this time I had climbed to 7500 some 2500ft below the top of San Jacinto, and was able to



serenely float over the smog to San Bernardino, then along the mountain range and up on to the high Mojave desert.

The military air traffic control were most helpful and cleared me on an almost direct track to Tehachapi giving me a grandstand view of Palmdale and the desert strip used for shuttle recoveries at Edwards AFB. It was late afternoon when I got to Tehachapi and as the wind was westerly I opted for the western side of the Sierras to use any ridging and evening thermals floating off the sunset facing slopes. This decision led to a wonderful evening flight but nightmare conditions on day two!

Only Justin at his eloquent best could do justice to the sheer immensity and rugged beauty of those mountains. It was an awesome experience. Such a tiny sailplane and so close to the snow and ice glaciers of Mount Witney passing by at 14000ft. Mile after mile of the most wonderful close proximity slope soaring until finally, as the sun lowered to the horizon, I left the mountains and floated gently down to land at Auberry to the north of Fresno.

On day two I paid the full price for being west of the Sierra Nevada. Instead of whistling along The Whites which lie to the east, I grovelled at very low level along the western foothills, in Pacific maritime air, once again under the cover of the high cloud. Four very hot hours of working between 1000 to 2000ft agl eventually paid off as I was very slowly able to work my way into the mountains. Finally over Interstate 80 near Auburn a good climb enabled me to get high and final glide over rugged mountainous countryside to land in the lovely fertile valley of Quincy.

Day three began sunny with a weak system forecast to move in across track. Unfortunately the weak system obliterated all thermals. Rather than land I decided to run inland ahead of it. This eastern sojourn became long haul over the Black Rock desert, once again meeting up with Interstate 80 and crossing Nevada and Utah. Six hundred kilometres later, just short of Bonneville salt flats, conditions improved rapidly to the north. Now with a 12000ft cloudbase I battled into a 20kt headwind to land at Mountain Home in Idaho for the day's distance of 872km, *via* Bonneville, but only 562 on a straight line Quincy – Mountain Home. Even worse, I was only 90km closer to Vancouver! But what a day.

Over the Columbia river via Richmond to land at Cashmere for 622km and another memorable day

Day four continued where the previous one had finished. Fresh NW wind with a high cloudbase rising to 12000ft into a 25kt headwind. Routing was by Biose, Baker and SW of Walla Walla. Yes the spelling is correct, it's not the Aussie home of Bill Kerr! The Americans are, however, known for their RT flare so when I called them I did so with a broad Australian accent calling them Wagga Wagga. Back came an immediate "Gooddye bloo". Not only was the reputation maintained but he was also a Ventus owner to boot! On over the Columbia river, then *via* Richmond to finally land at Cashmere NW of Wenatchee for 622km and another truly memorable day. ➡

The final day produced the expected challenge. Conditions were good on take-off but as I made my way west into the Cascade mountains the cloudbase lowered under the influence once more of the marine air. I was just able to squeeze through the Skykomish pass. It was then a long difficult two hours under a 2500ft cloudbase until a good climb on Mount Baker gave me a final glide to Boundry Bay, Vancouver. A high speed pass pleased the media and a champagne arrival set the seal on five days of unforgettable exhilaration spanning in excess of 2500km without ever using the engine, apart from the take-off each morning.

The hospitality throughout the trip was everything one hears about in the fine American tradition. In the course of my travels I have a host of stories to tell, but one in particular has to be an all time classic. As conditions waned each day I consulted my map to find a nearby private airstrip. The hospitality everywhere was outstanding. On the evening in question I circled over a better than average strip. The landing run was completed by a half open hangar which housed a twin prop and a Lear Jet.

"You are an airline pilot", she said. "Take the Lear Jet and bring it back in the morning."

As no one was around I walked over to the nearest house where I met the owner, a dear old lady of about 80-85 years old. She was enthralled at what I was doing. Together we went over to the glider – she even managed to climb in and have her photograph taken! She then explained that I did have an accommodation problem as the nearest sizeable town was 95 miles away and the only place any closer was a house of ill repute, which could not be recommended! Whilst the inevitable depraved thoughts were still at the embryonic stage she solved the problem at a stroke. "You are an airline pilot", she said. "Take the Lear Jet and bring it back in the morning!" That very lovely lady was totally serious. I politely thanked her for the offer and her concern, and took my chance down the road. She then insisted that I take the Cadillac and return to join her for breakfast next day. Life is certainly enriched through gliding.

How now does one follow that? Well for me life is about to begin again at 55. In May I retire from Cathay Pacific Airways to a custom built villa beside an airstrip and golf course in Spain. My Stemme S10 is due for delivery at that time – so watch *S&G* for notification of the big two-seater triangle holidays in Spain starting soon. Even better, if you can speak Russian and Chinese, then Gorby and Deng might let us through to Hong Kong! One thing will be for sure – I won't have a schedule to keep any more. The Air Force and Cathay have been very good to me but soon now I will return to my first love, the supreme enjoyment of close harmony with nature, the elements and that wonderful "feel" for the air that fires and captivates soaring pilots worldwide.

THE FLYING LIST

Geoffrey Haworth from the Norfolk GC says flying lists are a work of fiction

The system, as I understand it, is as follows. On arriving at the airfield you put your name on a list indicating the type of aircraft and flight required – two-seater, training, check, single-seater, motor glider, syndicate etc. This list forms the basis of a batting order or queue for the order of flying during the day.

Now, what does a high position on the flying list mean in practice? That you must fly as your turn comes up or that you can claim the flight at the most propitious point of the day? And if the latter, are you entitled to leave the launch point until the best conditions prevail?

The situation becomes more confused as separate queues with different criteria become absorbed in the main list. Syndicate partners wait only for launches but are selective about their timing. Club courses operate their own list. *Ab-initios* will take anything at any time but become increasing instructor selective, melting into the background when their turn coincides with their *bête noire* instructor.

Trial instruction lesson clients fare well, often flying well ahead of their listed places because (a) they represent extra club revenue; (b) they or their numerous retinue are potential members and (c) they provide air-hungry AEIs with free flying.

But there are others for whom the list appears to be an irrelevance. "I know there is a long list, old boy, but I wonder if you could squeeze in the chairman of Little Muddlecum GC?". And when last did a visiting grandee of the BGA appear on a list?

But there is more. As the day progresses and improves yet a further queue develops – of gliders. Indeed the presence of a glider at the head of the line seems to accord it a launch priority quite irrespective of the time of its owner's arrival or place on the list. This is the big boys' queue, the pundits queue, some of whom put away such childish things as lists years ago.

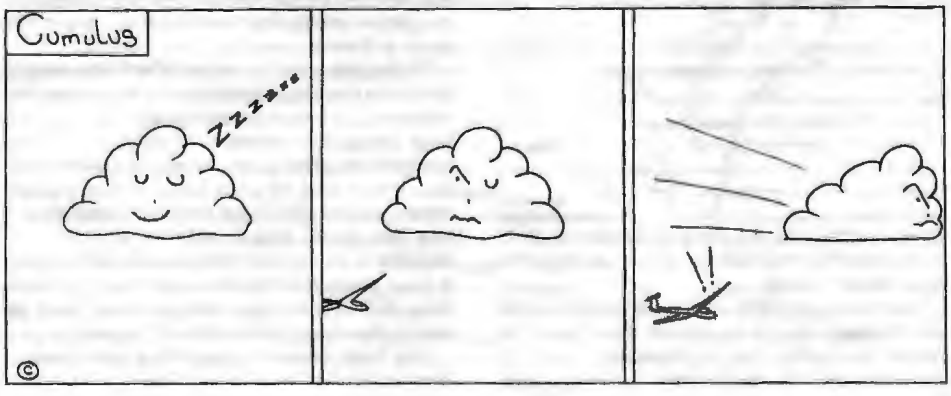
We can probably all name a member who possesses the happy knack of arriving just after the DI'd machine has been taken to the launch point, who completes his rig as the thermals bubble, appears miraculously at the head of the line as the tug arrives and returns in the gathering doom to the clang of closing hangar doors and the tinkle of glasses in the bar.

Back to the flying list, now with the log at the launch point and perhaps lying snugly in a plush flight control caravan or wafting in the breeze on a pile of tyres. Who shall administer this instrument of priorities? Practice varies. Some clubs operate with military precision, others work on the *laissez faire* all pals together principle.

Many place that responsibility on the duty instructor who, aloft as he normally and properly is, delegates it to the log keeper. But log keepers aren't renowned for their seniority. It is usually an eager *ab-initio*, a female member on the grounds that women can write neatly and do sums or is given to a hapless youth seen loafing about. None are likely to have sufficient clout to haul a Gold badge pilot out of the line to wait his turn like the rest.

So the list operates in merry confusion, which so characterises our movement, and the whole thing sorts itself out with a modicum of justice. The log/list keeper will bite his lip as he watches his elders and betters leap-frogging the queue content in the knowledge that he, too, will soon be in a position to do the same.

Perhaps there exists somewhere a paragon of a gliding club which has honed its procedures to perfection to an extent that nobody ever grumbles and all are content. I'd like to know where it is, though I'm not sure I would want to join.



MERRI'S PROGRESS

Learning From Mistakes

This isn't easy to write about – not that I'm embarrassed by having made a series of stupid mistakes but because, in retrospect, they were so very silly I still shudder when I think of them, and this is a few months on. But I learned a lot from this episode and hope it might be of value to others.

I was sent on a 300km task from Bicester, Potton mast, Pewsey, Northleach, in the Astir. The only unknown territory was Pewsey – I live quite near Northleach and have flown over the area before, and I did my PPL at Cranfield. I asked, as I was drawing out the task in the briefing room, what the wind was forecasted to be and was told "light and variable". Mistake number one: I should have looked out of the window. By the time I launched it was definitely south-westerly and growing stronger.

I picked up a cracking blue thermal to the north of Calvert brickworks which took me to Milton Keynes. I then switched the radio to Cranfield's frequency to pick up whatever I could about wind speed and direction in case I had to land shortly.

By this time the sky (which had been reluctant at the start) was absolutely heaving and, remembering my lessons about speed-to-fly, I was quickly past Cardington and searching for my TP. I must have flown past it because I sure as heck couldn't find it! So I turned on to the next leg and continued back to Cardington. I still couldn't find Potton mast even as Cardington came in to view. I could see Cranfield in the distance to the north-east. Incidentally, this leg took me along the edge of the Luton zone.

I suddenly saw a ground feature which didn't look like anything I'd encountered before. It was a series of concentric circles of poles and looked like some sort of memorial. I circled to the north of it for some time wondering what it was and, as I didn't recognise it, could I have stumbled into the Luton zone? Mistakes numbers two and three; I felt the drift of the wind and had a recent direction and strength report from Cranfield. How could a south-westerly wind which was increasing in strength have drifted me towards the south? If only I had stopped to consider this I wouldn't have turned north, reckoning that I couldn't be more than just on the edge of the zone.

Given the direction of the wind and its strength, I was soon over countryside that looked like the back side of the moon. I thought everywhere in the UK was gently rolling hills! Did it occur to me to unfold my map further? Mistake number four. If I had, would it have done me much good? I don't know.

There were a lot of large airfields which I skirted. At my height this was an unnecessary precaution but how was I to know they were MATZs? I saw a city with a lake off to the west and chimneys on its southern border. As it didn't look like anything on my map I radioed Bicester but they didn't know either. Why should they when they expected me to be considerably further south-west?

Even I had to admit the situation had reached ungovernably stupid proportions and looked for a field. They were all filled with cabbage, sugar-beet, sweetcorn (and yes you can recognise them from a considerable height by their colour) or big round hay bales. I used to trade in grain and couldn't for the life of me figure out where they grew sugar-beet and sweetcorn in this country.

Finally I saw a clear field and set up a circuit. I heard an instructor's voice thundering in my ear – "What about those downwind checks?" and completed them. I'll probably hear that voice for the rest of my life. I landed (safely) and a farmer drove into the field. When he told me where I was I can't describe how far my heart dropped. I thought wildly – Boston, Northamptonshire, Boston, Leicestershire? Please let it be anywhere but Boston. He must have seen the look on my face because he added gently, "Boston, Lincolnshire."

There wasn't anyone who flew who wasn't lost at some time

Back at Bicester I phoned my husband. He had been told about my extravagance and I thought it better to get the reading of the riot act over with quickly. To his credit he told me that there wasn't anyone who flew who hadn't been lost at some time or other. What was important was that I knew where I had gone wrong and have learned from it. As he has an ATPL and over 6000hrs (and quite a few gliding hours) I chose to accept this. The Bicester point of view was much the same. The remedial work encompassed not so much navigating from A to B, which wasn't such a problem, but learning what to do when temporarily unsure of one's position.

What is truly galling is that the mistakes were all so basic and yet they were based on what I felt at the time was reason. It is an error I won't make again. Also, the consequences weren't nearly as bad as they could have been. If the wind had been a few more degrees over it could have drifted me into the East Midlands zone. On the other hand if I had crossed the M1 again I would have been over more familiar territory. What a way to learn. Is it so hard for everybody?

It was the first barograph trace which looked right – fast climbs and lots of bouncing off weak lift. Successful cross-country flying is a combination of factors and hopefully I'll be able to put all the pieces into place this coming season.

To summarise, when uncertain of where you are don't go belting off in a straight line; the changing terrain will only exacerbate matters. Circle overhead and try to pull all the features on the ground into play when identifying the location. If still lost, find a good field and land.

Incidentally, the concentric circles were Chicksands, referred to on the half mil map as "aerials" – and they didn't look like any aerials I had seen. The city was Peterborough. And yes, during all this flight I was very much aware of the direction of the sun in relation to my headings. The decision to fly north was a conscious one which might have made sense had I stopped after five minutes, given the strength of the wind.

OVERSEAS NEWS

Please send news and exchange copies of journals to the Editor, 281 Queen Edith's Way, Cambridge CB1 4NH, England

SWEDISH CUSTOMS

A Swedish glider pilot, subjected to a spot check on arriving back at the Swedish border after a long trip abroad, was found to have 20 bottles of spirits, 25 legs of fresh meat and several hundred cigarettes stowed in his Jantar. The glider, trailer and car were impounded . . .

DON'T CRY . . .

The Argentine "Evasion" gliding centre in the small town of Chacharramend, in the Pampas 800km from Bueno Aires, has a fleet comprising Open and Std Jantar, Cirrus 75 and Marianne. The Centre enjoys eight months of fine gliding weather each year (best period November to April) and is surrounded by 27 000sq miles of uncontrolled airspace. A suitable venue for a RAFGSA expedition?

VENEZUELA

The next time you happen to be in Caracas call Geromil Frolik, a veteran who has been gliding there since 1952. His club – the only one in Venezuela – has a fleet which includes a PIK 20E, Motor Janus, Calif Caproni, K-21 and Schweizer 2-33.

BAILLEAU

On August 2 eight out of 26 competitors at the international contest at Bailleau, France, completed a 762km triangle.

ARDHRA

The Swedish magazine *Segelflygsport* reports that over 200 Ardhra gliders have been built in India since 1983, and asks its readers whether anyone knows what one looks like. Does anyone know?

MAX BISHOP

LOOKING BACK

OTTO LILIENTHAL (1848-1896)

The world's first true aviator

Otto Lilienthall was born in Pomerania and educated as a civil engineer at Potsdam and Berlin. He served in the Franco-Prussian War of 1870-71 and then held various engineering posts before starting his own machine shop at Gross-Lichterfelde, near Berlin. His inventiveness, enthusiasm and energy ensured success for the venture, but he still found time to pursue his lifetime passion for the study of birdflight and aeronautics.

As a child he was inspired by the graceful gliding flight of storks that nested in large numbers near his home; an engraving of storks in flight appears as the frontispiece of his major published work. From the age of 13 he was already making simple aeronautical experiments which by 1868 became a serious scientific analysis of the action of birds' wings, both gliding and flapping. There followed a long period devoted mainly to his engineering career until in 1886 he was able to come back to the subject which fascinated him.

Glider No. 5, 1892. A sketch made by Chanute from a photograph.

Bird flight as the basis of aviation

Helped, as before, by his brother Gustavus he embarked on a long series of observations and experiments designed to reveal the energy required for various kinds of flight. He studied the resistance of flat and curved surfaces to movement through the air, the curvature of wings for best lift, movements of centre of pressure and the influence of various wing plans. Results and conclusions of this work, of major importance and consequence for the history of aeronautics, were published in 1889 in **Der Vogelflug als Grundlage der Fliegerkunst (Birdflight as the Basis of Aviation).**

This book and the accounts of Lilienthal's subsequent gliding experiments inspired and helped those who followed. In 1920 Orville Wright said, "In 1896 we read of the experiments of Otto Lilienthal, who was making some gliding flights from the top of a small hill in Germany. His death a few months later while making a glide off the hill increased our interest in the subject and we began looking for books pertaining to flight." One book which they found was Lilienthal's and the Wright correspondence contains well over 100 references to it, most of them pertaining to the results of Lilienthal's experiments in aerodynamics and practical gliding.

Down hill into wind

From the many detailed conclusions which Lilienthal drew from his experiments certain stand out now, 100 years later, as of momentous importance to the development of aeronautics. His experiments had been made with small sample wing sections on an apparatus of the whirling arm type. He now wished to verify his results on the scale of a man-carrying glider. He had concluded that power requirements to drive arched wings through the air were small and that using a combination of gravity and gentle hill lift, reasonable distances could be flown by a glider down hill into wind. This would have the added advantage of keeping him close to the ground – prudence! Unlike most nineteenth century would-be aviators he did not feel that the key to success was a light-weight motor. To him the key was air experience. The air was a rough place – especially near the ground and the slightest eddy or gust had to be counteracted by a shift of balance. In short, one must learn to fly and the only way to learn was to get into the air. Having done so, he began to advocate hang gliding as a healthy sport for its own sake.

Successful gliding

From 1889 to 1896 he built nearly 30 hang gliders, starting with a tailless bird-form machine which was not successful. By 1892 he had tried various forms of tailplane and various areas and dihedral angles for his wings. In the November issue of *Zeitschrift fur Luftschiffahrt* we find the first-ever published account of successful gliding experiments. It was written by Lilienthal himself and here it is, abstracted and translated by Octave Chanute in 1894:

Many theories have been proposed to explain soaring. My own explanation is based upon the advantageous relations of air resistances incident to the use of slightly curved wing surfaces and upon the gently rising trend of air current which I have found to prevail.

A flying apparatus which has the same proportions as those of a good soaring bird and is of sufficient size to carry a man, can scarcely be held fast by three or four men together when exposed to a brisk wind. When we look at the safe and quiet sailing of the birds, it almost seems as if some undiscovered mechanical principle were at work, some feature in the elastic properties of air or in the elastic curvature of the feathers which accounts for the mystery of sailing flight; but my experiments have taught me that there is no mystery, and that the same mechanical science which has explained the theory of the steam engine and followed the orbits of the planets is adequate to explaining the operations of soaring flight.

Dexerity alone, in my opinion, invests the native inhabitants of the air with superiority over man in that element. . . Inasmuch as continuous soaring with large wings in high winds can terminate in scarcely anything but the destruction of the foolhardy fellow who may first attempt the experiment without previous practice, I first undertook last year to gain some expertness with a smaller apparatus and in moderate winds. In spite of my caution the wind several times played the mischief with me. Even with only 86sq ft of sustaining surface, I was several times tossed up into the air by unexpected gusts of wind and but for the circumstance that I was able to release myself quickly from my apparatus, I might have had a broken neck instead of the sprains in feet or arms which always healed in a few weeks.

Glider No. 6, 1893.

Almost every Sunday, and sometimes on week days, I went out to practise on the hill between Grosskreutz and Werder. A mechanic, Herr Hugo Eulitz, the maker of my apparatus, went with me, and each practised alternately while the other rested. Thus we obtained dexterity in gliding down on the air and in landing at the foot of the hill without mishap.

Equipped with the experience gained in 1891, I this year attempted to soar with wings measuring 172sq ft in surface. My apparatus weighed 54lb, and my own weight is 176lb, so that the whole was 229lb. Each square foot of surface, therefore, sustains 229÷172=1.33lb.

The strongest winds in which I practised had a velocity which I estimated at between 15 and 16

Glider No. 11, 1894. Several were built.

miles/hr. By running I obtained an additional velocity of 7mph, making the total relative velocity 23mph, which was required for soaring. Under these circumstances the first part of my flight was almost horizontal, and the alighting was always a gentle one . . . Each apparatus had a vertical and horizontal tail, without which it is impracticable to practise in the wind. In conclusion, I will remark that sailing flight near the earth's surface must be much more difficult than at greater heights, where the wind blows more regularly, while every irregularity of the ground at lower levels starts whirls in the air.

Chanute's own conclusions are, as always, worth noting:

This is what Herr Lilienthal *has undertaken; he has done so with great prudence and good sense, and so far as the results of his experiments have been published they teach several valuable lessons.*

It seems now reasonably possible for designers of soaring machines to experiment with their apparatus without further search for some hidden secret, for Herr Lilienthal *says that his experiments have taught him that there is no mystery about sailing flight; that the wind is sufficient to account for it. Inventors need not look for some new mysterious force, some "negative gravity," to take them up into the air; nor need they be afraid that if they propose to experiment with soaring machines they will be considered lunatics. The main question for them to consider is that of the equilibrium.*

A well-reported crash

Lilienthal had started his gliding experiments in his garden by making running jumps from a springboard, had continued at a gravel pit near Sudende and later from the top of an artificial hill near his home at Gross-Lichterfelde. The hill, 15m high, was built with material excavated during the construction of a canal and was crowned by a small hangar to shelter his gliders. Finally he moved to an area of bare sand hills near Stöllen.

From 1896 evolution of his designs continued with varying wing surface area, the largest, No. 7, spreading about 190sq ft for light winds and the smallest, No. 10, about 100sq ft his *Sturmflugel-modell* for strong winds. His No. 6 could be folded for ease of transport and incorporated a freely hinged upward travel tailplane designed to absorb gusts and avoid nose-dives. His No. 9 *(Modell Stöllen)* had important fallout because it figured in a well-reported crash:

Lilienthal writes thus of the extreme care needed in making changes in an air-sailing machine:

My neglect of this circumstance I once came near paying dearly for. The winter before last I constructed several machines, the sustaining surfaces of which had an exact parabolic profile which almost coincided with the arc of a circle. The holding point for the hands and arms I placed in such a manner that the C of G of the body was, on the average, situated one-tenth of the width of the wing in front of the centre of the surface. In my experiments made before Easter from the still higher mountains near Rhinow, I perceived that I had to bear with the upper part of my body a good deal towards the back to prevent my shooting forward in the air with the apparatus. During a gliding flight taken from a great height this was the cause of my coming into a position with my arms outstretched, in which the C of G lay too much to the back; at the same time I was unable – owing to fatigue – to draw the upper part of my body again towards the front. As I was then sailing at the height of about 65ft with a velocity of about 35mph, the apparatus, overloaded in the rear, rose more and more, and finally shot, by means of its vis viva, *vertically upwards. I gripped tight hold, seeing nothing but the blue sky and little white clouds above me, and so awaited the moment when the apparatus would capsize backwards, possibly ending my sailing attempts forever. Suddenly, however, the apparatus stopped in its ascent, and, going backward again in a downward direction, described a short circle and steered with the rear part again upwards, owing to the horizontal tail which had an upward slant; then the machine turned bottom upwards and rushed with me vertically towards the earth from a height of about 65ft. With my senses clear, my arms and my head forward, still holding the apparatus firmly with my hands, I fell towards a greensward; a shock, a crash, and I lay with the apparatus on the ground.*

. . . A flesh wound at the left side of the head, caused by my striking the frame of the apparatus, and a spraining of the left hand, were the only bad effects of this accident. The apparatus was, strange to say, quite uninjured. I myself, as well as my sailing implements, had been saved by means of the elastic recoil-bar, which, as good luck would have it, I had attached for the first time at the front part of the apparatus. This recoil-bar, made of willow-wood, was broken to splinters; it had penetrated a foot deep into the earth, so that it could only be removed with difficulty.

Biplane glider No. 13, 1895.

This translation of an article by Lilienthal in *Zeitschrift fur Luftschiffahrt*, March 1895, appeared in the *Aeronautical Annual for 1897* which the Wright brothers obtained from the Smithsonian Institute in 1899. It probably influenced them in placing the elevator ahead of the wings in order to have the best protection against a nose dive. Thus all the Wright gliders and aeroplanes until 1910, and many others inspired by them, appear to be going backwards.

First glider manufacturer (£25 each)

With his No. 11 *(Normal Segelapparat 1894)* Lilienthal became the world's first glider manufacturer. He produced at least nine, some of which were sold (for £25 each), including Percy Pilcher's, which survives in the Science Museum, London. The one now in the Smithsonian was sold to the famous American newspaper proprietor, William Randolph Hearst.

Subsequent developments included his No. 15 Biplane Glider of 1895 (now in the Deutscher Museum, Munich) and two monoplanes which were designed to be fitted with compressed gas motors, but were only flown as gliders. His last glider, No. 18 1896, a monoplane with double-surfaced thick-section wings, was never flown.

An unforgettable impression (a delicious sensation)

With these gliders Lilienthal made about 2000 glides, many ranged from 300ft to 750ft, and by assiduous practice achieved good control by swinging his legs and body. Excellent photographs attest to the interest shown by visitors who came to watch, and eye-witness accounts include the following:

"The sight of a man supported by large white wings, travelling high above, with the speed of a racehorse while the wind produces a strange humming in the wires, makes an unforgettable impression." *(Boston Transcript,* 1896)

No. 16, 1893, was a powered hang glider with ornithoptering surfaces flown as a glider in 1894.

And the account of a pupil in 1896 is: "I remained still for some moments, facing the wind, getting used to the machine; then Lilienthal said, 'Go'. I ran slowly against the wind; the machine seemed to get lighter with each step; I could feel the force which lifted me. Suddenly my feet left the ground and I was gliding down the slope one ➡

or two feet above it. The glider tended to lean to one side and then the other, but (to my great relief) I succeeded in landing safe and sound. In gliding through the air like this, one feels a delicious sensation quite indescribable."

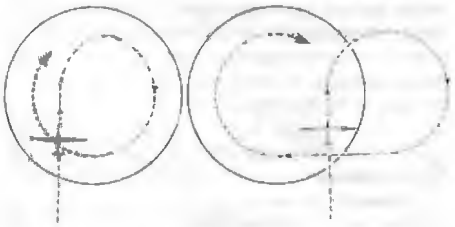
The world's first true aviator

Lilienthal died on August, 10 1896, of serious spinal injuries sustained the previous day following a crash. He was flying one of his No. 11 standard gliders and had already made some glides in gusty winds. A gust forced the nose of the machine upwards, making it lose airspeed. Lilienthal immediately shifted his weight forward as much as possible, but the glider stalled and crashed from a height of about 15m. He was the first to die as the result of a crash in a fixed-wing aeroplane.

In his book **The Aeroplane: an Historical Survey,** published in 1960, Charles Gibbs-Smith summarised Lilienthal's aeronautical career as follows:

It is hard to over-estimate the vital force which this great pioneer injected into aviation, as much after his tragic death as before. His influence was universal and profound: extracts from his technical writings were translated and read by all who were convinced that mechanical flight would one day be accomplished, and the overall effect of his work was greatly increased when his successful flights were well photographed, and were published the world over by means of the then new method of half-tone reproduction, and other techniques, in books and periodicals; these photographs, and the information which accompanied them, also demonstrated forcibly that it was necessary and possible for a man to be launched into the air and fly – despite the lack of an engine – in order to gain essential experience in design and control. Lilienthal was the direct inspirer of Pilcher and the Wrights, amongst many others, and may fairly be described as the world's first true aviator; that is to say, he was the first man to build practical heavier-than-air aircraft and fly them consistently and successfully.

THERMAL CENTRING



You will spend half your time gliding going around in circles. What I know about thermal centring can be written on the back of a postage stamp, but that little I think is worth knowing. Like hitting a ball at tennis, hitting a thermal on the nose is simple in principle but requires considerable skill to achieve consistently.

In a typical situation you are flying straight and level when you feel lift (otherwise known as positive seat force). Virtually instantaneously you hear the variometer trill and see its needle rise. In my experience variometer lag is virtually zero.

Start counting and when you reach four seconds turn hard to the right

What do you do now? Answer, nothing. Start counting and when you reach four seconds turn hard to the right (or left if that is your preference). On half the occasions you have hit the thermal left of centre so you are already centred, on the other half you are right of centre so you fall out of it. You then continue until you have turned through 270°, level out, count four seconds and then kick into a right turn again when you should be centred.

If after a while due to inattention you fall out of the thermal, you can usually get back in with a 180° turn, then level out, count four and kick into a turn. Similarly, if you suddenly bump into a bit of the strong stuff, do the same again, *ie* level out, count four and kick in.

The basic idea is that it takes 20 seconds to do a circle and about seven seconds to cross its diameter, so if you count four then kick into a turn this is near enough to seven seconds. When you centre you do the same again. This means that the new circle overlaps the old one, so if you decide that you were better off in the old one you can get back to it with a bit of luck.

Usually when circling you encounter little bits of strong lift in which you can snatch and climb away from other less wide awake pilots, but when you are low and find some weak lift there is a terrible temptation to snatch. It is essential to appreciate that counting four before you turn is the optimised procedure and in these circumstances you must adhere to it just as you do near cloudbase.

People talk about having a low lag variometer and so on but the smallest meaningful manoeuvre you can do in a glider is four seconds long so highbrow electronics and lightning reflexes are a load of rubbish.

After you have been airborne for about 30 minutes you should have a feel for the flavour of the day. Sometimes the thermals are small and need the optimised procedure, sometimes the clouds are large and you can fly straight through until you find the best lift. You won't develop as a pilot unless you find your own thermals and vary your technique in an intelligent manner. Flying in gaggles often is encouraging as you find you usually can climb as fast as the next man.

I am sorry to harp on such simple matters which must be ancient history to most pilots, but I still hear that respected instructors preach that you must turn as soon as you hit lift. There is no knack to thermal centring. Thermals are invisible and noisy and your only hope is logic and accurate flying.

You should be able to do a cross traverse manoeuvre which is good practice. You fly straight through and out the other side, counting the duration of lift. You then turn 180° and turn at the centre to traverse the thermal at right angles to the previous track and measure by counting its size in that direction.

At first it is usually difficult to fly away from a thermal, then turn back and try and find it again, however, you must practice and practice until you can do this consistently. You should eventually be able to say to yourself, at least if you are flying a Nimbus 3, that if I can see a cloud I can get to it. If I can get to it, I can centre in the thermal within 30 seconds. I can usually get to cloudbase from whence I can usually see another cloud and so on.

Cockpit cushions. *Following the comment on these cushions by Doug Carter on p14, Tony Segal says that SUN-MATE, the energy absorbing foam, is now stocked by RD Aviation Ltd. See their advertisement in this issue for details. DLR foam is no longer available.*

S & G CLASSIC

CHOSEN BY THE ARM-CHAIR PILOT

PENGUIN ON SNOWDON

The other day the Arm-Chair Pilot was in his proper element, flying a Slingsby Swallow over Scafell. Before his launch he had been asked by a passing walker, Alan Brown, a former glider pilot, whether he knew Stuart Waller, the author of a remarkable article in *S&G* years ago called "Penguin on Snowdon."

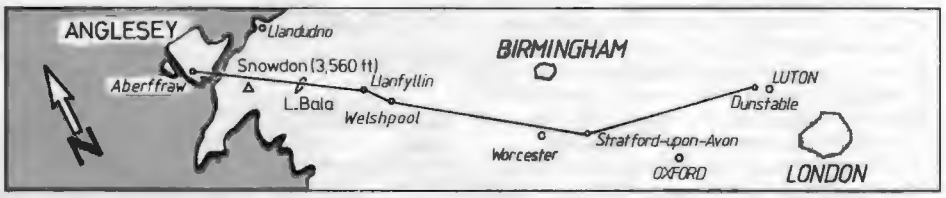
I had to reply that, although I knew Stuart well enough, I had quite forgotten that he had written about his epic flight from Dunstable to Anglesey in 1963 in a famous Swallow called *Penguin*. Here is his matter-of-fact description of a flight that should certainly not be forgotten (*S&G*, October, 1963, p327), and as the article is rather short I shall add a little background.

Stuart Waller, John Griffiths, John Deas, and the Arm-Chair Pilot were undergraduate members of the Cambridge University Gliding Club together, and we built a Swallow from a kit supplied by Slingsby Sailplanes. Stuart was easily the best pilot among us, a natural from the moment he first stepped into a glider (I even remember how many T-21 launches he took to go solo – 24).

The best pilot — and our smallest!

He had already flown Penguin from the Long Mynd to Great Yarmouth for his 300km in 1961, and on July 28, 1963 (not August, as he says in the article) he took her not merely another 300km, but over the top of Snowdon on the way. Not the least remarkable feature of this extraordinary achievement was sitting in a Swallow cockpit for 7¼hrs, but Stuart was not only our best pilot, he was also our smallest!

It is part of folklore that Penguin's performance was better than an ordinary Swallow's, but I doubt if it was noticeably so. The only real difference was that on Fred Slingsby's advice, and without telling the BGA, we had reduced the seven degrees of wash-out to four (or was it three?) during construction of the wings. Probably of greater importance was that, being a privately owned Swallow, she was beautifully finished and lovingly polished. (Someone should write her history for *S&G* one day.) She is now flying in Kenya, but surely July 28, 1963 was her heyday.



This is the tale of a short stubby-winged glider, a Swallow named Penguin, which one day outflew several long-winged pundit gliders to become the first glider to land in Anglesey.

The date was Sunday, August 28, the second day of the Dunstable Regionals. The task set was distance along a line to the Long Mynd and Holyhead.

I chose an early start time and was airborne by 11.15am. There were plenty of thermals, but all rather weak above 3000ft asl. I cruised slowly between 3000ft and 2000ft, spending a lot of time circling. It took two hours to reach Stratford-upon-Avon. The inversion had risen appreciably by now and was around 4000ft, cutting off all cloud formation.

Stratford-upon-Avon.

Over Bromsgrove I shared my first thermal with the Fauvette. I little realised that I would be seeing a lot of this attractive sailplane. We flew together in several thermals, which gave me a pain in the neck, as he was always about 100ft above me.

At the Clee hills there seemed a lack of thermal activity. Two gliders on the ground did nothing to boost my waning confidence. Then I observed the K-7 chasing its shadow around a cornfield. I flew overhead into the welcome lift. The climb was very slow until Peter Scott joined in about 500ft above me. The thermal immediately responded and we shot up to 4000ft.

I enjoyed another fast climb near the Long Mynd, this time with Mike Riddell, before he sped off into the haze towards Wales. Conditions were now excellent. The Fauvette appeared again, this time below me. Soon I was 4000ft over Welshpool. But it was now 4.30pm. Would the thermals last so that I could reach Snowdon, I wondered!

After Welshpool I decided to veer north off course so as to avoid the more desolate part of the mountains. So I headed for Llanfyllin where I hoped to find my next thermal. Sure enough it was there, but very weak. The Fauvette appeared

Yachts on Lake Bala.

low from the south-west. He tired of the weak lift first, leaving me to sit it out. I gained a valuable 1000ft, and now at 3500ft set off towards Llangynog. The valley fell away below me showing a cluster of sailplanes fieldbound. At least I would beat those gliders, I thought, and headed up the valley towards the Berwyns.

But I was now below the higher peaks. The hills fell steeply to the valley below, where the road wound its way up to the pass 1700ft high, until it disappeared from sight on its descent to Bala. I was low enough to appreciate the grandeur of the scenery. My deliberations concerning a landing near the summit were forgotten as I hit rough turbulent air. Soon I was back to 4000ft looking down at yachts sailing on Lake Bala.

I approached the earth embankment being constructed in the Afon Tryweryn. The Fauvette was there ahead of me, circling. By the time I got below him he had used up all the lift and I was left scratching around. Again I had serious doubts concerning the height I would have over the pass to Blaenau-Ffestiniog. The cars travelling along the B4391 looked rather close.

Forbidding landing country. Drawings by Peter Fuller.

Once again I was rescued at the head of the valley where I encountered a thermal which built ➡

BROWNIE POINTS

Some advice for the married male pilot on keeping the wife happy while he slips away to the gliding club

It is a fact universally acknowledged that marriage and gliding are not entirely compatible. The time that needs to be spent away from the haven of domestic bliss is considerable. The lures beckon: the glittering prizes of noble metal and diamonds, a place in the national competitions, an honorable mention in *S&G* and, at the very least, a summer's afternoon spent somewhere in the clouds.

As many a married man has come to realise time has to be bought. Otherwise he might find himself rather short on hot dinners – or worse. After a day in the skies, nicely rounded off in the bar with the boys, he might arrive home to find a note nailed to the fridge door saying she has run off with some guy more attracted to the ground like the postman, or the milkman, or a stockbroker who enjoys wrestling in mud.

The answer, like Oscar Wilde's definition of truth, is never pure and rarely simple. And minds as devious as the wind on a cross-country have given much thought to the matter. The system to be avoided at all costs is the popular ploy of clocking up "brownie points".

There is no sight more pathetic than a glider pilot spending weekends of glorious weather mowing the lawn, trudging around the markets, visiting her relations and painting the kitchen. All this in return for a few quick launches on a wet Sunday. Even then it can be preceded by hours of collective bargaining ending with the so-called injured party bursting into tears and saying that you don't love her any more. At the time you don't but you might just change your mind.

Like the rhythm method it had the disadvantage of letting you down. There are those reproachful looks at the front door as you leave on one of the worst days of the soaring season wondering whether you'll even get launched let alone make the 500km to Leeds and back. But don't be tempted to take the wife and children. And certainly not the dog. Animals have a kind of telepathy, and it has been known for one to bite the CFI in the leg just as he's about to tell the *ab-initios* how he got his Gold.

Pam tried gliding but couldn't afford the time hanging around the airfield for a lesson – the reason she thinks many women give up. Though married to a glider pilot, she doesn't operate the BP system but leaves it to his conscience – "and he doesn't often have one!" Pam, who has two children and a philosophy degree, teaches business administration at a local college.

What is needed is that she wants you to go. Another word of warning here. Don't touch the method used by older pilots of making themselves so objectionable about doing anything around the house at weekends that their wives can't wait to get rid of them. This method has considerable drawbacks.

It is likely to prove very expensive when she calls in the tradesmen in your absence. You are then faced with bills demanding huge amounts of money for fitting a washer on the tap, and find your glider insurance savings gone settling the accounts of Cutie Decor. There are times when even the most dedicated of pilots will admit that the fireside and the Sunday papers have their attractions. No one wants to be cold-shouldered out on to a windy airfield populated only by the club fanatic, while Her Indoors is indoors, cosy and warm.

So not only do you need to develop a system where she wants you to go to the airfield but you are also welcomed back.

With that brief in mind I offer a few suggestions, some of which might work. But there is no telling with women.

1. A Toy Boy. This is an extreme suggestion to be taken up only by the very indulgent or truly desperate. If this method is used avoid introducing her to another club member, no matter how young and dishy. Not that there are likely to be too many suitable candidates among the average members. Besides which the idea is to occupy her weekends while you fly. It is inconsiderate to lumber a fellow pilot with your problems.

2. Reverse the Brownie Points System. Why didn't you think of it before? In return for her mowing the lawn, painting the front of the house, and building a fitted wardrobe in the room kept for Aunt Mabel's all-too-frequent visits, offer her a reward of her choice. With limits of course. While she is occupied indoors collecting the tokens you are out collecting the kilometres. If steered in the right direction this method can be used in conjunction with the following and so save further expense.

3. Buy her a personal computer. From your own experience at work you will have realised what hours of endless fun and enjoyment can be gained from a really user-unfriendly system. Be sure, however, to choose a model with which you claim to be unfamiliar otherwise valuable hours will be wasted. Find a young salesman to do the initial training. (Not too personable, or the teacher-pupil relationship could develop into a Method One – or please yourself.)

On weekends when the weather has totally turned against you and withdrawal symptoms are twitching don't be tempted to show her how to operate a gliding programme. Another time when you have fallen out of the sky you are likely to be treated to a vigorous post-mortem.

For those wives who are not into high-tech, a word processor might be a wiser choice. After it has taken her a month to master all the controls she can then use it to write letters to all her friends and relations, so cutting down on visiting them.

There are other well tried and tested methods, but some of them need to be approached with a little caution.

An Open University course has much to recommend it, and combined with the purchase of a computer will see you home and dry. It will take hours of her time for years. When finally she has been awarded the degree you may be faced with a case of "She-Who-Knows-Everything", but by then you may be power flying.

The Women's Institute and charitable works have their setbacks. You have to become involved in the activities from time to time and may not actually enjoy handing out pamphlets for the Samaritans late on Christmas Eve. It is a small price to pay, and one day when you land out in parts where your syndicate partner cannot reach, you may need them.

Nothing in life is without its drawbacks. The Wife of Bath remarked that it is better to be wedded than to burn. For the sake of the art it might have been wiser to wallow in lust. But at end of the day the married man has to remember like everyone else that **he who flies must pay his debts.**

---

up until cloud formed overhead and lifted Penguin over 5000ft. Snowdon was now in the bag. I looked joyfully towards the sacred mountain, scene of previous Penguin pilgrimages.

It was now 5.30pm and with 2000ft showing I tucked a wing over the jagged face to Yr Aran. The rock escarpment fell away sharply to the lake below: forbidding landing country this! The wind was too light to provide hill soaring. But the hot sun beating on to the rock was providing anabatic wind sufficient to lift Penguin. Gradually Snowdon's peak slipped down to the horizon, until at 6pm I was at 4500ft. Snowdon had been soared. All lift had now subsided and I passed to the west of Snowdon, on final glide, too enthralled by the magnificence of the scenery to notice Riddell and Mike Costin sitting by their gliders below.

The Menai Straits reflected the red glow of the evening sun. The flight was nearly over. Penguin's penetration gave out at Aberffraw. The flight of 305km had taken 7hrs 15 min. Unfortunately I was 8km short of my declared goal.

I was much indebted to my determined team mates, Valerie Stephenson and Colin Pennycuick who drove over 700 road miles, and worked all Sunday night gathering tools from sleeping Welshmen to repair the trailer after a road accident had removed the undercarriage from the box. They finally knocked me out of bed at 7.30am.

Penguin has gathered more gold dust, Snowdon at last had been soared (is this the first time?) and we were in the lead in the contest.

THE ROVER WINCH

Above, the Rover winch showing the front roller box and the cable drum. To the right is a close up of the cable drum mounted on the rear wheel. Both photographs by Jerry Odell.

How would you like to take your glider in its trailer on the back of your car on an expedition and launch it half an hour after arrival with your own private winch?

You could do this by buying a Rover 3500 SD1 (V8 engine) and getting Jerry Odell of Sailplane Services Ltd to fit the necessary bits and pieces for £2400, including the drum of cable.

The work involves:

1. A special differential unit (the original Rover rear axle cannot handle all the power through just one wheel).
2. A combined wheel and drum unit which fits on to the left-hand rear hub in place of the original rear wheel.
3. A pay-on assembly and guillotine assembly which clips on to the front of the car.
4. A built in unit to jack up the left-hand rear wheel, and a chock for another wheel.

The special differential takes about two man-hours of a garage mechanic's time to fit, after which the car is still driveable under its own power. The other assemblies can be fitted in about 20 minutes, and with these fitted the car can still be driven with care round an airfield, (given a reasonably level, firm surface). When correctly positioned, simply winding down the built in jack, and placing the chock, turns the vehicle into a powerful yet simple-to-drive single drum winch. At the end of the day you simply take off the drum and pay-on assembly, refit the wheel, and drive it home.

The winch is easy to drive with all the normal comfort of a big Rover (heater, radio, sunroof, etc) and most important of all gives impressive launches. We were getting 1300 to 1400ft easily in light winds at Duxford recently.

Jerry is willing to visit your club and give a demonstration and it is well worth considering this method of providing a standby or second winch at a very reasonable cost. It works equally as well with piano wire or stranded cable. The drum will hold up to 1200m of 4mm cable, 1000m of 4.5mm cable or an enormous length of piano wire.

AWARD FOR HILARY

Hilary Trice has been awarded a trophy for the year's most meritorious air show performance in her Lo100. It was given by the Association of Air Display Organisers and Participants whose judges considered she made the best use of her glider with a display that appealed to the crowds.

Hilary has been flying for 20 years, first with the Tiger Club at Redhill using Turbulent aircraft in formation flying displays and then in air races in a variety of aircraft. She won the Round the Island race in a Condor and was then attracted to aerobatics for which she won various trophies.

Eight years ago Hilary transferred her interest to gliding and took part in the 1987 World Glider Aerobatic Championships in Poland.

DUTCH VINTAGE UPDATE

It will take another two years to repair the Sky Philip Wills flew into first place in the 1952 World Championships. It had been almost entirely demolished in an accident at Haverfordwest over ten years ago and is now owned by Raymond van Loesbroek who is working on it with a friend.

The Karlovich Minimoa, once owned by John Coxon, has been retrieved from America by Hans Disma, a Dutch airline pilot. It was overhauled last winter by Jan Vermeer and Hans achieved the longest flight at the International Rally in Hungary of 8½hrs.

MAIDEN FLIGHT OF DG-600M

The DG-600M, equal to the DG-600 but with a small retractable Rotax 275 engine, had its maiden flight in November. It is designed for the competition pilot who wants an engine for the launch and retrieve.

BRIAN SPRECKLEY

TWO YEARS ON- A FRESH APPROACH

While still there for the soaring pilot at all levels of experience, Brian Spreckley says his European Soaring Club at Le Blanc, France, is now offering new adventures for those looking for an added dimension in gliding

Regular readers will possibly remember my article "A Question of Environment" in the February 1988 issue, p23. It was written to herald the beginning of The European Soaring Club - two years later the club has enjoyed two excellent seasons with considerable success in achieving those early objectives of providing an environment dedicated to the soaring pilot. It was while drawing up the programme for 1990 that I realised we were broadening our original objectives and that maybe it was time to analyse the reasons for change.

Our Le Blanc site is almost perfectly situated for cross-country flying in the classic style with no mountains or sea to create natural barriers, good outlanding possibilities throughout the season and above all some of the best soaring conditions in Europe. We have also operated for one month each spring in the Rhone Alps with mixed results due to the uncertain weather during the last two years.

We could continue this combination for some time and provide flying suited to the majority of our members, however, the 1990 programme includes some new aspects of our operation which, while an obvious development to Gillian and me, are worthy of some analysis and explanation.

We have attracted a true cross-section from the largest to the smallest of clubs and pilots with the latest that money can buy in high-tech equipment to those with no glider and dreams of a Bronze badge. This mix gives us a stimulus difficult to find in any fixed base club. In addition we have the input arising from the differences in motivation and enthusiasm of pilots from all over Europe.

It is imposible to make comparisons between UK glider pilots and their counterparts from European countries with good soaring conditions - two years in France is enough to make one realise that there is indeed a difference. Here we are more concerned with the differences in attitude, aspirations and frustrations amongst the British pilots and it is for the fulfilment of these that the club has its purpose.

Traditionally a pilot's progress and experience has been measured by the badge system with the next leg the immediate objective and all three Diamonds the ultimate goal. When most were flying relatively low performance gliders, the three Diamonds were a significant challenge but how times have changed. With sophisticated machines and equipment these goals which one took ten or more years to achieve are now possible for some within two or three seasons. Pilots are also more mobile resulting in many badge flights in Scotland, France, Australia and South Africa.

This high-tech and mobility has brought a change in attitude and expectations amongst some pilots - one of gliding without tears or, some may say, gliding without effort. There is a tendency to fly the largest task that presents no risk of outlanding - indeed a feeling that an outlanding is in itself a failure.

There is a risk this emphasis on speed tasks and the ease with which they can be accomplished will remove the very challenge that is the essence of gliding, changing what is one of the most uncertain, visually beautiful and individual sports to a technical and repetitive exercise with little opportunity for new adventure.

While this trend may for the moment be restricted to the larger clubs, it creates a rôle model for the less experienced who may see this as his

K-21 soaring in the Val de Maurienne.

Mt Granier in the French Alps - one isn't usually this far away!

The ESC's Robin DR400 launching on to the Revard at Challes les Eaux.

objective – to join the pundits in their regular, well trodden triangular races. This attitude may lead to a sense of anti-climax after achieving every goal, the greatest being after Diamond distance followed by a period of searching for a new reason to soar.

But this feeling is relatively unknown by pilots who enjoy exploring what nature has to offer. Each flight has its own rewards and new achievements may be of a very personal kind which often appear insignificant to others. Many are considered to be eccentric or out of the main stream and their lack of obvious ambition sometimes considered to be a lack of ability or confidence in their flying skills.

When pilots with these completely different philosophies come together it is possible to exchange views and influence one another. And it is from these discussions that the ESC has found new objectives and horizons.

While it has always been our aim to create an environment for those wishing to soar and progress to a new challenge, we are now working to offer new adventures for those who have gained their personal achievements and are looking for a new dimension in gliding.

For the experienced pilot the club starts the season with an expedition to a southern Pyrenees airfield just inside Spain from which there has been no gliding except for a month or two last summer. Little is known about the possibilities of winter and spring gliding except that often the sky is full of lenticulars and flights of 1000km flown from Vinon and St Auban pass through the area. This first expedition will be exploratory with three club single-seaters and possibly two two-seaters, restricted to those with wave soaring experience.

During the summer we are organising two rallies, each lasting two weeks. The principle is to make the best use of the soaring weather by not operating from a fixed base. It is possible that given reasonable conditions a good deal of Europe could be covered but interesting flights will take priority over great distance attempts. A lack of preconceived ideas or plans is the very essence of rallies so little more can be said in advance except that may be you will read about them later in *S&G*.

The ESC spends most of the summer at Le Blanc and from mid May to September we accept 15-20 gliders each week, including our club fleet of single and two-seaters. We have two tugs and offer a basic service of briefing, task setting, weather information and launching. The inexperienced pilot may have supervised two-seater flying at Le Blanc and during the visit to the Rhone Alps. For those seeking more help we have courses at Le Blanc specifically for the Bronze to Silver badge pilots.

As an experiment for this season we are hosting a competition in conjunction with the gliding club at Le Blanc. It will be open to UK pilots and run alongside the French Club Class Nationals. The scoring and handicapping will be the UK system with an addition to accommodate Pilot Operated Speed Tasks.

While these adventures are more for the experienced the majority of the club's operation is designed for those who wouldn't normally consider flying abroad and for those who have little or no experience of soaring but are keen to progress and gain new experience.

To maintain a friendly, small club atmosphere we limit the number of private owners, so it is essential to book in advance whether as a private owner or for one of the club single-seaters. For further details of the European Soaring Club contact Kiera Hibberd, 45 Sandiford Road, Holmes Chapel, Cheshire CW4 7BU. Tel 0477 34655.

Flying in France always starts after lunch. Mt Peney is in the background. Photos: Tony Marlow.

BGA MAIL ORDER

GLIDING BOOKS AND ACCESSORIES

BGA SALES DEPT.
FREEPOST
LEICESTER LE1 7ZB

Telephone orders to:
0533 531051
ALL MAJOR CREDIT CARDS ACCEPTED

COMPLETE SHOP CATALOGUE SENT FREE ON REQUEST

ESSEX GC ON THE MOVE

North Weald Airfield has been the home of the Essex GC since the early 1950s. Rumblings with the CAA now indicate to all but the most naive that Stansted airspace will expand in April 1991 to overhead Epping-Harlow-Ongar and south to the M25 to accommodate ILS landing from the south-west. Normal gliding will be impossible in this area with an imposed ceiling of 1200ft above the ground.

We are taking urgent steps to buy a new site with access from either the M11 or A12 and suitable airspace for training, courses, trial instruction flights and cross-country competition. If any readers have news of land for sale in the north Essex or south Cambs/Suffolk areas, preferably where there was once flying, please contact me - tel 0279 76607.
John Rollason

WORLD CLASS GLIDER COMPETITION

The application form for the International Gliding Commission's World Class glider competition (see details in the April 1989 issue, p88) must be returned to the FAI by February 28 with the design submitted by August.

If you haven't all the details or want an application form, contact the BGA office.

RATINGS FROM FOREIGN COMPETITIONS

Pilots planning to compete in foreign competitions should note that Nationals ratings will normally no longer be given for such entries. The exceptions are:

1. World and European teams go to the top of the Priority List.
2. Pre-Worlds and Junior Europeans will be rated as if they were a UK Nationals.
3. Pilots resident abroad may apply to the BGA Competitions Committee for a rating from a foreign competition.
4. Competitions run abroad under BGA rules and organisation (*eg* the Inter-Services Open Class Regionals held for the last three years at Roanne).

The Competitions Committee does not wish to discourage pilots from flying in foreign competitions. The above ruling is intended to remove some anomalies in the ratings given to official BGA teams and prevent any long term reduction in the status of UK competitions.
John Taylor, *BGA Competitions and Awards Committee chairman*

GLIDING IN GERMANY

Some 1100 glider pilots went to Deutscher-segelfliegertag (the equivalent of a BGA Weekend) in Hamburg on November 4 with Paul MacCready, who gave a most stimulating talk, the star attraction.

The evening before the German Gliding Commission met regional representatives which amounted to an information exchange/grouse session, rather like our regional meetings but on a larger scale.

BGA ACCIDENT SUMMARY -

Edited by JOHN SHIPLEY,
Chairman, BGA Safety Panel
Compiled by David Wright

Ref No.	Glider Type	BGA No.	Damage	Date Time	Place	Pilot/Crew Age	Pilot/Crew Injury	Pilot/Crew Pl/Hrs	Summary
60	K-13	2815	S	17.6.89 0917	Portmoak P2	43 46	N M	167 -	During the early climb on a winch launch P2 allowed the glider to attain an over steep climb attitude. A cable break occurred and P2 lowered the nose to recover. In a high rate of descent, P1 took over but did not have enough time to prevent a heavy landing and a groundloop followed. P2 injured his spine and the glider was substantially damaged.
61	Bocian	1994	M	25.5.89	Portmoak	63	N	15min	The pilot was making his **first gliding solo** flight in good conditions. On base leg he opened full airbrakes. Starting to undershoot, he did not think to close the brakes but pulled the nose up until he stalled into a cornfield short of the runway and hit a fence post. This experienced power pilot had effectively "set" the brakes to "landing position".
62	Dart 17R	1247	M	6.5.89 1610	Nr St Neots	51	N	1271	The landing field chosen had a grass car race track on one side and the pilot planned to fly low over this and land diagonally across the clear area. At 50ft he saw an **electric fence** across the middle of the field and adjusted to land short of it. On the ground he turned to avoid the fence and caught a wing **in the long grass and groundlooped.**
63	Capstan		M	15.6.89 1550	Bidefford-on-Avon	67	N	252	While on final approach the pilot encountered heavy sink which lasted for the rest of the flight. A heavy landing followed which damaged the fuselage.
64	K-6CR	3329	S	16.6.89 1600	Melton Mowbray	34	N	11	The early solo pilot was dropped 2 miles from the airfield but could not orientate himself. In spite of knowing that he was west of the field he flew further west and so had to make his first field landing. He overshot his intended field and landed downwind in standing corn.
65	DG-100	2081	M	13.6.89 1700	Aldbourne, Wilts	42	N	176	After late selection in hilly country the pilot avoided power lines to make a normal landing. Twenty yards after touch down there was a loud bang as the undercarriage collapsed. The field was irregularly shaped where two fields had been combined, but there was a trough and 1ft ridge at the old boundary which was not obvious from the air.
66	K-18		W/O	15.6.89 1650	Kimble	35	N	21	The pilot selected a cricket pitch as a suitable landing area. He then continued to soar locally **before returning low** to the pitch to land. On base leg he noticed a man in the middle of the square so decided to overshoot into the next field. This had a 1m high crop in which the glider's wing caught and caused it to cartwheel.
67	Capstan	1133	M	26.3.89 1615	Dunstable P2	55 31	N N	181 255	The pilot made a "low and slow" approach for an uphill hangar ridge landing. The roundout was late and rather sharp and this, combined with full airbrake and the low airspeed, resulted in a very heavy landing.
68	LS-4	2959	N	11.7.89 1320	Dunstable	40	N	340	After two rope over-runs the third attempt to launch took place. In spite of the wheel brake being applied and someone holding the tail, the glider over ran the rope as slack was taken up too fast. The jammed rope could not be released so, using radio, the tug pilot agreed to drop the glider at 2000ft over the airfield. The glider flew left and waggled its wings but the tug turned right without releasing causing an upset. **The tug pilot managed to release.**
69	K-8B	2205	M	22.6.89 1700	North Hill	48	N	5	At 350ft on the winch launch a loud crack was heard and there was wind noise and breeze in the cockpit. A landing ahead was considered but impractical due to trees. The glider turned 180° left before control was regained and the pilot landed safely downwind. The centre section fairing had broken free damaging the fin and port tailplane. **The centre section fairing nuts were not fitted.**
70	Bocian 1E	2325	M	18.6.89 0540	Husbands Bosworth P2	50 16	N N	2000 -	**The instructor was demonstrating the winch launch** when at 40ft, prior to full rotation into the climb, the winch end of the cable broke. The pilot did not recover to prevent a heavy landing.
71	Bocian 1E	2013	M	18.6.89 1430	Husbands Bosworth	25	N	56min	On his second solo flight the pilot found himself unable to reach the airfield due to a strengthening wind and 5kt sink. He decided to land in a nearby barley field and made a well controlled landing which caused only minor damage to the airbrakes. The pilot had flown too wide a circuit for the strengthening wind conditions.

Our ground support service is held in high regard.

We've always aimed to give flyers the best possible service. So when we were appointed Licenced Repair Agents by Grob, we responded by considerably increasing our stock of spare parts for their gliders, motor gliders and light aircraft. So the chances are, we'll be ready if you have a need.

Similarly, being stockists for Tost launch equipment and exclusive agents for their winches, gave us a bit of a lift.

Having the bits and the responsibility at Chiltern, it's comforting to reflect that if you ever have a forced landing, you can rely upon us to take care of the problems of getting your aircraft back to base or into our fully equipped workshops.

Our large stock of parts, repair material and accessories are at your disposal, whether you carry out your own repair or use the skills of our workshop where our inspection and quality control system ensures you'll get the very best. Our stamp on your repair means that the job is well done.

Every repair by Chiltern is backed by a customer protection policy with full product liability cover – a mark of confidence in both the products and our workmanship.

A telephone call will bring our recovery trailer to your aid and all the backing you need.

The best. And it shows.

Licenced to repair all Grob products.
Concessionaires for spare parts for gliders, motor gliders and light aircraft.

GROB

CHILTERN SAILPLANES LIMITED

AUTH: V/A/038
DATE:

CAA Approval No. AMR/286

Booker Airfield, Nr. Marlow, Bucks, SL7 3DR.
0494 445854 (works) or 0865 890517 (outside office hours).
Access and Barclaycard accepted with pleasure.

The first session was an accident review which produced the following details:
Aircraft and activity. In 1988 6843 gliders were registered, 729 wooden, 1658 mixed (wood/steel tube), 93 metal and 4363 GRP with 1332 motor gliders. Of these, 3652 (53.3%) are club gliders. Average launches for 1983 to 1988 is 880000 with 480000hrs in 1988.
Accidents. The average number of reported accidents from 1983-1988 is 210/year with variations from 168 to 238 and an average of 15 gliding fatalities a year.
Aerotowing Accidents. From 1973 to 1988 there were 270 tug accidents, 207 while towing and 63 after release, killing 11 glider pilots and 16 tug pilots. Eighteen accidents were at the start of the climb and 14 gliders were using a C of G or belly hook and four a nose hook. The gliders involved were five K-6s, three ASW-15s, two Bergfalke 3s, two L-Spatzs and an ASW-20L, K-18, Cirrus 18m, K-8s, Mosquito and PIK 20 - 67% of the accidents being in an uncontrolled flight situation.
Launching. Some contributory factors to all launching accidents are long grass, asymmetric waterballast, an offset aerotow hook on the glider and the pilot not properly secure in the cockpit. The possible consequences of the latter are the pilot sliding back, striking his head on the canopy or frame, and his feet coming off the rudder pedals and inadvertently pulling the stick back. Very powerful winches contribute to this with rapid acceleration.
Bill Scull, *BGA director of operations*

A LIMITED NUMBER

The BGA Sales Shop now has a limited number of bound copies of the book containing most of the papers given at the 1988 International Soaring Symposium in Australia (see review in the October issue, p265).

The papers include Helmut Reichmann's "Competitive Soaring and Cross-Country Flying", Dick Johnson's "Mid-Air Collisions and Testing the ASH-25", Derek Piggott's "Which Glider Should I Choose?" and Ingo Renner's "Cross-Country Planning and Wave Systems." These and other talks, together with masses of diagrams and photographs, are included in the book (only available in the UK from the BGA) at £12.00 plus £1.50 p&p

WOMEN'S WEEK

Derby & Lancs GC are organising a Women's Week from May 13 to 19 to encourage women to reach their full gliding potential and to help to show that it is a very suitable sport for females.

It will be informal and fun with Competition Enterprise type tasks, dependent on the weather and pilot ability. It is hoped that some will complete their badges.

They want to attract pilots of at least Bronze standard but will welcome the less experienced with a two-seater and safety pilot. Men are welcome as crews etc.

Dave Martin of 21 Wirlow Grove, Sheffield, S11 9NR, tel 0742 352215, said they are very

BGA ACCIDENT SUMMARY *(continued)*

72	Bocian 1E	1437	M	18.6.89 1430	Husbands Bosworth P2	49 ?	N N	322 -	P1 gave control to P2 at 450ft in the low key circuit position. P2 made a good approach but rounded out late and the aircraft bounced then stalled from 6ft. **P1 did not close the brakes** and the aircraft landed heavily breaking the undercarriage.
73	Twin Astir	3191	M	3.6.89 1130	Yeovilton P2	34 35	N N	516 -	In a rain shower and strong sink, the pilot decided to land on an alternate area as the runway was occupied by other aircraft. He then found one of these moving into his overshoot area so slightly altered his track only to find the overshoot area again blocked. In paying attention to these events he ran into a known 4ft high concrete block in the grass.
74	Discus		S	4.7.89 1815	Booker	?	M	750	Final gliding, the glider entered sink and "sank like a grand piano". When crossing the last field the pilot realised that he would not clear the boundary hedge and put the glider into a slow turn into a field and "the aircraft dropped a wing and nailed itself". The glider's wing hit the ground whilst attempting a low turn.
75	K-7	2851	M	1.7.89 1248	Winthorpe	51	N	2	After two check flights in which he landed well into the field after slightly cramped circuits, this early solo pilot was briefed and sent solo. A good circuit was flown but the pilot failed to recognise he was undershooting and did not close the airbrakes sufficiently to prevent the glider landing short in a cornfield.
76	Skylark 3		W/O	2.6.89	Challock	62	F	60	**Fatal accident** - The pilot flew base leg on the opposite side of the airfield to that expected and at rather high speed. However, the base leg and final turn appeared normal until on finals when the nose went steeply down. The glider flew into rising ground and the pilot was killed as the glider turned inverted prior to final impact. No known cause.
77	Olympia		W/O	2.7.89	Parham	-	F	-	**Fatal accident** - After a 3hr flight in good conditions the glider was seen to dive steeply from about 3000ft. The left wingtip broke off downwards as the glider broke up. At present there is no known cause. This accident is under investigation by the Dept. of Transport's Aircraft Accident Investigation Branch.
78	K-8B	1563	M	2.7.89 1158	Dalfachy	60	M	18	The pilot was making a downwind landing, in virtually zero wind conditions, when he found he was rather high and fast. He failed to use full airbrake or reduce speed. This, combined with the lack of head wind, resulted in the glider running into the fence at the far end of the airfield.
79	YS-55	1891	M	29.5.89 1330	Brent Tor	58	N	799	The instructor took **a final winch launch prior to changing ends** due to wind changes. At 20ft the speed started to fall and when it didn't pick up he released. A normal touch down was made, in spite of the dust storm kicked up by the cable chute, but during the ground run the glider ran over surface undulations which damaged the fuselage.
80	Eagle	740	M	31.5.89 1324	Parham	27	N	36	After the final turn the pilot opened half airbrake and glanced at the ASI. He probably knocked the canopy catch for at this moment the front canopy opened, swung to the side and allowed the rear hinged rear canopy to open and act like an airbrake. Fortunately the pilot had intended to land long and so just made the field.
81	DG-300	3154	N	5.6.89	Parham	45	N	56	Immediately after a normal landing the undercarriage retracted. Fortunately no damage was caused. On both this and another glider of the same type it was found that the lever had to be very precisely located in its notch. **All pilots to be briefed on this.**
82	PIK 20b	2302	S	7.5.89 1615	Snitterfield	37	M	350	After selecting full airbrake at 100ft the approach continued normally until, at 6ft, the pilot noticed that his reference point had a pronounced local upslope. He rotated the glider rather more than usual but it hit the bump hard substantially damaging the glider's fuselage. The pilot had hit an earth mound at the side of a taxyway.
83	Super Falke	M/G G-BKVG	S	14.7.89 1905	North Hill	74	N	1196+ 1253pwr	The pilot was taxying the motor glider to the clubhouse. As he approached the building he tried to close the throttle but it came away in his hand and the engine went to full power. The a/c rammed into a wall and was substantially damaged. The throttle cable had broken at the bell where it would not be visible in a daily inspection.
84	Dart 17WR	1401	M	24.7.89 1653	Long Mynd	51	N	46	After failing to find ridge lift the pilot started a circuit. After a low circuit at 45kt he found he was low and slow and had not enough height to turn finals. **He stalled into a heavy touch down across the landing area.**

much at the planning stage and would welcome comments. If it is a success, they hope to make it an annual event and have chosen the early date to catch the best thermals.

MOGAS NOW OFFICIAL

CAA have decided that filling station forecourt fuel (MOGAS) may be used in certain light aircraft.

Dick Stratton, BGA chief technical officer, comments that the first flight of the BGA "MOGAS" Airdale, G-AVKP was on June 26, 1980. It has taken nine years to obtain the ultimate MOGAS clearance.

"PIP" FIRMAN

Anthony Firman has written to tell us of the death of "Pip" Firman at the age of 94. He was an instructor before the war at the Norfolk GC and shortly after the war flew his H-17 at Dunstable.

His son said he will probably be remembered as the "Ever-Ready battery" man who in the 1950s turned up at several Nationals with a trunk load of dry batteries to give away to needy contestants.

BGA ACCIDENT SUMMARY *(continued)*

85	ASW-19	2727	M	22.7.89 1637	Dunstable	27	N	48	During the take-off run the glider weathercocked left into the slight crosswind. Before the rudder became effective the glider was well out of position and the pilot then over controlled and swung out to the right. He then released and landed in a sideslip. The side loads collapsed the undercarriage and the glider groundlooped.
86	Bocian 1E	1900	S	12.7.89	Husbands Bosworth	33	N	13min	**At 300ft the aerotow rope broke.** The pilot, who was on his second solo, decided that the airfield was out of reach so turned and landed, downwind in an adjacent wheat field. During the ground run the glider hit deep tractor ruts which fractured the fuselage.
87	Blanik	2008	S	19.7.89	Oxford	66	N	4	After being briefed to stay in sight of the field the pilot became distracted by another glider sharing his thermal and became lost. After heading in the right direction he decided that he could not make the airfield and so landed in a field. He noticed too late that it contained standing corn which pulled the tailplanes off the glider.
88	Skylark 3B	844	S	7.7.89 1457	Portmoak	38	M	583	After a fairly steep approach, at 50kt and with a lot of airbrake, the pilot noticed that the landing area sloped uphill. This, combined with an increased rate of sink, stopped a full roundout being achieved and the aircraft touched down hard and on bumpy ground. Damage to the outer wing spar top boom and airbrake box was found. This damage is thought to be caused by previous overstressing.
89	IS-28M2	M/G G-BHRS	W/O	29.7.89 1745	Woodford P2	54 74	F F	350 +54pwr	**Fatal motor glider accident.** The aircraft was seen to make a very long take-off roll and a shallow climb-out in a nose high attitude. The nose was seen to drop prior to gaining height then a turn was started back towards the field. This resulted in a rapid left wing drop and spin, from about 300ft, into the ground. Coarse prop pitch selection is a possible factor.
90	K-13	1501	M	4.7.89 1135	Portmoak P2	55 16	N M	147 -	After turning on to base leg high the instructor demonstrated the use of full airbrakes to lose height. At 300ft, during the final turn, he was distracted by a person crossing the field ahead and left the brakes open. Not realising this, he found he could not make the airfield and landed sideways in a field, tearing off the skid.
91	Astir CS77	2988	S	23.7.89 1630	Sedburgh, Cumbria	47	M	274	On a Silver distance attempt the pilot had to land in a field. Looking for a short landing he attempted to float over the hedge into his field but was unable to do so. The glider touched down in the undershoot field and struck the hedge. Wind gradient and low airspeed were factors.
92	Bergfalke 4	2547	M	21.8.89 1700	Aston Down P2	47 40	N N	728 -	During the recovery from a spin the aircraft had slowed down from a maximum of 85 to about 70 knots when a loud bang was heard and vibration was felt. The airbrake lever was seen to be in the open position and P1 found that the left brake would not shut. P1 successfully landed the glider in a field as the airfield could not be reached.

BGA ACCIDENT SUMMARY *(continued)*

93	Ventus	2853	S	29.7.89 1250	Nr Shaftesbury	35	N	284	A suitable field was selected but the pilot worked small thermals too long and became low and out of position. A cramped circuit resulted in the glider landing half way into the field and the pilot **had to groundloop** the glider to avoid running into the left boundary hedge.
94	K-8	2465	M	6.7.89 1700	Snitterfield	50	N	99	On a **hangar in worsening weather** conditions the pilot made an approach with no airbrakes, rather than adjust his circuit, so as to land well down the airfield. The glider landed fast, bounced in the air and landed heavily.
95	Kestrel 19	1983	M	2.8.89 1515	Sutton Bank	42	N	750	After a competition finish the pilot made a low tight circuit. He quickly selected half land flap and gear down then **mistook the cruise flap lever for the airbrake.** By the time he realised this he was overshooting the airfield. The glider touched down damaging the port aileron and flap, crossed the edge of the field and ridge to land in a field 300ft below. (See No. 98 also.)
96	Bocian 1s	2143	S	30.7.89 1200	Dallachy	36	N	23	After a lay-off of several weeks the pilot had a check flight followed by a solo flight. On his second solo he flew too far on his downwind leg and decided that he could not clear the trees on approach. The first field chosen contained cows so he turned into another and crashed after hitting a wing in the turn.
97	Caproni Calif	1957	W/O	5.8.89 1435	Bidford P2	33 31	M M	1100 150	While flying at 110kt P1 had started to adjust the trim when the aircraft pitched violently nose up. It then pitched down and up again and during the final pitch down rolled sharply to the right. The right wing failed 3ft from the wing root. Both pilots decided to bale out and made a **successful exit and parachute** descent.
98	Ventus		M	4.8.89 1530	Sutton Bank	47	N	2000	After a competition finish the pilot pulled up into a normal circuit. However, **the pilot mistook the flap lever for the airbrake** and had to resort to a side-slip approach (still not realising his error). He decided to fly onto the ground and groundloop rather than go over the 300ft ridge at the end of the airfield. (See No. 95 also.)
99	ASW-24	3347	M	8.8.89 1705	Dunstable	36	N	900	After a normal approach and fully held off landing the mainwheel contacted a cable tractor nut and a loud bang was heard. The rest of the landing run was normal but when the glider was derigged damage to the undercarriage mountings was found.
100	Libelle	1756	M	26.7.89 1345	Upper Lambourn	30	N	128	While rounding out during a field landing the pilot noticed, too late, a 3ft high metal pole. This struck the right leading edge about 2ft from the tip.
101	Std Cirrus	1624	S	15.8.89 1827	Nympsfield	55	N	1208	The pilot used full airbrake throughout he final approach until the start of the flare when they were partially closed. **With a low approach speed of 46kt there was insufficient elevator power to effect a round out** and the glider landed heavily on the mainwheel causing substantial damage.
102	K-8	2386	M	20.6.89 1437	North Weald	18	N	5	The early solo pilot made a normal circuit approach but landed with excess flying speed. He then pulled the stick back and the glider took off. The airbrakes were closed and the nose pushed down but the aircraft dropped in from a height of about 10ft damaging the fuselage.
103	K-7	1862	M	31.7.89 1700	Pocklington	51	M	3	With a **rain squall apparently a safe distance** away this early solo pilot was launched. Entering rain at 800ft the pilot released and flew a circuit in turbulence. The speed was increased on finals to penetrate strong sink. The pilot failed to level off and the glider bounced, drifted and groundlooped.
104	ASW-20L	2520	S	13.8.89 1105	Dunstable	60	S	1092	While ridge soaring in weak conditions the pilot attempted to turn around in a bowl. On reaching the ridge he found sink and in turning away he failed to maintain flying speed. **At 50ft above the ridge he entered a spin** and hit the ground wing first escaped with a broken ankle.
105	ASW-20	-	M	8.8.89 1300	Erlstoke, Wilts	52	N	1005	The pilot chose a long field which appeared to be stubble. At 50ft he realised it was stout barley with clumps of knotweed. The glider was rounded out on top of the crop but the left wing hit a patch of knotweed which caused a ground loop.
106	DG-300	3124	M	17.8.89 1715	Nr Bicester	42	N	482	After selecting a field the pilot thermalled while waiting for a stubble fire to 'heat up'. He found he could not make the final turn into his field and so landed down/cross wind in an adjacent field. The aircraft stalled in from 3ft collapsing the undercarriage.

GLIDING CERTIFICATES

ALL THREE DIAMONDS

No.	Name	Club	1989
280	Armstrong, J.	Bicester	18.8
281	Almey, D. B.	South Wales	18.8
282	McCarthy, D. K.	Lasham	18.8
283	Grant, R. M.	Lasham	28.8
284	Eagles, T. W.	Bannerdown	28.8
285	Dixon, R. H.	Southdown	28.8
286	Findon, D. E.	Avon	28.8
287	Eade, D. J.	Surrey & Hants	28.8
288	Whitehead, P. F.	Clevelands	8.1
289	Armstrong, M. S.	Derby & Lancs	3.9

DIAMOND DISTANCE

No.	Name	Club	1989
1/412	Armstrong J.	Bicester	18.8
1/413	Snow, A. R.	Lasham	18.8
1/414	Almey, D. B.	South Wales	18.8
1/415	Gardner, D. H.	Cotswold	24.6
1/416	McCarthy, D. K.	Lasham	18.8
1/417	Grant, R. M.	Lasham	28.8
1/418	Eagles, T. W.	Bannerdown	28.8
1/419	Dixon R. H.	Southdown	28.8
1/420	Findon, D. E.	Avon	28.8
1/421	Eade, D. J.	Surrey & Hants	28.8
1/422	Cunningham, G. W.	Bicester	28.8
1/423	Whitehead, P. F.	Clevelands (in Australia)	8.1
1/424	Armstrong, M. S.	Derby & Lancs	3.9

DIAMOND GOAL

No.	Name	Club	1989
2/1724	Bruce, K. H.	Booker (in France)	14.7
2/1725	Matthews, G. V.	Wrekin	18.7
2/1726	Brown, G. R. P.	Swindon	1.8
2/1727	Wooller, R. E.	Blackpool & Fylde	18.8
2/1728	Copeland, D. D.	Lasham	18.8
2/1729	Pike, C. C.	Shalbourne	18.8
2/1730	Dibdin, A. J.	Cambridge Univ	18.8
2/1731	Saakwa-Mante, J.	Booker	18.8
2/1732	Haynes, M. R.	Essex & Suffolk	18.8
2/1733	Wright, J. S.	Booker	18.8
2/1734	Herrin, G. E. J.	Black Mountains	18.8
2/1735	Odhams, D. C.	Essex & Suffolk	18.8
2/1736	Garnham, P. H.	Midland (in France)	15.7
2/1737	Merritt, K. R.	Mendip	5.8
2/1738	Jury, J. G.	Fenlands	18.7
2/1739	Hicks, J.	Anglia	19.8
2/1740	Pool, A. P.	Cambridge Univ	28.8
2/1741	Moutang, M. C.	Kent	2.8
2/1742	Edwards, B. J.	Booker (in France)	17.8
2/1743	Dell, R.	Trent Valley	28.8
2/1744	Clark, A.	Portsmouth Naval (in France)	18.8
2/1745	Wilson, M.	Phoenix	16.6
2/1746	Jones, A. R.	Shropshire Soaring	23.7
2/1747	Roberts, N. S. C.	Bristol & Glos	18.8
2/1748	Pullen, C. J.	London	18.8
2/1749	Horsfield, B.	Surrey & Hants (in Spain)	19.8
2/1750	Rollason, J. A.	Essex (in France)	18.8
2/1751	Crabb, P. G.	Coventry	28.8
2/1752	O'Sullivan, G. R.	Oxford	28.8
2/1753	Attwood, S. W.	Essex	28.8
2/1754	Kindell, H. W.	Surrey & Hants	28.8
2/1755	Chadwick, B. S.	Welland	28.8
2/1756	Healy, P. T.	Imperial College	28.8
2/1757	Noon, R. D.	Newark & Notts	28.8
2/1758	Dickingson, A. B.	Derby & Lancs	28.8
2/1759	Cutts, R. G.	Booker	28.8
2/1760	Smith, K. J. G.	Lasham	28.8
2/1761	Sanderson, P. L.	Four Counties	31.8
2/1762	Stuart-Menteth, O.	Bristol & Glos	24.6
2/1763	Jarvis, P. C.	Booker (in France)	18.8
2/1764	Cox, F. L.	Buckminster	28.8
2/1765	Vaughan, R.	Lasham	6.8
2/1766	Payne, B. T.	Oxford	18.8
2/1767	Garrity, A. J.	Four Counties	1.9
2/1768	Croote, P. F. J.	Mendip	1.9
2/1769	Smith, D. P.	Bicester	2.9
2/1700	Lingham, I. N.	Booker	2.9
2/1771	Jackson, C.	Booker	2.9
2/1772	Oakes, C. S.	Oxford	3.9
2/1773	Downing, R. A. W.	Lasham	3.9
2/1774	Davey, C. M.	Four Counties	3.9
2/1775	Pickering, J. A.	Booker	3.9
2/1776	Scott, K.	Welland	3.9
2/1777	Vickerman, B. S.	Dorset	3.9
2/1778	Bradley, D. M.	Wyvern	3.9
2/1779	Toon, R. J.	Wrekkin	3.9
2/1780	Jones, B.	London	3.9

GOLD BADGE

No.	Name	Club	1989
1363	Copeland, D. D.	Lasham	18.8
1364	Pike, C. C.	Shalbourne	18.8
1365	Dibdin, A. J.	Cambridge Univ	18.8
1366	Woolf, A.	Wyvern	15.1
1367	Moutang, M. C.	Kent	2.8
1368	Wilson, M.	Pheonix	16.6
1369	Boal, H. T.	Cambridge Univ	10.5
1370	Horsfield, B.	Surrey & Hants	19.8
1371	Rollason, J. A.	Essex	18.8
1372	Crabb, P. G.	Coventry	28.8
1373	Attwood, S. W.	Essex	28.8
1374	Chadwick, B. S.	Welland	28.8
1375	Healy, P. T.	Imperial College	28.8
1378	Dickingson, A. B.	Derby & Lancs	28.8
1377	Cutts, R. G.	Booker	28.8
1378	Smith, K. J. G.	Lasham	28.8
1379	Smith, D. P.	Bicester	6.10
1380	Downing, R. A. W.	Lasham	3.9
1381	Davey, C. M.	Four Counties	3.9
1382	Scott, K.	Welland	3.9

GOLD DISTANCE

Name	Club	1989
Bruce, K. H.	Booker (in France)	14.7
Brown, G. R. P.	Swindon	1.8
Wooller, R. E.	Blackpool & Fylde	18.8
Copeland, D. D.	Lasham	18.8
Pike, C. C.	Shalbourne	18.8
Dibdin, A. J.	Cambridge Univ	18.8
Saakwa-Mante, J.	Booker	18.8

BGA ACCIDENT SUMMARY *(continued)*

107	ASK-13	-	S	17.7.89 1250	Camphill P2	19 ?	N N	231 0	While landing at the southern end of the airfield, in conditions known to produce severe wind gradient with turbulence, the pilot found that in spite of closing the brakes he could not reach the normal landing area. The glider touched down tail first on rough ground causing substantial damage.
108	K-7/13	-	M	20.7.89 1600	Camphill P2	30 29	N N	340 0	At 10ft, just before the flare, P2 pushed the stick forward. In spite of P1 closing the brakes and attempting a roundout the glider landed heavily then bounced. P2 landed safely from this but the first touchdown bent the keel.
109	Twin Astir 2		M	19.8.89 1130	Bicester	23	N	6	After two check flights this early solo pilot made a good take-off and circuit. He was a little high on the approach but "flew the aircraft on" and bounced to a height of about 7ft. **A pilot induced oscillation (P10) developed** resulting in two more touch downs, the last of which was accompanied by a wing drop and ground-loop damaging the nose and tail wheels.
110	Dart 17R	1337	W/O	28.8.89 1600	Neenton	44	N	73	**After selecting a field at 400ft,** weak lift was used for 5min. The pilot decided that the field was not suitable and chose a nearby meadow instead. He encountered sink on the approach and failed to clear a tall hedge which wrote off the glider. The field was in the lee of the Clee hills which could be expected to produce strong sink.
111	Pilatus B-4		M	19.8.89 1620	Nr Milton Keynes	36	N	93	After selecting a field from 1800ft the pilot flew around it at 1300ft to check it out. On the final approach the pilot noticed that his reference point was just before a small depression and ridge. The pilot felt the glider hit the ridge and later found that the nose cone was damaged.
112	Pegasus	3217	M	28.8.89 1615	Keevil	26	N	128	On his **first flight on type** the pilot lowered the undercarriage during downwind checks, on approach he **mistook the undercarriage lever for the airbrakes** and flew the length of the airfield plus three more fields before landing in a rough field with the gear half retracted.
113	K-6CR	2488	S	2.9.89 1617	Old Sarum	64	M	38	After finding lift on the downwind leg the pilot turned on to base leg high but ran into sink so turned in early. However, the sink increased and as the only field nearby was unlandable, the pilot tried to clear the hedge bordering a lane. The right wing caught in the hedge, swinging the glider around and it came to rest across the lane.
114	PIK 20D	2444	S	20.8.89 1500	Inkpen	30	N	140	After an approach in gusty conditions the pilot rounded out normally. As the mainwheel touched down the glider groundlooped 75° before the tail touched. The rear fuselage was damaged and the pilot's head cracked the canopy. The glider had hit a tall thistle growing on the airfield. **These have since been cut.**
115	K-8	1807	M	3.9.89	Portmoak	?	M	6	After starting his circuit the pilot changed his chosen landing area to avoid another glider that had just landed. In doing this he thought that he would be too high so fully opened the airbrakes. **The aircraft descended rapidly in a flat attitude.** The pilot realised that he would not reach the landing area and landed before the fence which he hit, injuring his back and damaging the glider.

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

INTERNATIONAL GLIDING COMMISSION REPORT

Frankfurt, October 6-7

Extracts from the report by the BGA delegate, Tom Zealley

Many delegates were unhappy about the rules planned for the POST tasks at the 1991 World Championships at Minden, USA, which involved a very stiff penalty for pilots returning to base after the specified time limit. The same rules will be used at the Pre-Worlds, Ameriglide, in 1990.

Ake Pettersson (Sweden) gave a few details about preparations for the World Championships in Sweden in 1993.

European Championships, 1990 at Leszno. Ed Mukula (Poland) spoke about the arrangements and said the entry fee had been reduced.

European Club Class Championships. Mogens Hansen (Denmark) gave further information about these Championships at Arnborg, Denmark from May 5-19, which is a year behind the intended date. The next will be at Landau, W. Germany in 1991.

World Air Games. Peter Ryder (president) reported that the FAI General Conference had given overwhelming support to the French Aero Club's offer to run the first World Air Games in 1991. However, Francois Ragot (France) explained that the French Gliding Association (FFVV) (which is not part of the Aero Club of France) were not willing to organise gliding events at the 1991 games as this would clash with their existing programme. The FAI Council will discuss the matter again at their meeting in February.

World Class Glider. Piero Morelli (Italy) gave the final version of the technical specification for this aircraft and the proposed rules for the design and prototype competition. It was decided that a management group, headed by Piero, would control the project.

Airspace. This part of the meeting was chaired by Tom who told them about the report by André Dumas, the new FAI International Civil Aviation Organisation liaison officer to the FAI General Conference, which emphasised the need for adequate airspace for air sports. It was stressed that air sports provided the most important source of commercial pilots and other specialised staff for the air transport industry.

Later it was found that only seven out of 21 countries present had regular consultation arrangements with their airspace authorities. There was also discussion on transponders being compulsory in gliders but this threat is not yet widespread. Bernald Smith (USA) reported on the introduction of a very restrictive "recreational" pilot licence in the USA.

World Ranking List. Max Faber (Austria) proposed a world ranking list for glider pilots, based on their competition performance, which would be used for public relations and sponsorship. He agreed it would be difficult to assess the relative standing of different National competitions. There was no adverse comment but no action was agreed.

* * *

In late September Tom went to the FAI General Conference at Varna, Bulgaria when 35 countries were represented with three or four times that number of delegates.

Haynes, M. R.	Essex & Suffolk	18.8
Wright, J. S.	Booker	18.8
Herrin, G. E. J.	Black Mountains	18.8
Odhams, D. C.	Essex & Suffolk	18.8
Garnham, P. H.	Midland (in France)	16.7
Merritt, K. R.	Mendip	5.8
Hicks, J.	Anglia	19.8
Pool, A. P.	Cambridge Univ	28.8
Moulang M. C.	Kent	2.8
Edwards, B. J.	Booker (in France)	17.8
Clark, A.	Portsmouth Naval (in France)	18.8
Wilson, M.	Phoenix	16.6
Boal, H. T.	Cambridge Univ	10.5
Jones, A. R.	Shropshire Soaring	23.7
Pullen, C. J.	London	18.8
Horsfield, B.	Surrey & Hants (in Spain)	19.8
Rollason, J. A.	Essex (in France)	18.8
Crabb, P. G.	Coventry	28.8
O'Sullivan, G. R.	Oxford	28.8
Attwood, S. W.	Essex	28.8
Kindell, H. W.	Surrey & Hants	28.8
Chadwick, B. S.	Welland	28.8
Healy, P. T.	Imperial College	28.8
Noon, R. D.	Newark & Notts	28.8
Dickingson, A. B.	Derby & Lancs	28.8
Cutts, R. G.	Booker	28.8
Smith, K. J. G.	Lasham	28.8
Sanderson, P. L.	Four Counties	31.8
Stuart-Mentieth, O.	Bristol & Glos	24.8
Jarvis, P. C.	Booker (in France)	18.8
Cox, F. L.	Buckminster	28.8
Vaughan, R. C.	Lasham	6.8
Payne, B. T.	Oxford	18.8
Garrity, A. J.	Four Counties	1.9
Croote, P. F. J.	Mendip	1.9
Smith, D. P.	Bicester	2.9
Lingham, I. N.	Booker	2.9
Jackson, C.	Booker	2.9
Oakes, C. S.	Oxford	3.9
Downing, R. A. W.	Lasham	3.9
Davey, C. M.	Four Counties	3.9
Pickering, J. A.	Booker	3.9
Scott, K.	Welland	3.9
Vickermann, B. S.	Dorset	3.9
Bradley, D. M.	Wyvern	3.9
Toon, R. J.	Wrekin	3.9
Jones, B.	London	3.9

GOLD HEIGHT

Name	*Club*	*1989*
Woolf, A.	Wyvern (in Australia)	15.1
Spirling, A. A.	Wolds	29.1
Soulsby, M.	Borders	19.8
Whittingham, I. M.	Shalbourne (in Australia)	7.3
Smith, D. P.	Bicester	6.10

SILVER BADGE

No.	*Name*	*Club*	*1989*
8224	Villa, C.	Cambridge Univ	18.8
8225	Hunter, G. J.	Cambridge Univ	15.6
8226	Hatfield, P.	York	12.8
8227	Roberts, M.	North Wales	17.8
8228	Zachariasse, J. M.	Cambridge Univ	3.9
8229	Clark, Y.	Portsmouth Naval	9.8
8230	Whitehead, J. L.	Cambridge Univ	27.7
8231	Steed, D.	London	28.8
8232	Thomas, T.	Black Mountains	28.8
8233	McElin, M.	Bristol & Glos	28.8
8234	Williams, R.	Aquila	2.9
8235	Epton, D. M.	Buckminster	23.8
8236	Clayson, P. N.	Shalbourne	22.7
8237	Betts, D. G.	Burn	24.6
8238	Simeons, D. Y.	Bannerdown	28.8
8239	Petfitt, A. J.	Shalbourne	18.8
8240	Jones, R. H.	Burn	3.8
8241	Butler, K. J.	Bristol & Glos	23.7
8242	Goldstraw, I. P.	London	17.9
8243	Vaughan, O. F.	Herefordshire	28.8
8244	Marshall, D.	Newark & Notts	3.9
8245	Telus, T.	London	3.9
8246	Eckley, D. M.	Black Mountains	24.10
8247	Clarke, C. M.	Lasham	3.9
8248	Grant, I.	Thruxton	8.10
8249	Hibberd, K.	Portsmouth Naval	18.8
8250	Stone, R. C.	London	30.10
8251	Cheetham, H.	Buckminster	2.9
8252	Screen, K. J.	Midland	24.8
8253	Griffiths, P. D.	Bannerdown	18.8
8254	Bailey, R. D.	Midland	26.10
8255	Lambert, G. E. C.	Lasham	5.9
8256	Allingham, P.	Dorset	28.8
8257	Old, J. C.	Essex	28.8
8258	Holland, R. L.	Avon	28.9
8259	Sinclair, D. A.	Lasham	2.9
8260	Hill, I. B.	Phoenix	4.9
8261	Pragnell, J. E.	Vectis	18.11

UK CROSS-COUNTY DIPLOMA

Complete

Name	*Club*	*1989*
Maisonpierre, R. J. L.	Anglia	19.8

Part 1

Name	*Club*	*1989*
Naegeli, P.C.	Lasham	20.8
Armstrong, S.	Humber	28.5
Pursey, J. M.	Devon & Somerset	29.5
Mansfield, P.	Swindon	23.7
Joly, C.	Portsmouth Naval	5.8
Chichester, K. J.	Aquila	24.8
Smith, P.	Surrey & Hants	8.8
Skelly, G. P.	Surrey & Hants	13.5
Doyle, T. C.	Two Rivers	7.5
Briggs, B.	Cranwell	4.6
Hertz-Smith, N. P.	Midland	5.8
Pengilly, P. J.	Culdrose	10.8
Brown, S. D.	Booker	18.8
Hazell, F. L.	London	19.8
Baxter, K.	Two Rivers	20.8
Conrad, M.	Essex	28.8
Hardwick, M. H.	Booker	28.8
Pearson, D.	RAE	28.8
Parker, D. H.	Newark & Notts	28.8
Bell, M. A.	Aquila	28.8
Dale, T.	Wolds	31.8
Claughton, N. I.	Clevelands	5.8
Attwood, S. W.	Essex	29.6
Woollard, T.	Trent Valley	28.8
Hoolahan, D.	Kent	28.8

In the October issue, *p253, we reported that the Olympia 463 in which Gaye Connoway was killed broke up in flight. Her syndicate partner, Robert Burns, feels this inferred that the glider breaking was the cause of the accident whereas it went into a vertical dive between 2000 and 3000ft but the port wing didn't break off until about 800ft when the glider had obviously exceeded* V_{NE}. *At the inquest the AAIB investigators said that the glider was strongly built, in good condition and properly rigged.*

CLUB NEWS

Copy and photographs for the April-May issue of *S&G* should be sent to the Editor, 281 Queen Edith's Way, Cambridge CB1 4NH, tel 0223 247725, to arrive not later than February 6 and for the June-July issue to arrive not later than April 10.

GILLIAN BRYCE-SMITH
December 6

ARGYLL & WEST HIGHLAND (Connel Airfield)
Our average flight time in 1989 was 18min which, off wire launching, speaks volumes for the site and the weather. It was a great year with 13 solos, 19 certificates and badge legs, double the previous year's flying hours and 1600 launches. We introduced more to the delights of mountain soaring with our lead and follow instruction and demonstrated to visitors that our mountains step off into wave in all wind directions.

We have a second Puchacz for training, thanks to the success of the first, and sold our IS-29B. Our thanks especially to Graham Smith, Jack Little, Eric Boyle and towcar driver Jock.
A.S. & J.A.

AVON (Bidford-on-Avon)
We hope 1990 will be as good as 1989 when there were too many honours to list. Our thanks to the management, Barry, Mo, Taff and John for their devoted efforts throughout the year.

Good luck to John Price, our new CFI, and to Dave Oddy, our original course instructor who attracted many new members and is now moving on. He will be missed.

We look forward to seeing our friends at Bidford which always offers a warm welcome and free airspace.
D.T.W.

AVRO (Woodford)
Our news isn't good. First we record with great sadness the death of two of our most respected members, Geoff Rayner and Guy Chapman, killed in a flying accident at Woodford on July 29 while flying the IS-28 motor glider. Our deepest sympathy is extended to their families.

Secondly British Aerospace have asked us to "migrate" due to a stated new policy of "essential business use only" for the airfield.

The club's future is uncertain. Members have been visiting local sites and we thank these clubs for making us so welcome.
S.C.

BANNERDOWN (RAF Hullavington)
During two weeks at Aboyne we flew 170hrs with Diamond heights for Pete Woodman, Colin Masters and Pete O'Fee and Gold for Paul Griffiths. The K-21, used to introduce less experienced pilots to wave flying, was also useful for video filming and Alan O'Fee has produced an excellent film.
D.C.F.

BATH & WILTS (Keevil Airfield)
Even a flat land site like ours gets wave occasionally so the soaring has not totally stopped. The Bronze courses are still being run due to popular demand.

Jean Smith organised a very successful buffet with a jazz band instead of our normal dinner and prizegiving. Terry Knight was awarded the Gordon Mealing trophy for services to the club above and beyond the call of duty.

Congratulations to Dave Kellet, Steve Gregory and Garry Owen on going solo.
B.H.

Bristol & Gloucestershire GC's new building incorporating a clubhouse/bar, briefing room, kitchen and men's toilets. Photo: Sue Woollard.

BICESTER (RAFGSA Centre)
We had an excellent Aboyne expedition with Gold heights for D. Smith, J. Nelson, J. May, P. Hutchinson, P. Moorehead, P. Jessop, J. Crawford and P. Woodruff and Diamond heights for J. Allen, M. Webb and C. Pilgrim.

Congratulations also to D. P. Francis on Silver distance and D. Smith and J. Nelson on Diamond goal and Gold distance, all from Bicester.
M.H.

BLACKPOOL & FYLDE (Chipping)
The summer's achievements are solos for Andrew Daymond, Ian Hulse and Dave Rukin; Silver badges for Ian Ashton and John Mitchell and a 300km for Reg Wooller while visiting Tibenham. Congratulations also to Martin Moss, John Richardson and Ron Sutcliffe who have AEI ratings.

We entered our first competition, sending a K-13 to the Two-seater Comp at Pocklington. No clever results – just a wonderful time. Thank you Wolds GC.
V.H.

BORDERS (Galewood)
Our November flying week produced plenty of flying despite a foggy start. Upavon visitors left with a Gold height and an appreciation of the area's potential. Several of our members had climbs curtailed around 15000ft because of lack of daylight. Our thanks to Roy Gaunt who brought the BGA Janus for us to sample.

At the annual dinner trophies were awarded to Ian Sim (height); Ken Fairness (club ladder) and Robin Johnson (longest flight). The newly created President's cup (for services to the club) went to our longest serving instructor and long suffering secretary, George Brown.

Superb glass tankards, engraved with our logo, were awarded for top places on the club ladder. Our thanks to Derek Robson for organising and injecting more enthusiasm into the ladder.
A.B.

BURN (Burn Airfield)
Both winches are now fully operational, winch one having a new road engine thanks to Tony and Mick.

Congratulations to Terry Cust on completing the instructors course held at Burn; to Pete Sinclair, Graham Schofield, Les Rayment, R. Roberts and Rebecca Brookes on going solo and to Fred Smith on his Silver badge.

Our Bonfire Night party was a great success.
M.T.

CLEVELANDS (RAF Dishforth)
Paul Mason and Brian Mennell, our first to have AEI ratings, are working hard with an influx of potential members.

At the AGM awards went to them both (for other exploits), also to Graham Pitchfork, Vince Suttle and Neil Goulding with the broken piston claimed by CFI Martin Durham. Neil and his wife Julie were presented with a clock in recognition of his services as deputy chairman. We welcome Bob Little who has taken over.
J.P.

COTSWOLD (Aston Down)
Our low key open day was an unexpected success due to press and television coverage and superb autumn weather. Our 25th anniversary celebration in September was an extremely enjoyable day. Our annual dinner-dance is on February 3.

Around ten gliders took part in the mini Comp won by Steve Ferguson (Sie 3). Many of our pilots deserve congratulations on their competition achievements, particularly Ed Johnson on his Western Regionals' win (and 512km in 5hrs 1min).

Congratulations also to Geoff Fellowes, Dave Moore and Tony Williams on going solo and to Sarah Lee and Richard Burgoyne on Gold heights at Aboyne. Mike Barney has joined the committee.
G.M.

COVENTRY (Husbands Bosworth)
It was a good year with over 110000km flown from the club. We have held a series of RT courses and many members have qualified.

We are selling the club ASW-19, replacing it with a Pegasus. The open weekend will be April 21-22 and we have the BGA conference in Coventry. A good programme of courses is planned and visiting pilots are welcome.

Equal opportunities have reached us and the ladies committee has changed its name to the social committee, and therefore welcomes male members!
D.L.S.

CRANWELL (RAFGSA)
At the AGM prizes were awarded to a variety of members including the CFI's trophy (for outstanding work) to Mick Smith.

The club LS-4 and tug are going to Dishforth for their 40th anniversary, also a small expedition

"You say you DI'd this today?" Ivor Shattock photographed Philip Cowderoy (then 18 months-old) soaking up last season's sun at Talgarth.

for Christmas/New Year flying. We are also hoping to organise an expedition to Camphill in March.

While the winter weather has restricted flying, we did manage a 50min wave flight in a southerly wind!
B.S.

CRUSADERS (Cyprus)
Congratulations to Andy McLean and Bill Penketh who gained the club's first Silver heights for a long time. Steve Tapp is a full Cat and Roger Goddard went solo before leaving for the UK. Sadly Tony, Sue and Louise Mann, stalwart members, have also departed.

For all old Crusaders, we are celebrating our 30th anniversary on August 29 - book your holiday now!
I.P.

DARTMOOR (Brentor)
By November the season is usually closing but our site lease now allows us use for the whole year. Dave Mawhinney has gone solo and Chris Matten has his Bronze badge.

A dramatic shot by Sandy Harrup of Aboyne's September wave.

A small band led by Dick Toop, Colin Sanders and Phil Jarman are erecting a full size hangar with Dartmoor doing its worst in winter weather. At least half are OAPs.
F.G.M.

DEVON & SOMERSET (North Hill)
Our new K-13 has arrived eight months behind schedule and will be used mainly for post solo and dual cross-country experience.

Building continues apace with hangars for the Super Falke and Supacat - now everything with an engine has its own house.

An odd thing about the club is that mention of a load indicator (for winch launching) provokes heated debate whereas in the rest of the country there is total disinterest. The CFI has therefore asked a group of instructors to measure what happens when pilots "fly to a load" in a variety of gliders and conditions.
G.P.

DORSET (Old Sarum)
A programme of lectures is planned at varying levels and we anticipate hosting a BGA Regional meeting in February.
D.N.

EAST SUSSEX (Ringmer)
We have bought a SF-27, which is proving very popular, and the club fleet is now an 11 seater one, almost twice the size of two years ago.

A fitting end to a good season was the opening of our clubhouse with a grand bonfire and fireworks party. It was built by Henry Weston and Fred Bishop with fittings and decor by Sue Oldroyd, Ray and Ruth Brigden and George Warrick.
L.M.

ENSTONE (Enstone Airfield)
This year we had a record number of solo flights and badge claims and membership has doubled.

Various trophies were presented at the annual

"The patter." John Anderson, chairman of Connel GC with Alastair, one of the younger members.

dinner in November with a special award to our chairman, Ken Sparkes, for his dedication and hard work following the club's revamp four years ago.

With our grass strip we hope to have winch launching as an alternative to autotowing. Increased aerotowing has helped increase potential flying time and days available and Tom Miller, his tug and pilots, coupled with an ➡

Below, George Green, a long time member of SGU now working in Washington and gliding in Pennsylvania, with his family at Portmoak last summer. His daughter Carol, aged 16, and Douglas, aged 14, went solo in August after early training at SGU followed by some 23 launches in the USA.

McLEAN AVIATION

THE AERODROME, RUFFORTH, YORK, YO2 3QA

FACTORY TRAINED AND APPROVED REPAIR AGENTS FOR GLASER-DIRKS SAILPLANES

TELEPHONE 0904-83-653 **FAX 0904-83-8146**

REPAIRS IN GLASS, CARBON, KEVLAR, WOOD & METAL STRUCTURES

SOLE UK AGENTS FOR O.K. CLOCKWORK BAROGRAPHS

GLASER-DIRKS UK

BOB McLEAN 0904 83653 **JOHN ELLIS 0765 89431**

Sole UK Agents for the complete range of D-G Sailplanes

Please ask for details

Ka6cr: Complete Outfit – OFFERS?

Club Libelle: Low hours, instruments, parachute, good wooden trailer **£13,000**

understanding Upper Heyford, have been most helpful.

After many years of negotiations Enstone Airfield has been given planning permission for it to be used as an airfield!

Visiting pilots are always welcome. Glider circuits are to the south with power circuits to the north of the airfield. The fence and posts on the south edge of the main runway have been removed.
R.J.P.-B.

HUMBER (RAF Scampton)
We have had a superb season with better weather than 1976. Mike Tobin and his son Richard have their Bronze legs and D. Marriott, R. Dyer, B. Griffiths and S. Ford have gone solo, Raymond Dyer the weekend after his 16th birthday.

Unfortunately the Red Arrows have again played havoc with our flying and we have been unable to complete any 5hrs from the site this year, although Paul Walker made a creditable attempt, earning himself the nickname Red 11.

Chris Gildea made the longest flight ever from Scampton with a 395km O/R to Bicester on a 500km triangle attempt, Bicester, Sutton Bank. Paul Armstrong, on the same task, landed at Bicester to answer a call of nature and then flew back.

John Dobson has been posted and it looks as though Dave Cockburn, back from 3yrs in Germany, will take over as CFI. We thank John for all his work for the club.
K.M.G.

KENT (Challock)
Derek Piggott was the guest speaker at our annual dinner and presented the prizes as follows: Mike Sesemann (League 1); Steve Riley (League 2 and the cup for the best Silver distance); Ron Cousin (cup for the best 100km triangle); Colin Beer (cups for the best flight from Challock and best four flights from the club); Divina Hoolahan (Ladies' trophy) and Roy Green (Ridge Run plaque).

During the task week League 1 was won by the K-13 team flying ENY and League 2 by a team flying our new SZD Club Junior.
A.R.V.

LASHAM (Lasham Airfield)
We have had a memorable year and our new organisation enabled us to make the most of the good weather. Launches increased to 42120, including 22888 winch launches, 350000km have been flown, including 149000km in Comps, and flying membership has expanded. Members have been on numerous expeditions with many Golds and Diamonds gained.

Our cadet scheme, designed to financially help young people glide, has progressed well.
M.T.C.

Obituary - Tony Norrie
We report the tragic death of one of our longest serving, keenest and likeable members, Tony Norrie, who was killed in the terrorist attack on a DC 10 shortly after take-off from Ndjameina, Chad on September 19.

Tony was only 36 years-old but started gliding at Lasham when he was 15. He was unmarried,

Mark Whitelegg, one of Lasham's talented cadets who went solo at 16.

being totally wedded to gliding and Lasham. He was an instructor, competition pilot, tug pilot and had all three Diamonds and a 1000km flight.

In 1987 he was the Lasham full time advanced course instructor for three months. His many friends in gliding both at Lasham and throughout the movement sorely miss him.

His mother and brother Charles have requested that any donations to his memory be either sent to Lasham Gliding Society, Lasham Airfield, Nr Alton, Hants or the Asthma Research Council, 300 Upper Street, London N1 2XX. Donations to Lasham will be used for a suitable memorial, probably a cup for annual competition. A memorial service will be held at Lasham or Alton at a date to be announced.
Phil Philips

MIDLAND (Long Mynd)
The end of September produced plenty of wave and the occasional day of good thermals with Harry Lowe managing 110km on the 24th and Simon Adlard 150km on October 14. Ken Markham, John Abbott and Rod Hawley gained Gold heights in wave.

Our late season courses are more popular and successful this year with Aquila again visiting with their Pawnee. Derek Wales, Richard Loy, Lyndon Askey and Steve Davies have gone solo with 5hrs for Martin McCurdie.

The annual pilgrimage to Aboyne was fruitful with Silver height for Roland Bailey, Gold for Doug Langdon, Julian Flack and Gordon Kerr and Diamond for Roy Dalling. But we were saddened by Hans Lehmann's death from a heart attack at his hotel and thank the Deeside GC for their assistance to his wife Krista.
R.D.

NEWARK & NOTTS (Winthorpe)
Our congratulations to Arthur Foster on resoloing, he last flew Lancasters, and to Lesley Noon on his AEI rating. All visitors are very welcome.
M.A.

NORFOLK (Tibenham Airfield)
During November a group went wave hunting to Talgarth. Congratulations to Dave Stabler, Ray Hart and John Edwards on their AEI rating and for going on the instructors' roster.

Over 100 enjoyed the bonfire and fireworks on November 5, followed by supper.

We have acquired an automatic road sweeper to help clean our runways and hopefully cut down the amount of chipped paintwork on our gliders.
G.E.

NORTHUMBRIA (Currock Hill)
Alan Christian re-soloed after 43 years - this must be a record. Congratulations also to Martin Jellis and Sue Hall on their AEI ratings.

A Pegasus was brought from France by a syndicate headed by our chairman, John Graham. Their home built trailer logged 1600 miles on its first journey. John Pickering has soloed and joined a Skylark 2 syndicate.

Alan Scott did much needed repairs on the hangar doors and many members have volunteered to do essential work during the winter.
R.D.

OXFORD (Weston on the Green)
At the November AGM the only committee changes were Bob Griffiths taking over as treasurer and Phil Hawkins as membership secretary. Dave Roberts was elected an honorary member in recognition of over 30 years' service.

The annual awards were presented as follows: Malcolm Laurie Club Ladder trophy, John Giddins; Dennis Farmer trophy (first duration flight of the year), Nick Barrett; Malcolm Laurie Memorial trophy (best flight in a club glider), Gerry O'Sullivan for his first 300km in the Astir; Simpson cup (best flight from our site), Caroline Oaks for a very fast 300km; the Deep Breath cup (best height from the site up to a limit of 12 500ft), Martin Hastings who achieved the maximum 15min before the runner-up. To a lot of people's relief the Flying Brick award wasn't made this year.

It is with great sadness we learn of the death of two of our vice-presidents, Kitty Laurie and Laurie Wingfield. They had both helped the club significantly in years past and had maintained contact with us.
F.B.

PETERBOROUGH & SPALDING (Crowland Airfield)
Congratulations to Bill Johnson (assistant instructor), to Roger Gretton (Gold height at Portmoak) and to Viv Brown (going solo).

After a record year we are considering upgrading our club fleet and have the Puchacz and SZD Junior demonstrators visiting us.
M.J.

PORTSMOUTH NAVAL (Lee-on-Solent)
We have recently had to suspend operations while the Royal Engineers lifted several mines from the airfield planted during the Second World War.

We continue to improve our fleet, the latest acquisition an immaculate K-8 from Germany. The Chipmunk is undergoing its C of A and the new winch is progressing well.

Congratulations to our CFI on his BGA ➡

examiner rating; to our first batch of AEI ratings and to Keira Hibberd, Yvonne Clarke and Chris Joty on their Silver badges.
H.C.

SCOTTISH GLIDING UNION (Portmoak)
Various projects are nearing completion – renewal of hangar lighting and guttering; a new office and sorting out our winches. The new SZD Junior is proving popular.

Weather for the BGA wave soaring course and our autumn visitors was not ideal, but Chris Rollings and his helpers showed what could be done – like going from Bronze badge to Gold C complete with Diamond height in a week!

Congratulations to Gavin Stafford (solo); to Nick Wales (Bronze badge before his 17th birthday) and Colin Hamilton (Gold badge).

At the Christmas dinner-dance awards went to "Z" Goudie, John Galloway, Bob Milne, Richard Allcoat, Ian Paterson, Val Peddie, Roger Hancock, Brian Scougall and Colin Hamilton, Brian and Colin for the Open and Weekend Ladders respectively, and the Service salver went to Jim Burgess.
M.J.R.

SHROPSHIRE SOARING (Sleap)
We broke records this summer with flight times averaging over 2hrs without a good quantity of badges and a poor autumn with little wave. However, D. Triplett achieved two Silver legs, F. Humphrey his Silver badge with Gold distance and Diamond goal for P. Gill and A. Jones.

Two ASW-20s and a Nimbus went to Fuentamilanos, Spain, with N. Peatfield gaining his Gold badge and a Diamond distance. Our good wishes to Tim Caswell who is going to Australia. The tug and its pilots are giving a good service and are joined by Ian Berry.
N.A.P.

SURREY & HANTS (Lasham Airfield)
In flying and financial terms, 1989 was a tremendous success. There were too many notable flights to list but congratulations to Chris Starkey on coming 5th in the Standard Class Nationals in the club's Discus.

The new Discus has arrived, swelling the fleet to 13 with five K-8s, two Discus and a Grob 102, Sports Vega, DG-101, Astir, Mosquito and a Ventus. We have put a deposit on a Ventus, hopefully to arrive in spring 1991.
T.L.

SURREY HILLS (Kenley Airfield)
The re-engined winch is a real winner – launches to 1500ft in still air! Many thanks to those who worked on it.

Our full time instructor, Ian White, is staying over the winter and the coming season so we can make the most of any flyable weekday. We are working to get the IS-28 ready for the spring.
H.S.M. & R.G.

SOUTH WALES (Usk)
After several near misses Dave Almey has Diamond distance, making him our second pilot with all three Diamonds. Simon France flew 300km for Diamond goal in the Junior Nationals.

There is a busy year ahead for our committee elected at our AGM as there is the possibility of running a full time operation.

There is a new RF-5 syndicate and the rebuilding is nearly complete.
N.P.

STRUBBY (Strubby Airfield)
We had more soaring in one month than the whole of 1988. The Aboyne expedition produced a crop of badge claims with Golds for Phil Trevithick, John Kitchen and Arthur Tubby, John having completed his Silver with a magnificent 5hrs over our site.

Congratulations on going solo to Martin Appeleby, Nick Kendal, John Best, Jim Evans, Jack Libell, Marcus Rice and especially John Sears at 78 years-old. Is this a record? Also to Mike Fairburn and Gordon West on their Bronze badges and Gordon on two Silver legs.

The club's new K-8 is very popular; the T-21 is being refurbished under the guidance of Tony Welch and the Skylark being rebuilt. The caravan will soon be in operation as the clubhouse and the new winch should be ready for this season.
S.C.

THRUXTON (Thruxton Airfield)
It was a very encouraging season with launches and flying hours well up. Congratulations to Ian Grant on his Silver badge.

Early autumn expeditions to Talgarth and Aboyne resulted in a number of 5hrs and Diamond heights.

Pat Hudson, CFI, is emigrating to Australia and handing over to Les Dawson. We wish him and his family every success and thank him for his hard work, both in flying and maintenance.
J.B.L.

TRENT VALLEY (Kirton-in-Lindsey)
The Super Cub has proved most successful in its first year. Our fleet consists of two single-seaters and three two-seaters.

At the annual Aboyne expedition all our pilots achieved heights of 9000ft plus with Bob Baines reaching 29 000ft.

On the last cross-country of the year on September 24 Matthew Tierney flew Silver distance to Pocklington and returned without the K-6, leaving Steve Slater to "chauffeur" the glider home.

Our annual dinner-dance, again at Northorpe Hall, is on March 2.
L.W.

ULSTER (Bellarena)
Autumn flying has been limited to local soaring but our ridge seldom lets us down and training pressed ahead with John Hughes, Owen Anderson and Tommy MacFarland going solo.

Alan Sands' superb craftsmanship was displayed when his restored Grunau Baby was test flown. John Lavery too produced his K-6 rebuilt to a very high standard.

A keen group took the SHK to the traditional Kerry week in Eire when John Lavery set a record with 17 flights from the beach airstrip. The highlight was when an Eire pilot found the tide had come in and left him nowhere to land. But he managed to stay up until it went out again.
B.T.

VECTIS (Sandown Airport, Isle of Wight)
Congratulations to Jenny Pragnell for completing her Silver badge by soaring the Shanklin and Ventnor "haze" for 5hrs on November 18! Also to Tony Baker and Andy Noctor (AEI rating). John Chape (Bronze badge); Chris Bacon, George Hibberd, Matthew Colebrook (Bronze legs) and Trevor McLoughlin (going solo).

Our Piper Cub is restored and working hard, thanks to Neil Watts (CFI), Dave French (engineer) and especially Mike Morris.

Our annual dinner-dance was well attended. We plan another expedition to France in the summer.
A.J.N.

WELLAND (Middleton)
We are moving to a new site at Lyveden, about five miles east of Corby and ten miles from Middleton, in the new year and have a 21 year lease. We will be able to fly throughout the year and hope to substantially increase our membership.

Barry Chadwick and Keith Scott have bought a Kestrel 19 and sold their Dart to Andy Parrish, Paul Warburton and Chris Martin. CFI Peter Andrews has bought a Skylark 2. Congratulations to Andy Parrish on his AEI rating and to Steve Algeo on going solo.
R.H.S.

WEST WALES (Templeton Airfield)
At our AGM in November Brian Quinn was elected chairman with John Rogers (secretary), Suzanne Thomas (treasurer), Keith Richards (aircraft maintenance), Mike Monroe (ground equipment) and Rowena Sturdgess (duty pilot).

Bernie Jones is having a rest from instructing.
P.S.

WREKIN (RAF Cosford)
The expedition to Aboyne was a great success with only one non flying day. Richie Toon went to 17 000ft for Gold height to complete his Gold badge.

Wave appeared at Cosford one Monday in November when most of the fleet were up to 10 000ft or more.

At the AGM in November the trophy winners included Pete Evans (CFI trophy); Dave Gordon, (member of the year) and Dave Gelder (who won the Ernst Pottawenis Memorial trophy outright).

This has been one of our most successful of recent years with 6507 launches and 1479hrs.
R.J.

WOLDS (Pocklington)
Our annual dinner-dance was a great success. The prizes went to Alan Hunter (club ladder and longest flight); Dave Bowes (most progress) and Geoff Briggs (most meritorious flight).

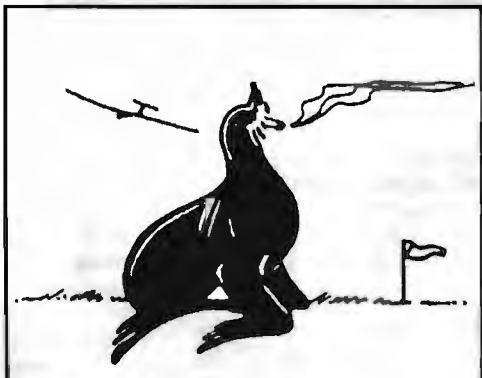
A presentation was made to Bob Fox in recognition of his outstanding service as CFI for 14 years.
S.McN.

WYVERN (RAF Upavon)
During an *ab-initio* course in October a German exchange officer, Michael Grimm, went solo. Rick Malam, Pat Farrelly, Graham Browning, Andy Mills and Dawn Bradley have Gold distance and Diamond goal, Andy and Dawn achieving theirs at the Junior Nationals, Andy in the club K-23. Bob Brett gained his Gold height at Borders on an expedition led by Roy Gaunt.

Our thanks to Paul Lutley for again organising an extremely enjoyable Christmas dinner.
D.B.

YORK (Rufforth Airfield)
The following awards were presented at the annual dinner-dance: for the longest flight (410km and 7hrs) and the senior club ladder, Mark Boyle; the highest climb (20 500ft and still going up when his oxygen ran out), Alan Swales; the under 25s prize for all-round effort, Russell Clayton with the outstanding service award won by Mo Davies. The silver spanner went to Howard McDermott-Roe, secretary, for smashing two trailers!

Just to prove we do things the hard way, Paul Hepworth, our treasurer, gained his 5hrs in a T-21, which is a significant achievement. We have produced a sweatshirt featuring our revamped logo.
A.P.



EW Avionics Price List 09/89

Barograph	£295.00
Portable Printer	£157.00
Carry Case	£10.00
Paper Rolls	£2.50
Konica Camera Conn	£45.00
Moto Glider Conn	£30.00

All prices ex VAT

EW Avionics
45 Wyrasdale Cres
Perivale
Middx UB6 8TH
Tel 01 998 1510

With the launch in early 89 of our new digital barograph, EW Avionics have been surprised by the response to this exciting new product. Already units are being used by the winning pilots at national competition level as well as regional level. Many badge claims have already been made with many pilots commenting that they probably wouldn't have carried a barograph except for the convenience and user friendliness of the EW Barograph.

Now available: The connection wire to connect your Konica Pop camera to the EW Barograph, to record accurate to 1 second and 10 metres in altitude, each photograph. This is ideal for those record attempts as well as policing competition start line heights.

THE NEW L23 "SUPER BLANIK" FROM CZECHOSLOVAKIA

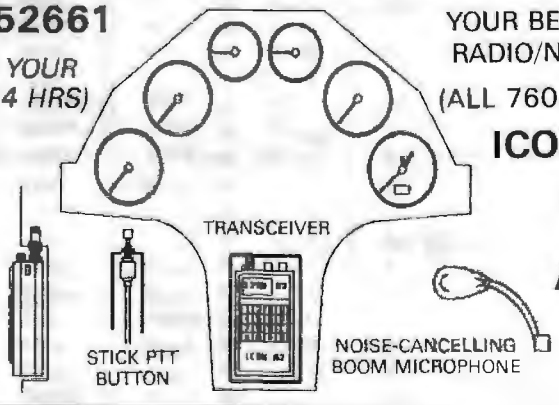
A superb trainer
All metal construction
Easy ground handling
Empty weight 310kgs
Fully instrumented
Certified to JR 22 and OSTIV-X
Delivery from early 1990

SOLE UK AGENT - PETER CLIFFORD & Co.,
15 Home Farm, Crowmarsh Gifford, Wallingford, Oxon, OX10 8EL. Tel: 0491 39316/680420 Fax 0628 770671 Telex 847518 CAIRFT G

CONTEST *CALL US FOR YOUR CATALOGUE (24 HRS)*

Tel (0962) 52661

ALSO THE BEST OF:
ALTIMETERS, VARIOS, ASI'S
COMPASSES, DECCA NAV
ILEC ADC'S & VARIOS
MOTOR GLIDER I/COM RADIO
THERMAL CLOTHING ETC. . . .



YOUR BEST COMPLETE RADIO/NAV SYSTEMS:
(ALL 760 CHAN 5WPEP)
ICOM BASED:
A2: £269
(10 MEM)
A20: £299
(16 MEM & VOR NAV)

OXYGEN EQUIPMENT

The Sabre-Air Apparatus & Valve A.I.R. 24 series oxygen equipment for gliders, comprising a control head and 680 litre oxygen cylinder, is now available for self installation. With all the in-flight oxygen controls situated in the one position, this control head has been developed from the Company's highly successful Domiciliary oxygen unit to Drug Tariff Specification 01B.

The 680 litre cylinder is of British manufacture in aluminium to BS 5045 specification and is supplied valved and charged to 2000 p.s.i.

The company also supplies oxygen equipment based on 230- and 680-litre cylinders, and face masks complete with valves and economiser bags.

In the unlikely event of servicing being required, the company operates a 24-hour turn-round postal system.

NOW AVAILABLE - SLIMLINE 630 CYLINDERS

SABRE-AAV LTD
Unit 1, Blackwater Way, Aldershot, Hants. GU12 4DL
Tel: **Aldershot (0252) 334581** *Fax:* **0252-21993**

ANNUAL STATISTICS OCTOBER 1, 1988 to SEPTEMBER 30, 1989

GLIDING CLUBS	AIRCRAFT				ALL LAUNCHES	NO. OF AEROTOWS	HOURS	CROSS-COUNTRY KM	MEMBERSHIP		
	Club 2s	Club 1s	PO	Tugs					Flying	Estimated No. of Temporary Members	No. of Female Members
ALTAIR	3	2	4	1	3081	60	595	3380	16	30	3
ANGUS	2	1	7	0	2770	0	428	506	45	150	10
AQUILA	2	2	10	1	1361	1091	362	2500	34	65	0
ARGYLL & WEST HIGHLAND	2	0	1	0	1578	0	495	0	12	366	2
AVON	5	4	32	4	13600	13600	-	7500	175	1210	16
AVRO	5	2	2	0	2944	0	499	1000	75	50	5
BATH & WILTS	4	3	22	3	3774	1186	1278	7000	86	466	5
BLACK MOUNTAINS	2	1	12	1	3800	3800	12000	16000	80	194	4
BLACKPOOL & FYLDE	2	4	28	0	3875	0	1793	1200	90	100	4
BOOKER	11	13	90	8	17782	17782	19500	240000	444	2853	36
BORDERS	2	1	17	1	2108	2051	1420	6341	80	305	3
BRACKLEY	1	1	8	0	3007	5	680	1244	45	43	5
BRISTOL & GLOS	4	4	51	3	10861	7871	7115	84103	272	1002	54
BUCKMINSTER	2	2	13	1	4020	3720	1093	6180	95	531	7
BURN	4	5	20	1	7355	2495	2392	4000	148	320	6
CAIRNGORM*	2	0	9	0	1712	400	1366	2	37	900	4
CAMBRIDGE UNIVERSITY	4	4	38	3	9033	3537	5692	100959	205	1537	-
CHANNEL	5	1	6	0	6059	0	878	N/K	91	831	13
CONNEL	3	2	1	0	883	0	176	50	19	460	1
CORNISH	3	2	4	0	4662	0	887	750	44	316	3
COTSWOLD	4	4	32	0	10684	0	4159	43780	218	884	27
COVENTRY	7	5	65	4	15894	11049	8994	102034	288	1630	25
CRANFIELD	1	1	10	2	1452	1452	808	2386	39	95	1
DARTMOOR	2	1	4	0	1597	0	185	0	53	143	7
DEESIDE	1	3	15	3	4859	4812	5334	-	76	382	7
DERBY & LANCS	4	4	28	0	10210	0	3690	9522	230	1703	20
DEVON & SOMERSET*	2	3	24	1	8029	899	2615	29600	176	514	6
DORSET*	3	2	11	1	4308	507	662	1000	110	1628	11
DUKERIES	2	1	2	0	3231	0	421	470	30	220	5
DUMFRIES & DISTRICT	2	0	4	0	418	0	45		18	40	1
EAST SUSSEX	4	2	9	0	6947	220	1141	550	125	1177	12
ENSTONE EAGLES	2	1	8	2	3014	1126	1246	26800	50	257	8
ESSEX	4	2	23	1	5348	1152	1215	24926	149	1006	7
ESSEX & SUFFOLK	2	2	14	2	2616	2616	1647	17000	87	721	10
HEREFORDSHIRE	1	1	8	1	1180	1180	1100	N/K	60	163	4
HIGHLAND	1	3	4	0	2346	30	412	511	31	274	3
IMPERIAL COLLEGE	0	3	See Lasham		310	70	336	8600	50	50	6
KENT	3	3	30	2	9419	4091	N/K	N/K	201	1784	
LAKES	2	1	5	1	1272	1172	560	180	30	268	1
LASHAM	11	0	130	4	42140	16602	16860	347302	740	3924	120
LONDON	6	5	80	3	24908	8678	7965	75000	341	2976	23
MARCHINGTON	2	0	8	1	1600	1600	800	N/K	82	308	3
MENDIP	2	2	11	0	2422	12	724	5040	62	73	3
MIDLAND	3	4	25	1	13244	359	5777	30480	260	889	32
NENE VALLEY	2	2	5	1	2752	80	448	1800	39	256	6
NEWARK & NOTTS*	2	2	10	0	3327	12	401	773	64	602	5
NEWCASTLE	2	1	4	0				500	29	39	2
NORFOLK	3	2	31	2	4745	4495	3069		166	873	18
NORTH DEVON	1	0	6	1	600	600	950	5500	12	54	1
NORTH WALES	2	2	10	0	3722	0	615	300	61	440	7
NORTHUMBRIA	3	2	13	1	3372	918	739	500	72	225	5
OXFORD	3	3	12	0	5371	0	1791	29057	98	680	9
OXFORDSHIRE	3	1	3	0	5260		1754	62000	61	55	7
PETERBOROUGH & SPALDING	3	1	13	2	2913	2803	1149	6500	73	330	5
RAE BEDFORD	1	0	7	1	63	33	116	3150	14	20	0
RATTLESDEN	2	2	12	0	3463	75	889	7800	57	480	6
RIDGEWELL OATLY*	2	2	0	0	122	0	11	0	26	0	1
RSRE	2	1	1	N/A	723	13	106		21	115	1

SACKVILLE	2	0	2	1	450	250	250	3000	21	10	1
SCOTTISH GLIDING UNION	4	5	34	2	9764	4780	5723	4793	255	1278	25
SHALBOURNE	3	1	12	0	4800	0	1054	2500	78	400	9
SHROPSHIRE	0	0	13	1	893	893	1655	18500	37	20	1
SOUTH WALES	3	2	20	2	5380	1771	2152	28000	124	1020	22
SOUTHDOWN	2	3	30	3	6500	5200	1700	30000	230	670	30
STAFFORDSHIRE	2	2	4	0	2810	0	508	260	74	270	4
STRATFORD ON AVON*	3	2	12	0	4641	0	889	4250	95	845	
STRATHCLYDE	2	1	6	1	431	258	110	70	29	51	0
STRUBBY	2	3	6	0	3739	24	437	250	40	247	3
SURREY & HANTS	0	12	See Lasham Return						293		33
SURREY HILLS*	2	1	2	0					40		
SWINDON	2	1	10	1	2877	324	825	13736	45	509	4
THRUXTON	2	2	4	1	1343	1343	602		57	327	4
TRENT VALLEY	3	2	20	1	4945	525	1492	6650	91	325	8
ULSTER	1	1	8	1	1308	1298	755	500	38	126	1
UPWARD BOUND	2	0	1	0	1703	0	250	0	30	300	3
VALE OF NEATH	2	1	5	1	1866	362	450	N/K	40	250	1
VECTIS	2	0	3	1	696	696	260	0	25	84	4
WELLAND	2	2	8	0	2735	8	650	6540	45	150	5
WEST WALES	2	1	2	0	1326	0	90	0	32	70	3
WOLDS	5	3	31	1	13257	1808	3243	11560	248	2636	45
YORK	4	4	13	1	8160	2331	2128	5500	131	1256	8
YORKSHIRE	4	5	35	3	6260	4478	3942	12500	254	1192	7
CIVILIAN CLUB TOTAL	226	182	1333	85	404030	150603	166548	1474385	8742	49043	817
ARMY GLIDING ASSOCIATION											
KESTREL	2	4	2	1	4597	74	1028	18327	124	642	4
WYVERN	2	4	7	0	6931		1486	18000	133	300	11
ROYAL NAVY GSA											
CULDROSE	3	2	2	3	2018	1500	471	500	50	209	4
HERON	3	2	8	1	1800	1303	937	10200	50	60	9
PORTSMOUTH	7	6	6	3	4500	3000	1050	400	240	200	22
RAFGSA											
ANGLIA	2	3	1	0	2930	4	725	1220	48	100	
BANNERDOWN	3	4	6	1	7450	256	1776		100	140	
BICESTER	9	9	23	6	14378	5370	6232	83253	181	790	
CHILTERNS	3	3	4	0	4001	72	1517	11277	58	172	
CLEVELANDS	3	4	15	2	4922	1699	2144	25033	125	253	
CRANWELL	3	3	8	1	5477	452	1581	9734	100	300	
FENLAND	2	4	4	0	5412	115	1666	23680	60	40	
FOUR COUNTIES	3	3	6	0	6534	202	2102	25835	75	100	
FULMAR	2	3	1	1	2800	100	604	360	50	100	
HUMBER	2	3	4	0	3544	43	1099	10903	50	100	
LOMOND	1	0	0	0					20	30	
WREKIN	2	3	4	1	5869	339	1459	6127	90	206	
SERVICE CLUB TOTAL	52	60	101	20	83163	14190	25876	244849	1554	3742	50
CIVILIAN CLUB TOTAL	226	182	1333	85	404030	150603	166548	1474385	8742	49043	817
GRAND TOTAL	278	242	1434	105	487193	164793	192424	1719234	10296	52785	867

** No statistics received. Last year's figures used.*

WAY OFF TRACK

A soaring sheik-me-down?

With oil money gushing from their ears the Islamic super-rich from the Gulf and from Brunei have tried pretty well everything Europe has to offer - from ownership of the top stores and hotels, to sponsorship of art galleries and opera and their virtual domination of the English and Irish Turf.

On another sporting front, their take-over of such top ski resorts as Gstaad and Klosters has been very marked as well.

So with all this lovely lolly helping to subsidise other people's sports, how come we've never heard of any soaring sheiks? Is it a failure of gliding's marketing? Or does no princely Arab stripling see any mileage in soiling his snow-white robes by pushing gliders around in clinging NW European mud?

But what about the gliding potential of the desert states back home - if not of jungley Brunei, which is another bag of dates indeed? The Kuwait - Dubai - Abu Dhabi dog leg could perhaps become an interesting 1000km milk run now that the Gulf war hostilities have ceased. Out landings should present few problems, except perhaps the terminal one of thirst.

And think of the safari possibilities open to any gliding club along the Gulf, where they know the nomadic way of life. A mobile clubhouse could be moved on to the safari site in the shape of sumptuous Bedouin tents, with rich furnishings and sheep's eye take-aways.

Retrieving on the field would be a doddle. If the Merc or 4×4 should break down (Allah forfend!) one could whistle up a camel to tow machines around, with an uncomplaining eight-year-old Velcro-ed into the saddle, as Chas and Di found was the camel racing crowd's practice on their recent visit to Kuwait.

Before the Booker boy racers shoot off, however, to see what can be set up in the Gulf, I've just thought of what might prove to be an insuperable impediment to gliding developing along the shores of Araby.

No booze!

No room at the top

I would have loved to be able to write Justin Wills' throwaway remarks which opened his World Champs piece "35 Years On" in the October issue, p232: "It was a strange ambivalent feeling to stand on the second rung of the podium . . . On the one hand I was never more conscious of the gap between 1st and 2nd . . . and on the other I was aware of all the excellent pilots who on this occasion were ranked behind me."

If you were one of Nature's also-rans like Penguin you'd be even more conscious of the gap which exists between the stratospheric second and the subterranean umpteenth rung, Justin.

And as one whose finest competition hour was coming 3rd one day in Enterprise 83, to end up as a middle-order finisher, 11th, in the overall results, I was never more aware of all the excellent pilots who, on that occasion, were ranked *before* me.

Never mind the fragrance, just feel the rock

Those "how I dunnit" articles in *S&G* over the years about soaring in the French Alps have usually commented on just how close the French professionals fly their trainees to precipitous rockfaces from places like St Auban, Sisteron and Gap.

But you can experience the adrenaline free-flow feeling of such *vol á voile provençal* at home, without the cost of ferries and 1000 miles motoring. Just go to Talgarth and have half an hour with CFI Gerry Martin and he'll give you a very good simulation along the flanks of the Black Mountains.

They don't have the vertical cliffs which *les Alpes* offer or which, for that matter, are uniquely available within the UK in a slightly widened circuit at the Ulster GC's Bellarena site.

But 20 minutes with Gerry trying to make Talgarth's mountains work in a Blanik on a flat, dull, afternoon was the nearest thing to mortal terror to freeze Penguin's blood for many years. Getting right in close beneath Lord Hereford's Knob - its Welsh name, Twmpa, may be less risible but the Lord only knows what it might mean to the Celts - had even its resident sheep terrified, not to mention your transfixed columnist up front.

It was no surprise to hear that Gerry learned the technique at St Auban. My own French alpine experience is confined to Fayence where the terror instilled is not through the presence of solid rock a few centimetres beyond the inboard tip.

It comes instead from the dire warnings of the fate which awaits anyone trespassing across the ridge line to steal a fleeting airborne glimpse of the French nuclear missile *force de frappe*, siloed all over the neighbouring Camp de Canjeurs. Shades of the Bastille, Devil's Island or the guillotine - if you're caught.

BAROGRAPH for sale. £290. (0494) 29263.

PEGASUS. Newly refinished. Hull only. £16000 + VAT. Trailer and instruments available. Tel 0494 29263.

VEGA with 17 metre detachable tips. Full panel, Komet trailer. £17500. 0494 29263. Shares available - Based Booker.

ASTIR CS 77; 1979. Full panel and flight director plus 760 channel radio, oxygen, barograph - 650hrs. Aluminium trailer. £12500. Tel 03398 86719.

SOARING May 1976 to January 1988 inclusive, complete. £40.00 plus carriage. Airtour CRP-7 computer unused. £10.00. Tel 0232 790666.

LIGHTWEIGHT COVERS made up for your glider. Dust covers or waterproof. Also canopy covers. Details from Ann Woolf. Tel 0256 87388.

FAUVETTE 9055 30:1 L/D, full panel, TM6 radio, parachute, sound metal trailer. Easy two man rig. £5250. Tel Andrew 0533 545876 or Paul 0536 770978.

TRAILER suitable for two-seater. Metal, Absolutely first class. £2500. Tel Tony Gibbs eves 0992 465797.

IRVIN PARACHUTE - £200ono. Tel Bill Munns 0533 303804.

PIK 20D, full panel, parachute, etc. £13500. Tel Bill Munns on 0533 303804.

GLASS FIBRE Phoebus 17C. Full panel, radio, aluminium trailer, tow out gear. Situated Camphill. £8500. Tel 0433 21167.

ASTIR CS 77 excellent condition with C of A, includes electric vario, Dolphin, A/H, radio, parachute, portable oxygen, sound wooden trailer inc. damper. Tel 0279 37963 (eves).

KESTREL 19, good aluminium trailer, Cambridge MK4, Decca, oxygen, parachute, same syndicate 12 years. Sell or shares at Yorkshire site. Tel 0246 275531, 0532 755576.

ALTIMETER MK 24 "MECHANISM". 50mm face, ideal for small panels. £250. Tel Prestwich at Office 061 834 2332. Home 0260 224217.

K-6CR. Excellent condition, no accidents, C of A, large canopy, trailer. Recently recovered wings. Parachute, Radio, T/S. Electric audio/vario. £6500. Tel 0636 73780 or 0602 334748.

STD CIRRUS No. 577G, instruments, Cambridge audio vario, trailer, covers. £9500. Contact M. Oudry, Noailly or Mignot. Centre de Vol a Voile Lyonnais, Aerodrome, 69960 Corbas (France). Tel (010 33) 72 50 24 43.

SHK. Excellent condition. 550hrs. Basic instruments plus TM 61 radio and Rico electric vario. New C of A. Good wooden trailer. Tel Ross (daytime) 031 331 3596 or Dave (eves) 0968 74150.

ASTIR CS 77. Ideal early solo to Diamonds. Full panel + Director, waterballast, new C of A, parachute, barograph and 720 radio, Low hrs, privately owned. Excellent condition, Professionally built glass trailer. Complete outfit. £12500 negotiable. MacFadyen 0453 872740.

SKYLARK 3B (F Modifications) aluminium covered steel frame trailer. Parachute, Winter barograph, C of A. Contact Bryan Johnson 0283 812257 evenings or Syd Brixton 0785 51452 evenings.

ASTIR CS 77. Only 620hrs, excellent condition, basic panel plus electric vario, radio, oxygen, parachute, water ballast, trailer, tail wheel mod. £12000. Tel 0799 25628 (eves).

K-6E with electric and mechanical vario, radio, T/S, altimeter and parachute. Wooden trailer refurbished in August, fuselage re-sprayed. Good condition. Based Buckminster Gliding Club. Reasonable offers around £7900. Tel Noel on 0332 840169 or Doug 0203 374966.

NIMBUS 3 - No. 7, plus trailer, oxygen, parachute, instruments. Dollies covers, radio etc. Tel D. B. James 06284 3509.

STD LIBELLE. Basic instruments plus A/H, T/S, oxygen, parachute, barograph, towing out aids, metal trailer. Excellent. Tel 01 241 6458 or 0378 76731.

GERMAN ASW 20. Excellent condition, competition hard sealed. Instruments, trailer, good rigging aids and two out kit. £19500. See Tim Scott at Booker or Tel 0494 881665 anytime.

CLUB LIBELLE, immaculate, owned privately in some club and hangared all its life. Full panel, oxygen, parachute, covers, tow out gear, prangless. Repainted trailer. Offers over £11500. Tel 0229 87 5311 (days).

DART 17R, good condition, C of A, basic instruments, electric vario, oxygen, barograph, parachute, alunimum trailer, £7500ono. Tel Roger Teaves 0869 83296.

CLUB ASTIR 77 in excellent condition. Fully instrumented including radio. Refurbished trailer, rigging aids and barograph. C of A till August 1990. £11500. Tel 0604 768667 or 0908 562547.

ASK 21 - Offers. Tel 058 861 206.

K-6CR. C of A to March 1990, will need attention before renewal therefore £4000ono. Tel 0343 547784, Steve Young.

SLINGSBY SWALLOW (1964) 700hrs total time. Condition as new. Any inspection welcome. C of A April 90. £3925. Tel 0225 315082 or 0935 814454.

PIRAT. VGC. Basic panel, including electric vario. Alloy trailer. New C of A. £5500. Norman Brown 0205 750512 (eves) 0733 210463 (weekends).

ASW 20FL 1/2 share. Based Lasham, professionally maintained. Fully equipped, including oxygen. AMF Trailer. John Taylor 0962 62890 (home) or 0962 844433 ext 6792 (office).

SLINGSBY SWALLOW. Best offer around £2000. Tel 0228 35515.

SWALLOW 1967. 700hrs, recovered Aerolene, repainted Polyurethene, ASI, T&S, PZL, altimeter, compass accelerometer. Purpose built open trailer, new suspension, tyres etc. Tel 0604 764851 weekend, or 061 875 6313 office.

K-13. Basic instruments, open trailer, no prangs. Always syndicate owned. 7260 starts. 2164hrs. Tel P. Marsh 045 982 3475.

K-6E. Immaculately maintained by sole owners. Recent respray in acrylic. New canopy. Extensive panel including Cambridge Director. 4yr old metal trailer. Tel 04865 2436 (eves).

KESTREL 19. Instruments, radio, oxygen, trailer. Good condition. £13500ono. Tel 0622 56008.

PARACHUTE - good condition for sale £250. Tel 0203 395031.

L-SPATZ 55. 1959 Scheibe. Always privately owned. K-6 performance with profiled wings. Standard instruments, radio, new canopy. Covered trailer totally refurbished. Immaculate. Offers between £3000 to £3500. Tel Steve Young 0343 547784.

PIROL LX1800. Nav/vario system. Dittel 720 radio, Winter vario. EB75 Irvin chute. Metric Winter ASI and altimeter. T&S (Gauting) 57mm. Aircraft clock. Tel 044 284 2445.

IS-29D, 15m, 37:1, elegant flapped machine with retractable gear, Cambridge, oxygen, parachute, radio. Rigging and towing aids etc. Beautifully co-ordinated. Bargain £6850. Tel David 0536 514400.

DISCUS B with AMF fitted trailer, towing out kit. Instruments available. Tel Sally Wells 08444 3036.

STD LIBELLE. Excellent condition, unpranged, hull, instruments, radio, oxygen, barograph. £10450. Nearly new metal trailer - negotiable. Tel 045 383 2061.

NIMBUS 3. AVAILABLE JANUARY 1990. Extended span to 25.5m, completely refinished. Outfit includes GRP trailer, one man towout gear, parachute and barograph. Comprehensive panel includes Peschges VP3E COMP, 720 radio and Bohli Compass. £37500. Tel 0223 892444 business, or 0223 893237 private.

ASTIR CS 77 same ownership from new, superb condition, full panel including Cambridge Speed Director, T&S, PZL, Ball electric vario, radio, water ballast, tail wheel conversion. Glass-fibre trailer for ease of maintenance. New C of A. £12500. Tel 0692 402042.

SPORT VEGA. Very low hrs. Immaculate and unpranged. Current C of A. Full panel. Complete outfit with excellent trailer, oxygen, chute. £13000. 0426 954 208 (24 hrs).

DITTEL LX1000 Director, vario, averager, £310. DG 200 Canopy cover £25.00. Tel 0442 834230. (Answerphone).

SPORT VEGA, hull plus basic instruments. Good condition with new C of A. £7500 + VAT. Tel SGU 059 284 543.

ASTIR 77, aluminium trailer, tail wheel modification, 450 launches. Same two owners since new. T/S, 2 varios, JSW Dolphin, 2 channel Storey, u/c warning. Best offer around £12000. Tel 0793 36665 or 0793 790954 (eves).

K-8 hull plus basic instruments. Good condition with new C of A. £3950 + VAT. Tel SGU 059 284 643.

ASTIR CS 77, Aluminium trailer, basic instruments, electric & mechanical varios. T&S JSW Dolphin, 2 channel radio, under carriage warning. Tail wheel mod. Approx 450 launches. Offers. Swindon 530541.

NIMBUS 2, complete with trailer, instruments – ASI, altimeter, PZL vario, horizon, oxygen, VOR. Parachute. With 123 months C of A. Tel 0423 340452.

KESTREL, 100hrs. Full panel including horizon, Bohli compass, Burton variometer, radio and oxygen. Glass-fibre trailer with solo rigging aids. £12 200. Tel Ian Carruthers 0228 37044.

DEREK PIGGOTT'S instructional tapes and books on gliding (Ab initio to cross country). Send for details to 11 Laurel Road, Barnes SW13 0EE.

GRASSHOPPER – ex-RAF. Primary trainer. Complete restoration, new fabric, silver paint as original. Complete with new wooden fully enclosed trailer. Winch or aerotow. More fun than broomstick; the ultimate Ridge Runner. Appreciating Vintage Classic. £2400. Tel 0787 240241/0553 691299.

SITUATIONS VACANT

COURSE INSTRUCTOR
required by Scottish Gliding Union for April-October 1990

Send details to:
Secretary
Scottish Gliding Union, Portmoak Airfield
Scotlandwell, Nr Kinross KY13 7JJ

COME TO SOUTHERN IRELAND!

Tug Pilot with tail-dragger experience wanted for five weeks July/August. Air-fare and caravan accommodation offered.

Full category instructor also required two to four weeks.

Applications to: CFI, Dublin Gliding Club, 1 Oakdown Road, Churchtown, Dublin 14. Tel 983994

STAFF AND COURSE INSTRUCTORS 1990

We are looking for suitably qualified personnel to fill the above positions at our west coast of Scotland operation.

The Personnel Manager
Argyll Aviation Hire Limited, Woodmarch, Kinnesswood, Kinross KY13 7HX. Tel 059 284 288

ACCOMMODATION

FAYENCE. 3km airfield. Accommodation in new holiday village. Use of swimming pools, tennis courts etc. Studio sleeps 4, house 6. From £70 per week. For details phone 0489 572278 evenings.

SERVICES

PENNINGTONS CHARTERED ACCOUNTANTS. For accountancy and taxation services. Havard House, Harmondsworth, Middlesex UB7 0AW. Telephone John Gorringe, Day 01 759 1967, Evening 01 948 3799.

LOST

WINTER BAROGRAPH – Serial No. 49511 engraved "Boneham". Lost at Arboyne on Saturday September 16. Reward. J P Boneham, Monks Barn, Newstead Abbey, Nottingham NG15 8GE.

FOR SALE

IS-32 HIGH PERFORMANCE TWO SEAT GLIDER

- 1-46 glide angle (if you can see it, you can get there)
- Four flap settings
- Very good airbrakes
- Fully instrumented, including ASH 720, Cambridge vario and repeater with audio, Gouting T&S, Avcomm VOR Dolphin Switches.

Tel 0222 385515 or
0252 850130 or
0203 381895 (daytime)

£22 000 ono

PROPERTY

TWO COTTAGES suitable for conversion into one dwelling. Secluded country location, one acre level fertile land and outbuildings. Walking distance from proposed gliding site approved by BGA. 4 miles east of "Grampians Wave". 30m minutes south Aberdeen. Good pheasant and duck shoot. Tel 05612 430.

HOLIDAYS

TRY IRISH GLIDING this year! Courses in July/August at pretty site near Blessington lakes. Details from Dublin Gliding Club, 1 Oakdown Road, Churchtown, Dublin 14. Tel 983994.

WANTED

TRAILER suitable for standard Libelle. Must be roadworthy. Tel 0423 867536 after 4.30pm.

K-6 trailer, enclosed, good condition. Tel Bill Munns 0533 303804.

HIRE OF COMPETITION OUTFIT. 94-104 speed index. From July 31 until August 9 inclusive. Apply Box No 003.

TWO SEATER, any type considered. With trailer preferred. Reasonably priced. Will travel in Europe to view. Tel (Coventry) 0203 395031.

OLY 463/K-6 or similar. Tel 074 570 356 or 0925-66486 (anytime).

DAMAGED GLASS-FIBRE glider by private buyer. Top price paid – would consider complete outfit. Will travel in Europe to view. Tel 01 998 1510.

SITUATIONS VACANT

COURSE INSTRUCTORS. Well paid summer jobs for enthusiastic Gliding Instructors (or potential instructors – we can arrange a course). Contact CFI, Booker Gliding Club, Wycombe Air Park, Marlow, Bucks.

NORFOLK GLIDING CLUB requires a Tug Pilot for 1990 season. Requirements 100hrs PI, preferably on taildraggers and Bronze C. Tel Nigel Riley on 0603 625962.

BUCKMINSTER GLIDING CLUB require a full time Tug Pilot and Instructor for the 1990 season. Details available from CFI Frank L Cox, 23 St Marys Road, Bingham, Nottingham NG13 8DX.

TUG PILOT – 200hrs plus available for a summer season. Based USK, South Wales. Minimum requirements PPL, 50hrs PI, Silver C and tailwheel experience. Contact Broom, 0633 293408 (Day) or Phillips 02913 3477.

ADVERTISERS' INDEX

YORKSHIRE GLIDING CLUB

require

GENERAL FACTOTUM

for 1990 season

Duties fluid at the time of writing but will offer opportunity to increase power hours. *Apply with CV to: Euan Spink, The Mount, Easingwold, York YO6 3BJ. 0347 21562*

Gliding in the Black Mountains?

THE TOWER HOTEL

Family run hotel - rooms with en suite, showers or basic facilities available.
Bar, Restaurant and Residents Lounge
Situated one mile from Black Mountains Gliding Club.
Tel 0874 711253

GLIDING—OVER ROYAL DEESIDE—SCOTLAND

Enjoy the serenity and excitement of the mountains and glens from a different viewpoint.

Gliding, hire and lessons, are available from Deeside Gliding Club, Aboyne; with advance notice bookings being made on your behalf.

The proprietor—a gliding enthusiast—offers special discounts for visiting Gliding Club Members on accommodation, dinners and bar meals.

A wide range of activities and special events are available for all the family, please contact: *Gillian.*

Monaltrie Hotel

Monaltrie Hotel, Bridge Square, Ballater, Aberdeenshire AB3 5BR.
Tel: 03397-55417, Fax: 03397-55180

STAFF REQUIRED

Wolds Gliding Club

A Course Instructor
1990 Season - April-October

Can be Assistant Rated, preferably, but not necessarily Tug Pilot/MGPPL

For further details apply:
Manager
Wolds Gliding Club
The Airfield, Pocklington
E Yorks YO4 2NR. Tel 0759-303579

MARCHINGTON GLIDING CLUB

Situated in the Midlands. Offers Holiday courses from April to September.

Good local soaring and cross-country.

Private owners welcome.

Please Contact:

Course Secretary
Marchington Gliding Club
Marchington Airfield, Morton Lane
Marchington, Nr Uttoxeter ST14 8LP
Telephone: 0785-51570

COMPETITIONS

TWO-SEATER COMPETITION

1990
19th-25th August

ALL TWO-SEATERS ELIGIBLE

For details, write or ring
The Airfield
POCKLINGTON
East Yorkshire YO4 2NR
Tel. 0759 303579

Wolds Gliding Club

THE RIGHT APPROACH...

TO FINANCING YOUR GLIDER OR MOTOR-GLIDER . . .

is talking to the Specialists and finding out what's on offer

CENTRE LINE SERVICES offer a range of schemes to Individuals and Syndicates that make a new acquisition or an improvement to what you presently fly - more affordable.

For your Information Pack or a quotation on funding or Insurance arrangements - WHY NOT

CALL US NOW

Tel: 0489 885998 FAX: 0489 885889

CENTRE LINES SERVICES . . . making your flying more affordable

LICENSED CREDIT BROKERS - FULL WRITTEN DETAILS ON REQUEST

RD AVIATION LIMITED

SERVICE AND CHOICE with a wide range **IN STOCK** ➡

WE MOVED! – AND OPENED OUR NEW

OXFORD PILOTS SHOP

at Unit 25, Bankside Industrial Complex, Kidlington

INTRODUCING – *Dyna Foam*

Dyna Foam *Dyna Foam*

To improve your comfort and safety
ENERGY ABSORBENT CUSHIONS FOR PILOTS

★ Formulated to provide superior body support
★ Used on ejection seats where impact absorbtion and

We stock a standard size – 16"×18" (other sizes to order)
½" thick **£14.75**+VAT each (**£16.96** inc. VAT) 1" thick **£17.35**+VAT each (**£19.95** inc. VAT)
Other thicknesses to order. Wedge or back pads to order.

Options – at extra cost

★ Silicone sealing – specify with order
One surface **£3.00**+VAT (**£3.45**) Two surfaces and edges **£6.00**+VAT (**£6.90**)
★ Cushion cover (with velcro seal to facilitate removal) **£15.00**+VAT each (**£17.25** inc. VAT)
Postage (UK) **£3.00** inc. VAT each

SEE IT AT OUR NEW PILOTS SHOP

⬆ Cheerful, Friendly Service
☎ 0865 841441 (24hr) mail order
Fax: 0865 842495 (24 hr)
Open to callers: **0930-1830 Mon-Fri**
1030-1230 Sats or by appointment

WE'VE MOVED

Free Catalogue From
R.D. AVIATION LTD,
Unit 25, Bankside, Kidlington,
Oxon OX5 1JE
(Just outside the airport)

VISA

CAMBRIDGE

A complete range of soaring instruments

SNAV – top of the range Computer Variometer

***New for the 1990s* – Version 3 software**

Enhanced features of:
★ Adjustable TE compensation
★ Single control for turnpoint and camera
★ Final glide around a turnpoint
★ Touring mode

All these new features are standard on units delivered from Feb. 90.

PRICE £1674+VAT

Options (for new instruments)
★ Compass option – £340+VAT
★ Remote Key Pad – £68+VAT
(Duplicates SNav front panel keys)

Update *your* SNAV Version 3.0 Software upgrade and manual £169+VAT

Our Record Speaks for itself.

E & OE

CAMBRIDGE AERO INSTRUMENTS
WARREN-SUGARBUSH AIRPORT
RR BOX 109A WARREN, VERMONT 05674 USA
PHONE: (802) 496-7755 FAX (802) 496-6235
ALL CAMBRIDGE PRODUCTS CARRY A FULL 2-YEAR WARRANTY

Available from:
RD AVIATION LTD
UNIT 25, BANKSIDE, KIDLINGTON
OXON OX5 1JE
☎ 0865-841441 FAX 0865-842495

Are you sitting comfortably?
Former World Champion, Brian Spreckley is!

The GQ slimline Shadow and Silhouette parachute systems offer a new dimension in comfort and safety

Special features include:

* Pump up lumbar bladder
* Slim profile pack
* Padded for superb fit and comfort
* Fast opening, steerable SAC parachute
* Fully tested and cleared by FAA & CAA

Price: Shadow from **£620**+VAT
Silhouette from **£643**+VAT
} including bag and instructions but unpacked

The GQ Shadow and Silhouette - A new generation of glider parachutes

GQ Parachutes Ltd., Portugal Road,
Woking, Surrey GU21 5JE. Tel: 0483 761321
Fax: 0483 715111. Tlx: 859334 GQPARA

UK Distributors:
RD Aviation Ltd., Unit 25, Bankside,
Kidlington, Oxford OX5 1JE
Tel: 0865 841441 Fax: 0865 842495

SOUTHERN SAILPLANES

(RALPH and STEPHEN JONES)

"I WILL NEVER BREAK MY GLIDER"
(That's what we said, didn't we!)
Well it's happened, now what?

FIRST

RING US ON
0488 71774 (day) or 0488 82058 (evening)

We can then act **IN YOUR INTERESTS** to negotiate, if applicable, with the insurance company surveyor/loss adjustor, **WHOSE JOB IT IS TO MINIMISE THE COMPANY'S LOSS,** to put your sailplane back into the air in the condition it was in before the accident AND as soon as possible.

We have CIVIL AVIATION AUTHORITY APPROVAL (AI/9130/87) to repair and overhaul reinforced plastic aeroplanes up to 2730 kg. Your sailplane will be repaired to these same stringent requirements regarding jigging accuracy, repair weight, quality, temperature and humidity control, etc.

AS PRACTISING COMPETITION PILOTS

(WHAT DO YOU MEAN, WE NEED IT!)

WE APPRECIATE THE FRUSTRATION OF NOT HAVING A SAILPLANE TO FLY

SOUTHERN SAILPLANES

Membury Airfield, Lambourn, Berks. RG16 7TH
Tel: 0488 71774 Fax 0488 72482