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February ~ March 1999
Vol. 50 No. 1

ISSN 0036-7230



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**LONDON
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Editor
Le Forbes

Blot Publishing, PO Box 2039
PULBOROUGH
West Sussex, RH20 2FN
tel/fax: 01798 874831
email: le@blot.co.uk

For matters relating to S&G
please contact the editor.
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Whoever you may be, please send a SAE for the
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Deadline Dates

(April ~ May issue)

Articles	10th February
Club News	10th February
Letters	15th February
Advertisements	25th February
Classifieds	3rd March

(June ~ July issue)

Articles	10th April
Club News	10th April
Letters	15th April
Advertisements	25th April
Classifieds	3rd May

Publisher

British Gliding Association

Advertising Subscriptions
Debbie Carr Bev Russell

Kimberley House, Vaughan Way
LEICESTER, Leics LE1 4SE
tel: 0116 253 1051 fax: 0116 251 5939
email: bga@gliding.co.uk
Internet: <http://www.gliding.co.uk>

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Cover Picture by Jennie Mackenzie. RAFGSA Instructor Trevor
Burne flying a club member in a Dux Discus at Bicton.

Sailplane & Gliding

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Telford International Airsports Exhibition



Richard Yerburch helped
to man the BGA's stall at
Telford on December 4th.
He reflects on the success
of other airsports and sug-
gests what we might do.

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Peter Riedel: A Full Life



Following the recent death
of Peter Riedel, Martin
Simons, author of the book
"German Air Attaché"
gives a brief history of
Riedel's varied life.

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ASW27 - A Review



Having flown the UK's
ASW 27 demonstrator,
based with Zulu Glasstek,
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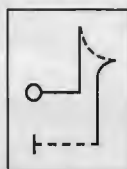
Surviving a Mid-air Accident



Following his article in the
Oct/Nov issue, Tony Segal
looks at ways of surviving
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started to reward pilots
who make progress in glid-
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BGA and General News

A Word from the Chairman

Much of the Chairman's workload is generated in connection with the 101 tasks involved with the day-to-day management and administration of the BGA. I frequently find myself – as I am now – sitting at my desk, tapping out letters and memos on my word processor, sending and receiving faxes, and talking into the telephone. In fact all the tasks involved in the running of a medium-sized company.

Another aspect of the Chairman's job is to have the opportunity to get out and about to visit (and fly at) clubs, and to be involved in various other gliding related activities. A glance at my diary over the past couple of weeks illustrates the sort of thing I mean.

Saturday 21st November: Got up at 5.15am and drove to Husbands Bosworth to open and attend the Chairmans' Conference organized by

David Roberts as part of Project 2000. Got home at 7.40pm. **Wednesday 25th November:** Duty Instructor at Southdown. Rain in the morning, winching in the afternoon, but had to stop flying due to severe misting on both inside and outside of the canopy. Frustrating. **Saturday 28 November:** My day to fly. Rained. **Wednesday 2 December:** Prepared for monthly meeting of the BGA Executive Committee, caught train to London. Chaired meeting starting 5.30pm and finishing 9.15pm. Joined other members of the Exec. for dinner at Kings Cross, before journey home, arriving midnight. **Friday 4 December:** Got up at 5.30am and set off with Mary to Telford, collecting BGA Duo Discus from Bicester en-route. Arrived Telford Exhibition Centre midday, rigged and polished Duo with Keith Mansell and Richard and Paddy Yerburgh, and set

up the BGA display. **Saturday 5th and Sunday 6th December:** International Airsports Exhibition (thanks to all who came along to lend a hand), and back home, dropping the Duo off at Bicester. Home at 10.10pm. Exhausted.

Read Richard Yerburgh's report about the BGA's stand at Telford on p.17. I think we all felt that the effort was well worth while. The Duo looked really impressive and attracted an enormous amount of interest.

I was about to close by wishing you all a Happy Christmas, but of course by the time this hits the newsstands the festive season will be but a dim memory. So, have a great 1999, and may all your gliding objectives be (safely) achieved. See you at the AGM!

–Dick Dixon



Certificates

ALL THREE DIAMONDS

No.	Pilot	Club	Date
555	Williams, John	SGC	10/10
556	Merritt, Kenneth	Mendip	15/8
557	Haseler, Peter	Bidford	30/10
558	Cottingham, Iain	Bicester	22/10
559	Kite, Paul	Lasham	10/10

DIAMOND DISTANCE

No.	Pilot	Club	Date
1-794	Williams, John	SGC	10/10
1-795	Merritt, Kenneth	Mendip	15/8

DIAMOND GOAL

No.	Pilot	Club	Date
2-2653	Lamb, Danny	Booker	24/7
2-2654	Shrobbree, Paul	London	27/8
2-2655	Hills, Robert	London (in USA)	21/6
2-2656	Wilson, Jack	ex-pat (in USA)	26/7
2-2657	Dale, Stephen	Yorkshire	18/8
2-2658	Robinson, C.	SGC	12/10
2-2659	Cauanna, Peter	ex-pat (in Oz)	26/10/97
2-2660	Miller, David	London	15/8
2-2661	Endicott, Michael	ex-pat (in USA)	11/7

DIAMOND HEIGHT

No.	Pilot	Club	Date
3-1453	Morecraft, William	Buckminster	6/10
3-1454	Marshall, Gerald	SGC	10/10
3-1455	Towler, Michael	Bidford	6/10
3-1456	Robinson, C.	SGC	4/11
3-1457	Perry, Nigel	Welland	10/10
3-1458	Broadbent, Alan	Bidford	30/10
3-1459	Teitema, Rolf	Soaring Centre	22/10
3-1460	Shaw, Bryan	Soaring Centre	22/10
3-1461	Dowse, Peter	Soaring Centre	23/10
3-1462	Kelly, Nick	Bicester	22/10

3-1463	Noyce, Richard	Portsmouth Naval	22/10
3-1464	Meier, Stuart	Shenington	10/10
3-1465	Philip Green	Lasham	10/10
3-1466	Turnbull, Matthew	Bicester	22/10
3-1467	Claton, Peter	Burn	30/10
3-1468	Oswald, John	Portsmouth Naval	30/10
3-1469	Witt, Chris	Bristol & Glos	22/10
3-1470	Etherington, Paul	Dukeries	30/10
3-1471	Bullock, Dave	Bicester	21/10
3-1472	Haseler, Peter	Bidford	30/10
3-1473	Bradbury, John	Portsmouth Naval	22/10
3-1474	Croll, Grenville	Rattlesden	10/10
3-1475	Cottingham, Iain	Bicester	22/10
3-1476	Kite, Paul	Lasham	10/10

GOLD BADGE

No.	Pilot	Club	Date
2055	Lamb, Danny	Booker	24/7
2056	Shrobbree, Paul	London	27/8
2057	Wilson, Jack	Ex-pat	26/7
2058	Dale, Stephen	Yorkshire	19/8
2059	Robinson, C.	SGC	12/10
2060	Broadbent, Alan	Bidford	30/10
2061	Kroner, Simon	Aquila	15/10
2062	Johnston, Robert	Aquila	15/10
2063	Pitman, Dan	Bicester	21/10
2064	Murdock, Joanna	Bicester	21/10
2065	Hussell, Colin	Bidford	6/10
2066	Till, Michael	Soaring Centre	22/10
2067	Ellis, John	Soaring Centre	23/10
2068	Dowse, Peter	Soaring Centre	21/10
2069	Paskins, John	Wolds	11/10
2070	Kelly, Nick	Bicester	22/10
2071	Paveley, Neil	Yorkshire	19/8
2072	Etherington, Paul	Dukeries	29/10
2073	Slipper, Terrence	Cambridge	16/9
2074	Bradbury, John	Portsmouth	22/10
2075	Ednicott, Michael	Ex-pat	6/10

GOLD DISTANCE

Pilot	Club	Date
Lamb, Danny	Booker	24/7
Shrobbree, Paul	London	27/8
Hills, Robert	London (in USA)	21/6
Wilson, Jack	ex-pat (in USA)	26/7
Dale, Stephen	Yorkshire	18/8
Robinson, C.	SGC	12/10

GOLD HEIGHT

Pilot	Club	Date
Perry, Nigel	Welland	10/10
Broadbent, Alan	Bidford	30/10
Crowson, David	Midland	30/10
Kroner, Simon	Aquila	15/10
Thompson, C.	Fenland	15/10
Johnston, Robert	Aquila	15/10
Pitman, Dan	Bicester	21/10
Murdock, Joanna	Bicester	21/10
Hussell, Colin	Bidford	6/10
Shaw, Brian	Soaring Centre	22/10
Till, Michael	Soaring Centre	22/10
Ellis, John	Soaring Centre	23/10
Dowse, Peter	Soaring Centre	21/10
Paskins, John	Wolds	11/10
Fenton, David	South Wales	11/10
Herring, John	Norfolk	6/10
Walker, Richard	Chilterns	18/10
Kelly, Nick	Bicester	22/10
Ball, Simon	Phoenix	30/7
Noyce, Richard	Portsmouth	22/10
Lee, John	Wolds	15/10
Stapleton, Peter	Devon & Som.	11/10
Ansell, Allen	Midland	30/9
Carnell, Jason	London	30/10
Kench, Graham	Buckminster	30/10
Oswald, John	Portsmouth	30/10
Witt, Chris	Bristol & Glos	22/10

BGA Lottery

Winners of the November draw were:

G. Chamberlain (first prize) £71.75

Runners up

E. Lockhurst	£14.35
T. Bradbury	£14.35
B. Wells	£14.35
C. J. Walker	£14.35
M. Doran	£14.35

Winners of the December draw were:

Dawn Hill (first prize) £75.00

Runners up

M. Throssell	£15.00
K. Olpin	£15.00
M. Slatford	£15.00
K. Moloney	£15.00
W. K. Chaffey	£15.00

Turbo Competition 1999

The Turbo and Self-launching Glider Competition will be held from 31st July until 8th August at Bidford. Please note that this is at the same time, although not the same place, as the Standard-class Nationals.

National Ladders

Well done to **Peter**

Baker of Cambridge

who wins the Enigma Trophy for finishing top of the Open Ladder, helped by a couple of late-in-the-season 500kms.

Your correspondent fluked the L.duGarde Peach Trophy in the Weekend Ladder while Rule 14 ensured that the Firth Vickers trophy for runner-up in the Open Ladder went to another regular contestant, **Tim Macfadyen**.

Well done also to **Bill Craig** who picked up the honour of finishing runner-up in the Weekend Ladder but, sadly, not the trophy, which at present remains unclaimed. **Richard Hood** won the new Junior Ladder by a very comfortable margin. I hope very much that this informal competition has added both interest and an edge to everyone's flying this season. Well done to all those who took part.

A revised set of rules has been formulated for the new season and should by now have been distributed to all

BGA and General News

Club Ladder Stewards. First scores for the 1998/99 season should be sent to me by the end of March, 1999.

—John Bridge

Open Ladder

Pilot	Club	Score	Flights
1 Peter Baker	CAM	9970	4
2 John Bridge	CAM	8888	4
3 T. Macfadyen	B&G	8499	4
4 H. Stone	OXF	7024	4

Weekend Ladder

Pilot	Club	Score	Flights
1 John Bridge	CAM	8652	4
2 Bill Craig	LON	6824	4
3 T. Macfadyen	B&G	6503	4
4 Steve Crabb	SC	6268	2

Junior Ladder

Pilot	Club	Score	Flights
1 Richard Hood	FCO	4537	4
2 Dave Allison	BOO	3236	3
3 Sunay Shah	OxU	3084	4
4 Neil Foreman	CAM	2928	2

Pilot	Club	Date
Paveley, Neil	Yorkshire	19/8
Etherington, Paul	Dukeries	29/10
Flewelling, Andrew	Cotswold	23/10
Slipper, Terrence	Cambridge	16/9
Bradbury, John	Portsmouth	22/10
Burkinshaw, Arthur	Burn	30/10
Tucker, Jim	Southdown	21/10
Ednicott, Michael	Ex-pat	6/10
Garwood, Mik	Lasham	23/10
Abbott, Richard	Lasham	10/10
Swannack, Lance	SGC	29/10
Idle, Roger	Burn	30/10
Gerrard, Laurence	Buckminster	23/10

SILVER BADGE

No.	Pilot	Club	Date
10509	Leacroft, Jennifer	Welland	5/8
10510	Foster, Jonathan	Lasham	17/9
10511	Hassell, John	Essex & Suffolk	19/8
10512	Willey, Christopher	Cornish	13/9
10513	Volp, Andy	Norfolk	22/8
10514	Stanley, Ian	Southdown	3/10
10515	Lunn, Roy	Dukeries	11/9
10516	Gerrard, Laurence	Buckminster	15/8
10517	Forrest, Robert	Cairngorm	11/5
10518	Aspey, Derek	SGC	10/10
10519	Meyer, Jonathan	Surrey & Hants	29/8
10520	Moffat, Kenneth	SGC	12/10
10521	Cooper, Paul	Staffordshire	30/10
10522	von Gontard, Adi	SGC	4/11
10523	Betteley, Andrew	Booker	29/8
10524	Logue, Colin	Two Rivers	26/7
10525	Thompson, Rob	Bristol & Glos	13/4

UK CROSS-COUNTRY DIPLOMA (Part 1)

Pilot	Club	Date
Suter Christopher	Lasham	27/8
Hassell, John	Essex & Suffolk	19/8
Atkinson, Philip	Bowland Forest	15/8
Davidson, Frank	Wolds	21/5

UK CROSS-COUNTRY DIPLOMA (Part 2)

Pilot	Club	Date
Volp, Andy	Norfolk	25/7

AEROBATICS (Unlimited Unknown badge)

Pilot	Club	Date
Guy Westgate	Southdown	11/9

Lottery Funding Hopes Dashed

The English Sports Council has just announced the final parts of the Lottery Sports Fund revenue funding programme. Gliding is not eligible.

One year ago, our application for funding for British team squad training camps was rejected from the World Class Performance Plan on the grounds that 'gliding is not an internationally significant sport'.

Since then, we have pinned our hopes on the remaining programmes: 'World Class Start' and 'World Class Potential' for future funding for the selection and training of talented individuals in gliding.

These hopes have now been dashed by the ESC's announcement that only thirty-nine sports will be eligible for funding. Each sport was assessed against three groups of criteria:

The status of primary competition; the likely degree of success to be achieved within the next ten years; the significance to the public of individual sports and international success in those sports.

Against those criteria, and in spite of British gliding having produced five world champions in the last twenty years, and the prospects of Olympic status via the World Air Games in Andalucia, air sports have been excluded entirely.

—Roger Coote

Ted Lysakowski Memorial Trust

We are delighted to hear that Ted's family have announced the setting-up of a Memorial Trust with the aim of encouraging cross-country and competition flying by means of individual awards. The idea of the Trust came from Krystyna's and Karen's responses to the overwhelming support of the gliding movement and in particular from many of the letters they received following Ted's accident. It is felt that the aims of the Trust will be very much in line with Ted's personal "vision" and with his major contribution to flying both at Lasham and throughout the UK.

The appointment of Trustees is already being considered and some of our current top competitive gliding pilots are being approached with a view to forming a Grants Committee.

Some ideas for awards include sending people for training at either the top European sites in France or Italy or for training periods at UK Clubs. It is hoped that it will be possible to offer "lead and follow" or two-seater training with current top level competitors.

Individual contributions are being invited; it will be those contributions from members of the gliding movement that ensure the success of this project. Donations can be sent to: The Ted Lysakowski Memorial Trust, c/o Lasham Gliding Society, Lasham Airfield, ALTON, Hampshire GU34 5SS.

Will your Club Survive?

The Chairmen's Conference and Workshop, held at Husbands Bosworth on 21st November as part of the Project 2000 initiative, represented an entirely new venture in the annals of the BGA. Chairmen of all member clubs were invited to spend a day studying the current business management problems of gliding clubs, under the deliberately provocative title of "Will your Club survive the next five years?"

The purpose of the conference was to provide a forum for discussion on topical issues, to consider a more structured approach to tackling management problems and to enable delegates to participate in problem solving exercises, presented by a case study based upon a hypothetical club. Quite apart from that, it was a wonderful opportunity for club chairmen to get to know one another and to share common problems.

The day started on the right foot with an introductory talk from Conference chairman David Roberts. Gliding clubs are businesses which require skilled business management, if they are to survive. The basic ingredients and the complexities of production, marketing, sales, finance and personnel management are essentially the same as for big business. The success or failure of a gliding club rests largely with the chairman as its chief executive.

However, the management of people's expectations and the use of volunteers to bring about those aims requires special skills. A subtle change of emphasis is perceived within the movement. There is now a much higher proportion of private owners and 'value for time' is becoming increasingly important. The good manager has clear ideas for his business. Ideas can be translated into a strategy and embodied into a strategic plan. Moreover, the good manager must always ensure that his organisation is able to deliver what it sells.

"Delivering what we sell" was the subject of John Gilbert's address. As manager of Lasham Gliding Society, John is responsible for an annual

turnover exceeding £1m. Although the Society has employees, John is

largely reliant upon volunteers to provide much of the final product. Marketing Lasham's product takes a large proportion of the manager's time and John is deeply conscious of the need to deliver a service, not only at a basic or worthy level but always to aim at a distinctive level of service with the capacity to delight the customer with something really special. Value for money and more importantly, value for time must be the overriding objectives at all times.

Competing in an ever more demanding environment was the subject of Robert Leacroft's address, "Attracting and keeping new mem-

bers". As a relative newcomer to gliding, Robert, as Chairman of the Welland Club has made great headway in developing and harnessing modern technology to attract new members. A striking example was a personalised trial lesson certificate, bearing a colour photograph of the pupil, strapped in and ready to launch, which was produced by a digital camera linked to a lap-top computer at the launch point.

Equally provocative

was Neil Rathbone's talk on the possible advantages of amalgamating small clubs to provide the critical mass to form a "super-club". He recounted his experiences of writing to the chairmen of Buckminster's neighbouring clubs, suggesting just that. The response was salutary and created mutual benefits.

Michael Bird provided a suave and amusing dissertation on the need for relevant information for the efficient management of a business and drew attention to the inadequate way in which many professional accountants present annual accounts. Financial results represent the outcome of many activities, yet frequently the essential data are confused or ignored and the financial statements bear little relevance to the decisions required for effective management of the business. A more objective approach can only be achieved if the manager himself has a thorough understanding of his own business and of monitoring those elements that determine its success or failure.

Mike acknowledged that the "80:20 Rule", where 80% of the income is derived from 20% of the activities (or indeed, the members) often applies to club accounts and illustrated how the essential information for managing a gliding club might be more effectively monitored.

"Communications and managing volunteers in a club environment" was presented with great panache by Simon Larkin of Lasham Gliding Society who stood in at less than 48 hours notice, when Lasham's Chairman, Patrick Naegeli was detained on business in New York. Volunteers are peculiar, claimed Simon, and their effective management is essentially a matter of good communications, appreciation and involvement. These are the essential ingredients of a healthy, happy club and since you can't fire volunteers, you just have to make the most of them!

The case study, based upon the changing fortunes of "The Limited Soaring and Drifting Gliding Club", provided much food for thought and the basis for a series of very pertinent questions, to be answered as syndicate exercises. These ranged from preparation of a standard SWOT (strengths, weaknesses, opportunities and threats) analysis for the Club, through a more detailed analysis of financial and personnel problems and finally, to the preparation of a strategic plan for the Club to cover the next five years.

The syndicate groups tackled their allotted problems with great enthusiasm, resulting in a useful exchange of ideas and some notable solutions!

The standard of presentation throughout was excellent and the Chairman kept the complex programme strictly to time. All the speakers were supported by highly professional PowerPoint presentations.

The general level of communication, thus enhanced, contributed to a day that was valuable for its content, and memorable as a social and communal exercise within the BGA. As the chairman of a small gliding club remarked to me afterwards, "I've thoroughly enjoyed myself; but I really had no idea of what was involved, until today".

Information packs, covering the full procedures of the Chairmen's Conference are available, either as print-outs or in disc form. Please apply to the BGA office, Kimberley House, Vaughan Way, LEICESTER, Leics LE1 4SE.

—Roger Coote



Welland's trial-lesson certificate.

FAI News

The Aerobatics Commission, CIVA, has decided that the World Aerobatics Championships will be rescheduled to coincide with the World Air Games (odd-numbered years).

Holding the two competitions at the same time will ensure that the world's top aerobatic pilots will always be present at the FAI's premier event.

EGU News

The December meeting of the European Gliding Union (EGU) once again highlighted problems which affect gliding in Europe.

Apart from the difficulties with mutual recognition of gliding licences, there are also problems with Ratings. In particular, Instructor ratings. ICAO does not set any standards nor even mention ratings in connection with licences. At present these ratings are awarded under national authority rules and in the main are not recognised officially by other countries. The EGU is planning an approach to ICAO to try and establish criteria for ratings which will allow governing authorities which comply with those criteria to recognise each other's ratings.

Glider pilots flying in Italy will find that there are new airspace restrictions imposed as a result of the opening of the new airport for Milan. There is now a severe restriction on the altitude to which gliders may fly in the Aosta area and crossing the Alps is becoming very difficult.

Following funding from the German Environmental Ministry, the German Aero Club has been pursuing studies of the impact that gliding and other air-sports have on the environment. A detailed study of the 'Rhon Nature Heritage Area' has found that many of the species of plants and wildlife on the 'endangered' list are thriving in the gliding area. Investigations at other sites have resulted in these sites being awarded 'Blue Flag' status.

—Lemmy Tanner

Where Did it All Go? Or, Thank You for Helping

(a tale of competition-fund expenditure)

After Team votes and selection procedures in 1997, a squad comprising thirty Junior, Senior and Women's team members (plus the top three pilots from the Club class) was formed.

The squad was canvassed to choose a Coach or Coaches and a vigorous programme of training and discussion was agreed and arrangements were made to fund this programme (including a presentation to the AGM, to explain the aims of the programme, and a request to increase the Comps levy which was agreed, thank you). This programme included presentations by a sports psychologist, a sponsorship briefing and an overseas training camp which was to be held at Ontur in Southern Spain.

The Coaches, Andy Davis and Brian Spreckley assisted by Martyn Wells, prioritised the expenditure of the training funds and we gained the assistance of G Dale as National Soaring Coach and the use of the DG 500. Ten squad members attended the overseas camp and received varying levels of financial assistance. Three other Juniors received coaching but no financial aid.

The European Soaring Club provided the facilities at Ontur to the BGA free of charge. The weather was not entirely kind, but nonetheless a great deal of flying was done and a considerable amount of focussed discussion was carried out either as a squad or in specific groups or, if necessary, individually.

A survey of the participants was carried out shortly after they returned and with one or two notable exceptions and criticisms there was general agreement that the exercise had been extremely worthwhile. The overall cost of all our training carried out in 1998 was just over £4,000.

Considering the big competitions, in 1998 we competed in the Club Class Europeans, at Jihlava, Czech Republic, the European Championships, at Leszno, Poland and Bavaria Glide (The pre-worlds), at Bayreuth, Germany.

Entry fees for the three competitions totalled a little more than £6,600! That was with a total of sixteen pilots participating. My aim, as stated to the Competitions and Awards Committee, is to try to keep the cost to the individual who is representing his country, to the same as that involved in flying in a UK Nationals.

Where feasible a Team hut is provided, the use of mobile phones, whilst very expensive, does mean quicker retrieves and less tired pilots. Ferry fares are paid for and a contribution towards mileage (the round trip to Czech Republic with retrieves involves well over 1500 miles).

Consequently, after settling some of the aerotow fees and making a contribution to the costs of accommodation there is very little change out of the £27,000 that was budgeted for the year's expenditure.

Whilst our results in 1998 were not earth-shattering they were quite heart-warming. In the Club Class Europeans we came 5th, 10th and 46th. In the Europeans we achieved 12th and 13th places in the Open class, 5th, 11th and 13th in the 15m, and 3rd, 6th and 13th in the Standard Class. It is a long time since we achieved a podium place in the Europeans. At Bayreuth we came 15th in the Open class, 3rd and 8th in the 15m, and 14th and 15th in the Standard Class. There is no doubt that the consistent approach shown was in great part due to the efforts, not only of the pilots concerned, but also the Coaches to whom the whole squad owes a great deal.

This year's squad has now been formed and plans are being made for a return to Ontur in April, where it will enjoy the use of the complete BGA fleet for twelve days.

The comps we are entering this season (1999) are: Junior World Championships, Women's Europeans, World Class World Championship and, of course, the World Championships at Bayreuth, where we hope to reap the benefits of the training programmes we ran during 1998.

—Bob Bickers

Letters to the Editor

Letters to the Editor should be marked "for publication" and sent to:

email (preferred): le@blot.co.uk fax: 01798 874831 post: PO Box 2039, PULBOROUGH, West Sussex, RH20 2FN

Accident Reporting

Dear Editor,

I have just read the summary of my accident published in the latest *S&G* (Dec/Jan p.380, no.38) and feel compelled to write to highlight a number of points:

- (1) It is factually incorrect. No one advised me at all of the conditions that day and I would certainly have listened to any advice offered to me.
- (2) I don't feel that a two or three line summary is the appropriate place to pass judgement on a pilot's behaviour or apportion blame.
- (3) Surely in any accident investigation the most important people to ask about what happened, if they survive, are the pilots. To date I have not been contacted and I understand that I am not in a unique position.

If we want to improve safety in gliding, we need to understand why accidents happen – both the physical and human factors involved. We need to find out what we can do to make crashes more survivable and then pass these findings on to the pilot community.

Bill Scull is as entitled to his opinions and theories as the rest of us, but he should express those in a letter to the letters page. An article published under the auspices of the BGA Safety Committee, relating to safety matters and accident summaries, should be based on fully investigated accidents, contain established facts and should not include sweeping statements like "Clearly, pilots who deliberately try to scrape away when all the odds are against them have a psychological problem..." which are insulting and unhelpful.

We learn by our own and others' mistakes. What helped me survive? A lot of luck; a very strong glider, designed with crashworthiness in mind; properly fitted and tight straps and batteries secured so that they sustained the estimated 30g deceleration and didn't smash into the back of my head.

On a more cheerful note, many thanks to those who sent me cards and flowers during my hospital stay. Apart

from now being an inch shorter and missing part of my ear I am almost 100% back to normal and have returned to work.

Jan McCoshim

THAME, Oxon.

Dave Wright (Database Manager BGA Safety Committee) replies:

Firstly, congratulations to Jan on her recovery from this very severe crash. Her points about the crashworthiness of the design, battery retention and straps are worthy of note.

My summaries are a distillation of the reports submitted to the BGA by the reporting club's Safety Officer and CFI. The aim is to sum up the situation so that safety lessons may be learned by us all, and never to apportion blame or to introduce conjecture, but sticking with the facts as relayed by the investigators.

In all fatal accidents and some serious ones the investigation is co-ordinated by a BGA Fatal Accident Investigator on behalf of the AAIB. In Jan's case Bill Scull was on site soon after the accident to debrief witnesses and her club should have received a copy of his analysis. I agree that in this case an omission was made in not including a statement from Jan after her recovery. I am surprised that Jan was not given a full debrief which is essential after any incident. It appears that she was aware of the gusty conditions but, while the instructor in charge recalled talking to her about the weather, Jan does not remember a specific briefing. I have amended the summary accordingly.

Bill's article endeavoured to generalise the lessons coming from not only Jan's accident but the numerous similar ones. It seems reasonable that given his long experience and role as Safety Committee chairman this should be regarded as rather more than a personal view.

The Committee welcome any informed discussion of accidents as prior knowledge of the factors involved can only improve appreciation of the balance of risks involved in our rewarding but sometimes unforgiving sport.

Editor's Note: Jan has agreed to write an article for the Salutory Soaring column on the subject of lessons learned from her accident. It will be published in a future issue of *S&G*.

Hats & Brollies

Dear Editor,

If one were to wear a broad-brimmed hat and, using a sliding bevel, measure the angle from the hat brim to the eye, one would arrive at the figure of 20°. Extending the line beyond the hat's brim at the same angle it would be found that at about 4.5 feet above the eye, there would be an area of screening the size of a standard sized umbrella.

How many pilots would opt for the 'cover provided by an umbrella over the cockpit? Why, then, do some pilots wear these hats which create the same effect?

Geoffrey G. Lee

GRAYSHOTT, Hampshire.

1950s Electric Winch

Dear Editor,

My logbook for 25th August 1958 reads: "Flights 204-205 Samaden in the Engadine Alps, Switzerland Electric Winch 45 minutes "weak wave, failed to soar". It's the winch driver I remember. Blue overalls, face like leather, cheroot between his teeth, old...old as the old tram engine I think he used to drive.

The controls were tram controls, a lever mounted on a pivot which rotated through 90° in a series of jerks. One notch up for take up slack, all the way up for all out and all the way down at the top. His idea of the top of the launch depended on who the pilot was and what the old man had eaten for breakfast. The glider controlled the speed by pulling up or not.

Can it really be that nearly forty years went by without another electric winch? Is it just coincidence that your German winch of the Oct/Nov issue (p.300) was also an Alpine, one-way take off strip?

Nick Gaunt

LEEDS, Yorkshire

Calendar February - April

March 7th

Aerobatics Judging School: Sywell The British Aerobatics Association is holding a 'Judging School'.

Membership of the BAeA is not necessary, and participants are invited to come along to The Aviator Hotel, Sywell Airfield, Northamptonshire, at 9.30am. For more information contact: Ben Ellis, tel: 0181 398 2114. email: judging@aerobatics.org.uk

March 17th

1999 RAeC Awards Ceremony:

The Royal Aeronautical Club's 1999 Awards ceremony will be held at the Royal Automobile Club's (RAC) premises in Pall Mall, London. It is possible that a royal visitor might be presenting the awards.

tel: +44 (0)116 253 1051, fax:

+44 (0)116 251 5939.

email: bga@gliding.co.uk. Barry Rolfe (Secretary RAeC).

27 - 28th March

Dan Smith Memorial Trophy:

London Gliding Club (Dunstable)

The Dan Smith Memorial Trophy (Aerobatics competition)

tel: 01582 663419. Internet: <http://www.powernet.co.uk/gliding>

April 24th - May 2nd

International Comp.: Hockenheim

(see p.13) For more information

contact Werner Horn, tel: +49

(0)6205 7671, fax: +49 (0)6205

920937, or look on their Internet

site at: <http://www.germany.net/teilnehmer100.184767/index.html>

Please send your submissions for the next calendar (for April - June) to the Editor by February 10th, by email if possible.

Folding Wings

Dear Editor,

In these days of variable geometry and carrier borne naval aircraft with wings that fold for easy storage, it

amazes me that glider manufacturers have not yet figured out a way of rotating wings through 90° and folding them back flat along the fuselage, possibly involving splined, universal joints at the leading edge wing roots, allowing the wings to be pulled outwards a few inches to disengage the main spars.

As with removal of the tailplane, this could virtually be a one man operation and would be a boon to those smaller clubs that do not yet possess extensive hangers with 'elephant ears' doors, and would certainly make life easier for retrieve crews.

Getting the bits of a glider out of its trailer and nailing them together usually involves three or four reasonably fit and youngish men and by the time half a dozen or so have been rigged, half the available flying time has gone and thoughts turn to pulling them to pieces again

Come on, designers, if you can't do it, then the Japanese will and it won't be long before we are flying around in Nissans and Hondas. Giving people what they want is their speciality, as our motorcycle and car manufacturers discovered to their cost.

John Walker

GODMANCHESTER, Cambridgeshire.

Electronic Gizmos?

Dear Editor,

Dick Skerry thinks that electronic gizmos stop us looking out of the window. Has he ever been uncertain of his position and tried looking at his paper gizmo, a map?

Has he never fiddled with his John Willie (calculator) to see if he can make his final glide? I'll bet that if he has done either he has spent more time with his eyes down than he would have done if he had used gizmos. It is, of course, necessary to practise with them first whilst not flying and in fact, it is not too difficult to mount a simple GPS so that it can be seen head up in most gliders.

Now whenever we have a collision the accident investigators sagely tell us that the pilots involved carried GPS. When I started gliding there were posters telling us that collision was the greatest hazard in gliding but the accident investigators didn't tell us whether the pilots involved carried maps.

John Kenny

WROXALL, Isle of Wight.

Letters to the Editor

Aerobatic Confusion

Dear Editor,

I was most interested to see last month's article "British National Aerobatic Championships" and was looking forward to some interesting reading on a subject that we don't see too much about in *S&G*. However, I was a little disappointed after reading it, being still none the wiser as to what is involved in the actual flying routines. The "known programme" is mentioned - but what was it? Dietmar Poll undoubtedly did some sickeningly good figures - but what were they? and what were Ian Tunstall's technical errors? (Sorry Ian - I don't wish to embarrass you) - there are lots of us out here who would really like to know!

Come on somebody tell us more about the nitty-gritty bits and, while you're at it, perhaps you could explain some of the hieroglyphics that we see on aerobatic pilots' knees.

Tony Frazier

tjf@frazier.co.uk, Wolds Gliding Club.

[Aerobatics Badge Scheme - see p.44]

Trailer Retrieving

Dear Editor,

Having read Stephen Harvey and Brian Paynes' letters in previous issues, about the benefits of joining Green Flag we thought we should let you know about our experiences.

Before leaving Rattlesden for Aboyne at the end of September our syndicate had the trailer serviced. We joined Green Flag, checking that if the trailer broke down anywhere between home and Aboyne that we would be retrieved. On the A93, 40 miles south of Aboyne, the trailer's axle broke. We telephoned Green Flag and gave our details, only to learn that there were no low-loaders within a fifty mile radius of us; Green Flag could not help.

Another call to fellow club members, already in Aboyne, had them coming out with a Deeside trailer and the man from the local garage (the Green Flag agent in his area) to help us to finish our journey.

We have written to Green Flag asking to know where else in Great Britain they would not be able to retrieve a trailer from.

Helen & Andy Page

GREAT WALDINGFIELD, Suffolk.

Letters to the Editor

Turns, Stalling & Spinning

Dear Editor,

With reference to Tom Knauff's article (*S&G*, Dec98/Jan99, p.386) the Chairman of the BGA Instructors' Committee invited a "healthy debate".

Theory is turned on its head by remarks such as "for stalls and spins, shallow turns are more dangerous than steep turns", and "aircraft become more stall resistant as the bank angle increases", whatever qualification Tom makes on elevator power for a given set of circumstances. A steep turn generates G-loading and a higher stall speed, and a stall may be due to many factors such as wind gradient, turbulence, slow initial airspeed, as well as pilot stick activity. Also, precision is needed to fly a steep turn and keep the string straight. And what does stalling with the string out to the side generally lead to?

It is true that in some gliders the maximum elevator deflection may be designed around the critical landing case. But this will not prevent a stall or a spin in other parts of the flight envelope such as the final turn, where

your glider will not be at the same conditions as the design case for full back ele-

vator, which may be designed and tested for round-out at fully forward CG, max weight, at a speed below that for normal round-out.

Factors we can all agree on are that stalling speed increases by the square root of the load factor (G), and that load factor in a steady turn is the inverse of the cosine of the bank angle. For instance, a level-flight stall speed of 40kt increases to 56.6kt in a 60 degree banked turn. Worse, if a stall does occur, there is more tendency for a departure in roll when under G, than in level flight. If one wing does stall first, the lift differential is greater when under G and so any rolling moment at the stall is greater. This is how flick manoeuvres are done, by deliberately inducing a short, high rotation spin by using a higher-than-normal load factor.

Correct teaching of turns at the ab-initio stage is therefore absolutely crucial to the future safety of our fledgeling pilot. In a medium turn at 30° of bank the load factor is only 1.15 and the stall increment, 1.07. How this

can be less safe than a 60° banked final turn at 2G and 1.4 Vs, beats me!

So, don't turn finals with too much bank, too little speed, the string out to the side, and a lot of un-jettisoned tail water, or something nasty might happen, particularly when descending through the wind gradient! But we knew that before, didn't we?

Ian Strachan

Ian@ukisws.demon.co.uk, Lasham.

At the time of going to print Terry Slater, Chairman of the BGA Instructors' committee is away, and Tom Knauff felt unable to answer Ian's letter in the space available.

Tug Pilots' Heaven

Dear Editor,

I enjoyed Peter Fuller's tale "Final Glide" in the Dec/Jan issue (p.378). I am sorry for pilots like Harry who are condemned to end up in a Hell where there are neither tug pilots nor winch drivers. However, I am reassured by the inference that all we tug pilots go to Heaven.

Rob Cook

HINCKLEY, Leicestershire.



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Tail Feathers

Platypus thinks again.

As I surveyed the desert floor, I realised there was nowhere to land.

Instead there was a muddy lake with a scattering of rocks around its rim, then rough, undulating scrub, and then steep walls on every side, higher than I was. And I was descending at 300' a minute whichever way I turned.

How had I got myself into this fix? Overconfidence, as usual.

Then I saw a wisp of cloud against the relentless blue. My forehead was furrowed, my mouth dry, my hands clammy, my stomach knotted, my – (Please don't descend any further down your anatomy – this is a family paper and we get the general drift. Ed)

Yes, I was worried. The wisp, a mile away, grew into a puff. Still sinking, I tried to hypnotise the tiny cloud into growing. Finally I arrived under the burgeoning vapour, swung into a steep left bank at 58kt and ten degrees of flap. The rate of climb indicator slowly moved to zero sink, then to an increasingly confident ascent, settling at six knots up all round the circle. I was not going to become a vulture's lunch this time, after all.

But had I learned anything from yet another scare?

Indeed I had. I decided that the next time I went cross-country in the Sierras, I would have to fly in something with more horses than a Cessna 152, for that indeed was the aircraft I was flying. Unless, of course, I relished a challenge that had called upon every one of my 41 seasons of soaring experi-

ence. And I suppose I do relish such a challenge. I am also a skinflint, and at \$52 an hour including fuel the 152 is a bargain, with exciting moments like the aforementioned thrown in absolutely free.

"What's this?" you splutter. "Plat's become a power pilot? A traitor to the Cause?" I apologise if any of you were eating soup at the moment you started to read this.

I don't know what came over me, but quite suddenly one day at Minden I thought "Why don't I get my single-engine licence? It's cheap, the weather's wonderful and there are hardly any airspace problems." The opposite is the case in Britain, where it costs a fortune, the weather is murky and wet most of the time, and much of the air that isn't full of airliners is full of military hardware, with the VFR fun-flyers all crammed dangerously into the little bit that's left. Sixteen days and thirty hours after that inspiration in Minden I took my test, passed it somehow, and glued an FAA certificate in my logbook.

There were one or two rational excuses for this move. I have a very good friend who is always inviting me to fly round exotic parts of the world in various light planes. What has up till now put me off accepting these kind invites is my observation – when flying together in my glider – that this friend was born without nerves, or they were surgically removed at birth. Faced with any situation in which ordinary pilots would turn ghastly pale with fright, my friend goes "Wheeee! Isn't this exciting?" We crashed my glider some years ago because my friend's expressions of delight drowned out the sound of my teeth chattering. The latter noise is Nature's way of reminding me that I am very near the ground, devoid of ideas, and am about to die unless I do something intelligent, by way of a change, very soon. The Good Lord implanted the instinct of Fear in most of us, with the odd exception of my friend, with a view to preserving the species. How my friend's ancestors got this far I can't imagine, but I suspect that the danger posed by hereditary fearlessness has

been outweighed by an even stronger procreative drive, so that the breed has not become extinct. Au contraire.

Anyway, I now feel that I will have some glimmering of what my friend is doing in the air, and that will somehow be reassuring. It could turn out to be the opposite of reassuring, of course, since I shall now know just enough to be seriously concerned. In that event, a lead-weighted sock in my pocket will be used to stage a swift in-flight mutiny. I'll deal with the court case later.



a lead-weighted sock...

Thoughts after a memorial service

In 1998 four friends of mine were involved in mid-air collisions – all in contests. Three died. The fourth bailed out successfully – but the pilot who died in that accident was a good friend of a good friend. It's a small community, and each loss touches us, or someone close to us. Inevitably, voices will be heard saying "Something must be done!"

But what? Action without proper diagnosis is pointless. Diagnosis is difficult, however, when events are infrequent. Even twenty such cases, gathered over many years, represent a slim database from which to pronounce with certainty "This is the source of the problem."

We have had many times more competition mid-air in the 1990s than we ever had in the 1960s. Yet gliders have better performance, controls and instruments than 30-40 years ago; pilots are more skilled; and contests are managed in a vastly more sophisticated way. I have my own views as to why, but this is too serious a matter for just one person to sound off. Instead I have invited top pilots, via the Internet, to let me have their opinions in time for the next edition of *S&G* [by 10th February]. Join in if you wish.

Platypus's email address is:
TailFeathers@compuserve.com



Isn't this exciting?

Competitions: New and amended dates

Here is a list of dates for some of the competitions not included in the list on p.335 of December/January's *S&G*.

However, please note that the dates for the Tibenham Regionals were printed, but were wrong; the new dates are given here.

If anyone has any other competition dates, for the UK or abroad, please write to the Editor.

Hockenheim (see opposite)

24th April - 2nd May.

Hahnweide (see opposite)

May 7th - 15th.

Tibenham Regionals

May 30th - June 6th

World Class (Leszno)

July 2nd - 18th.

Womens Europeans (Leszno)

July 2nd - 18th.

Interservices Regionals

August 10th - 19th.

Tulip Tournament

All national aeroclubs have now been invited to participate in the 1st World Junior Gliding Championships.

Known as the Tulip Tournament, the competition will be held at Tarlet in the Netherlands from July 11th - 24th. The first information bulletin and the Preliminary Entry Form are available on the Internet at:

<http://www.power.nl/tulip99/>

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British Gliding Association

THE 1000 CLUB MONTHLY LOTTERY

A great chance to win substantial cash prizes and at the same time enable the Philip Wills Memorial Fund to make loans to clubs for site purchase and development.

1000 is the target number of members to participate in this monthly lottery which started in July 1992. When 1000 members subscribe £1.00 a month each then the monthly first cash prize will be £250.00.

HALF of the proceeds go to the Philip Wills Memorial Fund to help with its work in developing BGA clubs and the other HALF is distributed each month in the form of 8 CASH PRIZES. The more participants we have, the greater the prize money pool.

1st PRIZE - 50% of the prize money pool = 5 Runner Up Prizes of 10% each of the prize money pool.

Chances/numbers can only be bought from the BGA at £1.00 each. Those whose money has been received at the BGA by the end of each month will then participate in the draw on the first Wednesday of each following month. Tickets will not be issued in order to keep the administrative costs low but each member will purchase a "number" which will go into the draw. It is hoped that members will purchase 12 months' worth of tickets at a time. Winners will receive their prizes direct from the BGA and a list of their names will be published in S&G.

Please complete the form below and return it to the BGA with your payment. Please note that only BGA members and their families may participate and that the BGA is registered under the Lotteries And Amusements Act 1978 with Leicester City Council.

Barry Rolfe, Promoter

To: Barry Rolfe, British Gliding Association, Kimberley House, Vaughan Way, Leicester LE1 4SE
Please include me in the "1000 club" and I enclose £12.00 (payable to BGA) for twelve months of entries, or multiples thereof.

Name Signed

Address

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email address: yglidingclub@compuserve.com
web address: www.webmarketing.co.uk/ygc

Hockenheim

24th April - 2nd May

The 21st International Gliding competition will start at Hockenheim, known for its Formula 1 circuit, in the Rhine Valley, at the end of April 1999.

During the week before competition flying begins there will be opportunities for practice and training. Eighty gliders will be flown in four classes: Club; Standard; 15m; 18m/Open. Pilots will also be able to share gliders.

For more information contact Werner Horn, tel: +49 (0)6205 7671, fax: +49 (0)6205 920937, or look on their Internet site at: <http://www.germany.net/teilnehmer100.184767/index.html>

Hahnweide

7th - 15th May

Preparations for the 34th International Hahnweide competition, which is to take place in Germany from May 7th - 15th 1999, have now begun at Hahnweide Airfield, under the supervision of Fliegergruppe Wolf Hurth e.V.

Following an old tradition, the participants will meet on the evening of May 7th for the initial briefing, led by competition manager Siegmund Maier. With Dr Josef Dahlem as the meteorological adviser, and Dr Adalbert Kießling as the Competition Director, another two of the 'old hands' will be on the team.

The 34th Soaring Competition is starting under the auspices of the World Championships, which will take place in Bayreuth in August. Many of the participants for Bayreuth will prepare for the championship by joining the first-rate field of Hahnweide pilots.

Entries to the competition should be posted, as soon as possible to: Fliegergruppe Wolf Hirth e.V., Hahnweide, 73230 Kirchheim/Teck, Germany. fax: +49 (0)7021 59555

Up-to-date results and news will be published on the Internet after 2nd May, and can be found at: <http://www.pop-stuttgart.de/hawe>

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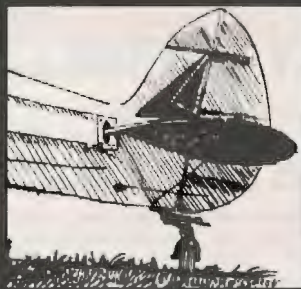
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Tailwheel Conversions - 5hr flying, 1 night accommodation £398

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A Drug Problem?

Derek Eastell is a Full-cat instructor at Southdown Gliding Club.

Almost every sport now seems to have its drug problem. Are we glider pilots hooked on a drug which is in danger of doing us serious harm? Most of us are; flying has always been like that.

However, there is another associated addiction which has developed in the last few years, and which seems to afflict the clubs, rather than individuals. The following statements might not be the correct legal or medical definitions for abuse of drugs, but are probably not far from the truth:

(1) Drugs produce a feeling of well-being or euphoria for a limited period of time. (2) When the euphoria wears off, there is a period of depression and more of the drug is sought to overcome the depression and to reproduce the "high". (3) These effects lead to addiction, regular fixes are needed. Changes take place in the body mechanism and often outside help is needed to overcome the addiction, unless the patient is very strong-willed.

Drug abuse leads to addiction and damage for the sake of apparent short-term benefits. What is this drug which is doing so much damage to our beloved and absorbing sport? Quite simply: trial lessons.

Thirty years ago, trial lessons were rare. They were flown as an occasional perk for someone with a Passenger Carrying Rating, or a change for a hard-worked instructor. It is doubtful that my club flew even as many as fifteen trial lessons a year; now we fly between 800 and 1,000 visitors a year, generating 20-25% of our income.

In the "old days", the income from trial lessons was insignificant and the club supported itself. Members' subscriptions and flying fees provided the club's income and, very importantly, the club existed for its members' benefit. Its instructors were on duty solely for the benefit of the members.

Trial lessons were very much confined to close relatives or friends of club members and, also very importantly, prospective new members. Then

over the years, two things happened: our generally wealthier society began looking for ways to spend money, and clubs saw an opportunity to increase their income, apparently to the benefit of their members.

To begin with, trial lessons seemed to bring more income for little extra cost and effort. However, we soon needed trial-lesson instructors, and they wanted more trial lessons to justify their existence. Club members wanted more trial lessons because the extra income kept the cost of their flying down. Before too long, however, clubs found that they actually needed trial-lesson income to keep going. We convinced ourselves that these flights were providing us with lots of new members; but that was a fallacy. Membership numbers fell and many clubs are still struggling to arrest that fall.

Trial lessons started to interfere with the running of the club, and members, having turned up and worked, sometimes did not get to fly. Duty instructors and their teams often had to balance long flying lists and keeping everyone happy; it would be no exaggeration to say that, in the last ten years, no single subject has taken more time at our quarterly Instructors' meetings. In more recent years we devoted one day a week, during the summer, to flying trial lessons. On these days, we give visitors top priority, but this is only a palliative and not a cure. We can still be overrun during the weekends. We have tried setting aside a two-seater for visitors, and we have run days for special interest groups. You name it, we have tried it!

More and more can one see the damage that these trial lessons do to the club's operations. Despite all the efforts to take the pressure off our normal club flying days, the interference with training programmes is considerable. All the equipment has to work harder, as do instructors and duty teams; but we get a pitifully small number of new members, despite offering financial incentives to those who subsequently become members. Regular members often do not get the attention due to them, and some become disheart-

ened and leave. This is the price of the "subsidy" we get from the paying public for flying trial lessons on a large scale.

Trial lessons have produced a feeling of euphoria for a limited length of time. The initial euphoria has worn off, but more of the drug is sought to overcome the depression and reproduce the "high". We have become addicted.

As a first step to finding a cure, gliding clubs must find the will to live without this drug, that is, pay their own way. Just think of all the savings in wear and tear on equipment and people by reducing the annual number of launches by as much as 20%. We might get back to being clubs again, instead of having to think of ourselves as businesses.

Secondly, a way has to be found of satisfying the demand which obviously exists for the "flying experience". Maybe a few specialist businesses, run by professionals, blessed and licensed by the CAA, would supply the need. These businesses need not be at existing gliding sites; it might be preferable if they were not.

Lastly and certainly not least, we have to find a way of giving the *real* potential new member a taste of what it is all about. He or she could be invited to join us for a flying day at no cost at all, to be welcomed by a mentor, to be with us when we open the hangar door and to get a real Trial Lesson, although preferably not until about lunch time so that he or she can see how much of a team effort gliding really is. Would we not do a better job at getting new members than we do under the present system?

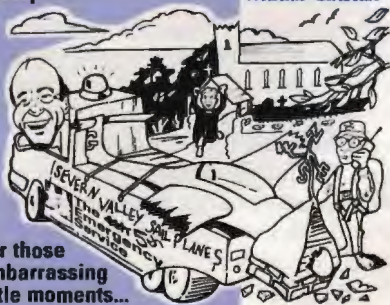
Many clubs are suffering from this addiction. There is a cure which will not be easy, but clubs can be healthy again, concentrating on providing flying for their members and not for the public at large.

Are you shocked? If your club does a lot of trial lessons, is it addicted to the income from them at the expense of the average member's interests? Are you sure that the average club member would rebel at increased costs if the club and its facilities were to be theirs again?

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I particularly liked the improved engine system with fully automatic extension/retraction and increased power output producing enormous acceleration and climb rate with significantly reduced noise levels. The UK based demonstrator is available to suitably qualified pilots through McLean Aviation.

—Craig Lowrie

Lasham Airfield

After more than forty years of 'conversations' with the Ministry of Defence, Lasham Gliding Society exchanged contracts on December 23rd for the purchase of their airfield.

Having first been approached by the MoD in the early fifties, when they could not afford it, Lasham have been manically fundraising since negotiations for buying the airfield became serious two years ago.

If completion of the sale goes ahead, as expected on March 15th, an undisclosed amount of money will secure Lasham almost 500 acres of land, including twenty acres that are currently occupied by ATC, a commercial-aircraft maintenance facility.

As reported in this issue's *Club News*, the MoD have already dismantled their golf-ball radar and, once they have removed various other aerals, hope to leave Lasham with vacant possession of the site by April.

The Society's Chairman, Patrick Naegeli, says that, although they will inherit buildings in various states of repair, there will be some facilities, like a WWII T2 hangar, that they hope to make immediate use of. Also coming into the Society's ownership will be a two storey control tower and a number of offices.

Naegeli says that once LGS has vacant possession of the airfield the committee will make a full review of land and building use before deciding how to run their operation in the future.

He also mentioned that, in the absence of their own radar dome, LGS will be happy to offer aerotow retrieves to confused pilots landing out at nearby RAF Odiham and Oakhanger, where MoD golf-balls will set traps for infrequent visitors to the area!

Although a lot more money must be raised in order to pay for their purchase, the future of gliding at Lasham, which began at least as early as 1948, is safe.

—Le Forbes

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Telford International Airsports Exhibition

Dick and Mary Dixon arrived at the International Airsports Exhibition on Friday 4th December with the Duo Discus in tow. It was mid-day but the temperature was near freezing. Keith Mansell and Paddy and Richard Yerburch arrived soon after, and the work of setting up the BGA stand got under way.

The centre of our exhibition was, of course, the Duo. After we had rigged the glider and positioned it at the centre of the stand, we illuminated it with floodlights. Keith Mansell had made a number of neat wooden fence-posts, for roping off areas immediately around the glider, and several easels for displaying posters.

On the morning of the show's first day we arrived to find that someone had pinched our display tables. Paddy went foraging and reappeared dragging two brand new tables that she had somehow obtained from the organisers. We had prepared a number of posters giving information about the glider and the gliding community. We had a television and video recorder on which we ran gliding films all day.

The glider gleamed and glittered and looked absolutely stunning under the lights; it was the exhibition's ultimate centre of attraction. That much was clear from the number of people milling around our stand.

From opening at 10am on Saturday to closing at 5pm on Sunday we really didn't have an idle moment. We reckoned that we had about 400 people through the stand, actually talking to us, and our helpers from Husbands Bosworth and the Midland Gliding Club (to whom we are most grateful for their valuable assistance). In addition, we estimated that a further 300-400 people spent time watching the videos - sometimes twenty of them at once.

Our various competitors, with all their kit, were there in force: para-gliders; micro-lighters; sky-surfers; parascenders and hang-gliders. All sorts of ancillaries were on show, from engines, navigation equipment, flight instruments and protective clothing, to bone domes. The whole building was filled with every sort of flying equipment that you can imagine, including several aeroplanes. My lasting impression is of a riot of strong colour. It was easy to see how much serious competition we now have for each would-be flyer, why it is difficult to keep the British Gliding Association membership numbers up and why it is difficult to enlist young people. There are so many options for them to choose from. It was worth attending the show just to see the size and seriousness of this competition.

Fifteen years ago all these other air-sports were in their infancy; General Aviation and gliding had the field much to themselves and that's where the change has taken place. These other sports are newer than ours and they have had to work hard and take an aggressive stance to make progress but, of course, there is something else: many of these sports require neither the level of dedication nor the staying power that gliding does.

Another, more subtle, change was highlighted by this exhibition. The new forms of airsport do not generally involve the level of investment that is required for gliding. In comparison with the present-day cost of gliding they are probably where gliding was twenty years ago.



Richard Yerburch & Keith Mansell man the BGA stand.

Above all, our attendance at Telford embodied a very steep learning curve. One could see that perhaps we have been more than a little complacent over the last fifteen years. I have already mentioned the colour: this is reflected in some of the magazines like *Sports in the Sky*, where every page is colour and excitement. The gliding movement looks rather grey by comparison and I think that this gives great emphasis to the accuracy of the Executive's recent decision to increase our effort (and expenditure) with regard to publicity and advertising. Perhaps if there is a message I received more clearly than all others it is that we need to change our image to make a wider, more colourful and exciting appeal to those who would join us.

Did we think that the exhibition was worthwhile? In a nutshell, yes, very much so. It is difficult to see how else we could have obtained that sort of exposure for our sport. The consensus was that if the decision were left to those of us who attended, we would do it again next year. Hopefully the BGA Executive will agree!

—Richard Yerburch



Richard Yerburch (right) talks to a visitor at Telford.

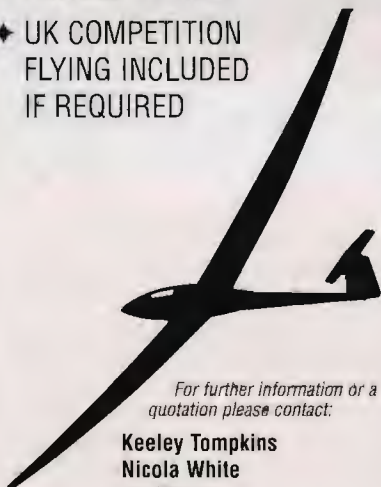
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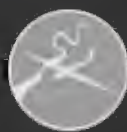
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Salutary Soaring

An anonymous column dedicated to those of us who got away with it



When I got back to the launch point everyone was very quiet. "We don't really recommend S-turns on the approach," the duty instructor said, "Why didn't you land on the undershoot?" "Well, the way I saw things it was like this" I thought. "Can we talk about it later?" I asked. "Later", he said, scowled and walked away.

He never did say anything else, not to me anyway, but if he's reading this, it might be worth telling him what I was thinking at the time.

It was a good gliding day in August, the crop on either side of the grass strip was at full height, shining golden in the sun and higher than a Swallow's wing. The runway was East-West, a good surface, the tarmac of a once active RAF airfield. Along either side of the runway was a grass strip wide enough for the average glider.

We were flying to the West, it was a relatively calm sunny day, with a wind of no more than 5kts straight down the runway. The routine was this: we used the right-hand grass strip for landing either short or long. The runway itself was used solely for aerotow, although along the right-hand edge gliders were parked at right angles with their wings down into the wind; on this day a dozen gliders were waiting for a launch. The left hand grass strip was used for winch launching. We didn't use the winch very often; it was home-built and few drivers could handle it. An old farm tractor, with a cab to keep you dry (although you couldn't see very much from inside) was used to pull the cables. At the beginning of the runway was a barely adequate undershoot with rough, long grass.

It had been a brilliant day, with lift all over the place, and it was as the lift was beginning to tail off that I decided to turn for home. The wind direction and speed had not changed, and the windsock was hardly moving.

Back at the airfield the winch, which was out that day, had just

launched a Skylark 4. On the right-hand grass strip a K8 was being towed back to the launch point. The tug had a K13 on the rope and was inching forward along the runway as the pilot took up slack. I turned downwind at 1,000' and, ahead of me, I could see two gliders on the same right-hand circuit. On the other side of the airfield two more gliders were on a left-hand circuit, one just turning on to base leg.

'Well, there's a thing' I thought, 'tug about to take off, a glider being towed on the right hand strip, four more gliders in the circuit and here I am fifth in line'. You can imagine, I would have to see where the others were going to land before I could choose my best option.

The first glider on a left-hand circuit landed normally on the grass strip. The second glider (on a right-hand circuit) overflew both the first glider and the K8 and landed long on the same strip. The third aircraft (on a left-hand circuit) turned in to the main runway and overflew the tug which, by now, had stopped. The fourth glider also turned in and overflew everything to land way down the main runway. A moment later I was on base leg.

I looked at the right-hand grass strip with its three gliders in my way; I hadn't enough height to overfly them. The runway was obstructed by parked gliders, the waiting tug, one glider ahead of the tug and another up the runway still on its ground run. I hadn't the height to overfly that one either.

Passing the centre line on base leg I could see the winch tractor pulling out cables on the left-hand grass strip. I turned towards the airfield in a steep turn hoping that the glider crews on the other strip had cleared their aircraft. No chance.

I turned again, towards the other side of the field, and looked down the runway; still no chance. I looked again at the left hand grass strip; we didn't land on that, it was for winching and the tractor was still towing out cables; but I decided it would have to do. The undershoot was now beneath me and was no longer an option. Besides, it was rough, it wasn't big enough, I was too close in and all those other aircraft

would be in front of me. I turned

towards the left strip where the tractor was still pulling the cables. If he stopped now, I thought, I could land in front of him, but the distance was getting shorter by the second and he might not stop; he might not have seen me.

There was really only one option left. I decided to overfly the tractor and land behind him; but I was rapidly losing height. I put the nose down for more speed and headed towards the tractor. The driver, by this time, had flung open the door and, waving his arms above his head, was running at high speed for the adjacent wheat crop.

I pushed the brakes in, eased up over the tractor and landed between the cables on the other side with no damage to anything (except perhaps the nerves of the tractor driver, who was new that day).

When I got back to the launch point everyone was very quiet.

Contributions for *Salutary Soaring* are very welcome. They can be sent, anonymously or otherwise, to the Editor. The deadline for the next issue is Feb 10th.



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Photograph: G. Allison

Dave Allison who flew 300km at 153kph.

Dave Allison is claiming the British National 15m 300km triangle record at 153kph from Mafikeng Airfield, SA.

300km at 153kph

Speaking from South Africa, where he was taking part in the Nationals, Dave explained that there is little planning involved in record-breaking: "The really fast flights here are done on very unstable days, and are really a matter of luck. Every flight starts with a declaration, just in case."

During the first leg of his flight, Dave took one 6kt climb and two 8-9kt climbs. His second leg, of 110km, was flown downwind at 180kph and, on his final leg, a single climb of 12kt took him to 14,000', from where he made an 80km final glide. Having spoken of unstable weather, Dave explained how

his whole flight, completed in just 1h 58m, was made around a line of three or four storm cells, which had the decency to stay where they were. He said, "You know it's your lucky day when your track follows the best line of weather".

Between November and January each year the European Soaring Club bases itself at Mafikeng Airfield, which is also known as Mmbatho, and the previous holder of the record was ESC's Brian Spreckley. Dave has easily broken that record of 140kph, but is still a long way short of Terry Delore's 177kph world record.



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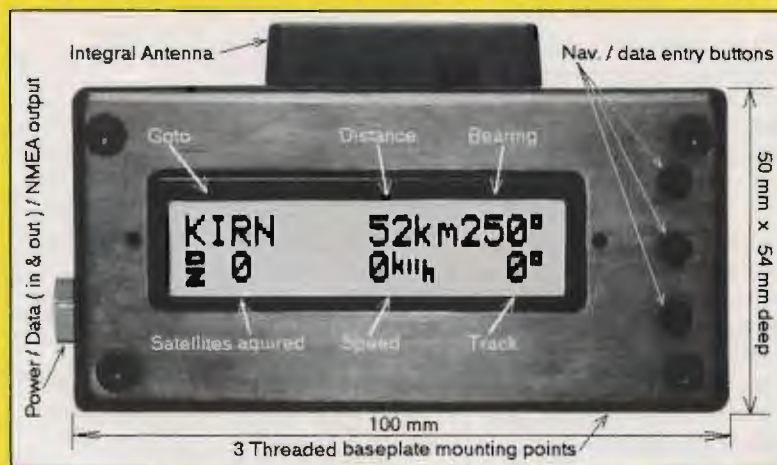
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Peter Riedel: a full life

Martin Simons is the author of a book about Riedel's wartime years

Peter Riedel died in November 1998. He was born in Germany, the second son of Felix Riedel, a Lutheran Pastor in the small village of Dehlitz near Halle in Saxony.

As well as his older brother, Felix (Jr), with whom he never got on, he had two sisters, Annchen, older, and Beate, of whom he was very fond, a little younger than himself. His fascination with flying probably began when, as a young boy, he saw a huge Zeppelin flying low over the village school.

His father was an unhappy man who had periods of mental illness and spent time in hospital. Under the strain caused by her husband's breakdowns, when Peter was nine years old his mother died by her own hand. The family disintegrated and Peter, who himself never fully recovered from the loss, spent some years with his uncle's family until Felix (Sr) remarried.

Peter at the age of 13 started building a biplane glider, a flimsy wooden framework covered with parchment paper. He attempted to fly it with little success although it did lift him a few feet off the ground when towed with a length of washing line. At fourteen years old and now attending a rather grim, traditional type of boarding school in Aschersleben, he read in the magazine *Flugsport* that there was to be a gliding meeting on the Wasserkuppe in the Rhön mountains. Powered aircraft were banned in post-war Germany, but gliders were not mentioned in the Versailles treaty.

Peter began to build another biplane, called the PR-2, and with his father's permission took it, partly completed, to the meeting. He was by far the youngest competitor. With help from experienced older men the PR-2 was completed, and he began learning to fly it under careful supervision.

He continued at school but managed to get away each summer to the Wasserkuppe meetings and learned to fly, building another glider of his own design, the PR-3, and flying it. He saw the sport progress from tentative and dangerous flights of a few minutes to



Peter Riedel (1905-1998) in Germany in 1980.

soaring and cross country excursions of several hours duration and many kilometres in distance.

On leaving school his prospects, in a Germany still in economic depression, were not good but his plight was recognised by the prominent philanthropist Karl Kotzenberg, who had made substantial contributions to the early gliding community. He saw in Riedel a boy with great talent and determination who deserved to continue his education. With what amounted to a personal scholarship Peter was able to enrol at the Darmstadt Technical University, from which he graduated as an engineer in 1927 and went immediately to train as a commercial pilot at the Brunswick and Ober Schleissheim flying schools.

When he completed his licence in 1928 it was still almost impossible to find employment but he was well qualified to work under the meteorologist Professor Georgii at the Darmstadt Research Institute for Soaring Flight. There he remained for six years. He became one of the leading sailplane pilots of the time. In 1932 he was the eighth pilot in the world to achieve the Silver badge and in the following year made a world's best distance flight of 229km. He also won the Wasserkuppe contest and was awarded the Hindenburg Cup. He was one of four outstanding pilots to accompany Georgii on a famous expedition to Latin America in 1934, when the sport of soaring was introduced to Brazil and Argentina. Another of the four was Hanna Reitsch, who became like another sister to him.

Apart from his soaring flights, Peter carried out many research flights for Prof. Georgii, using light aeroplanes to explore and measure thermal currents under clouds and, with his colleague Gunther Groenhoff, developed safe methods of launching sailplanes by aerotow. His beloved younger sister, Beate, was learning to fly under his instruction at Darmstadt, but she was killed in a car accident. Groenhoff, who had been driving, was not injured in the crash but died a few weeks later in a sailplane.

In 1934 Peter at last found work as a pilot for the German national airline, Lufthansa, and flew over 200,000km in airline service. However, he developed an increasing distaste for life in Germany and was strongly drawn back to Latin America. In 1936 he accepted a two year contract to fly for a Colombian airline and left Europe, intending not to return.

In 1937 he was invited by the Soaring Society of America to fly in the National Soaring Contest at Elmira, New York State. He scored more points than any other pilot although could not be declared champion since he was not a citizen of the US. After the competition he was approached by General Bötticher, the German Military Attaché, and was offered a post as civilian assistant (aeronautics) to the General, in Washington, DC. After some hesitation he accepted and after some delays and further flying in Colombia, he returned to Germany briefly for some very sketchy training. During this he was approached by agents of the Abwehr and met Admiral Canaris. He had been warned against accepting any offers from such a quarter and refused whatever suggestions Canaris made. He was installed in the Washington Embassy early in June 1938.

His work in the USA required him to gather intelligence, by legal means only, on American air power. He developed highly sophisticated methods of collecting, sorting, filing and interpreting the news he obtained from magazines, newspapers, financial statements and company reports, Congressional debates and other openly published sources. His regular digests were incor-

porated into Bötticher's reports, which did nothing to dissuade Hitler from his plans. When war broke out in Europe, Riedel found himself enrolled as a commissioned officer in the Luftwaffe, since his position as a civilian was quite anomalous. He then officially became the German Air Attaché.

He met, courted and, despite opposition from Bötticher, married an American girl, Helen Krug, an artist and art teacher from Terre Haute, Indiana. On their honeymoon they were followed closely everywhere, by the FBI, but before the end of the holiday were sitting down to breakfast with the agents.

By this time, Riedel could foresee a massive expansion of the aircraft industry in the USA and his reports reflected this. After Pearl Harbour in 1941, all the German Embassy staff were interned at White Sulphur Springs in Virginia and eventually returned to Germany in a diplomatic exchange. Helen went with Peter although she spoke little German at this time.

In Germany Riedel found that his reports of the growth of American air power, and his predictions of a vast bombing onslaught, had apparently been ignored. His efforts to get warnings through to the high command were continually frustrated. He was at times in danger of arrest for what was termed defeatism, although he himself saw it only as drawing attention to the grim realities of Germany's situation.

Heinkel employed him as an engineer and offered a job also to Helen. A medical examination revealed that she had contracted tuberculosis. Peter sought to get her out of Germany into a Swiss sanatorium. Helen was allowed to leave Germany and go to Switzerland, but only on condition that Peter would work for the Abwehr. He was sent to Sweden as an air attaché, and there he remained as the war in Europe reached its long-foreseen climax.

Eventually hard news of the atrocities in the concentration camps reached Peter's desk in Sweden. As well as material from Soviet sources including photographs, there was an article in Time Magazine in September 1944, which became freely available in Swedish stores. On a visit to Berlin Riedel confronted his former friend, Hanna Reitsch, with this evidence. (Her version of the argument they had appears in her autobiography.)

Eventually there was some double or triple dealing involving the Abwehr, the Finnish Military Attaché's office,

and the American OSS. An operation directed against the USSR was proposed. Riedel, by now altogether disillusioned with Nazism, compromised himself utterly by communicating directly with the OSS. He was betrayed by a friend and recalled to Berlin, probably for execution. Instead of going back he left the German Embassy and went into hiding in Sweden.

He was able to warn Helen to leave the sanatorium because the Abwehr (Canaris by now himself having been imprisoned as a traitor) threatened to take reprisals on her. She also went into hiding.

The war ended. Riedel was arrested by the Swedish authorities and imprisoned for three months as an illegal immigrant. Helen was able to visit him during this spell in jail. After release he expected to be sent back to Germany but he was not, after all, deported, but nor was he legally able to stay in Sweden. He found himself in effect stateless and fugitive.

He escaped secretly on a small and dilapidated fishing vessel, with a false passport in the name of Nielsen. The idea was to sail with about fifteen other displaced persons to Venezuela, where immigration laws were flexible. Helen returned to the USA using her American passport. When the boat at last reached French Morocco Riedel was arrested and imprisoned in Casablanca, first as a suspected war criminal in the military jail, but after interrogation as an illegal immigrant. He was in jail in Casablanca for almost a full year and even after release was not allowed to leave Morocco.

He escaped yet again and sailed across the Atlantic in another small boat, the yacht Gracie Blue. The English captain, Nicholson, was, to say the least, eccentric but the voyage did eventually arrive in Venezuela.

Even here he was not at first allowed on shore but when a nearby ship in the harbour caught fire and blew up, Riedel and Nicholson were injured and taken to hospital. Once on land, he was allowed to stay and there

Helen joined him to begin a new life. He obtained work with an engineering firm but did not wish to remain. Assisted by friends in the gliding movement there, he and Helen went to Canada, but after about two years they were ordered to leave the country.

They found refuge in South Africa. Peter worked as a railway track designer at Windhoek, Helen established a small business selling small hand painted postcards and paintings. For a short time Peter worked as an engineer in Pretoria and sought a South African Commercial pilot's licence. When the Eisenhower administration was elected, he was allowed at last to re-enter the USA and settle there. He was employed by TWA in Kansas City and Seattle, and by Pan American Airways in Pakistan and Vietnam. After retiring he visited Australia in 1972 and later spent a year in East Africa as a pilot for the flying doctor service there. Helen (whose illness might not have been tuberculosis after all) and Peter finally settled down in Ardmore, Oklahoma.

Peter published many articles, in both English and German, and spent several years writing three large volumes about the history of gliding and soaring in Germany. These, published under the general title, *Erelbte Rhohengeschichte*, were published during 1977-85 by Motorbuch Verlag of Stuttgart.

An account of Peter's wartime years is contained in the book, *German Air Attaché*, published in March 1998 by AirLife.



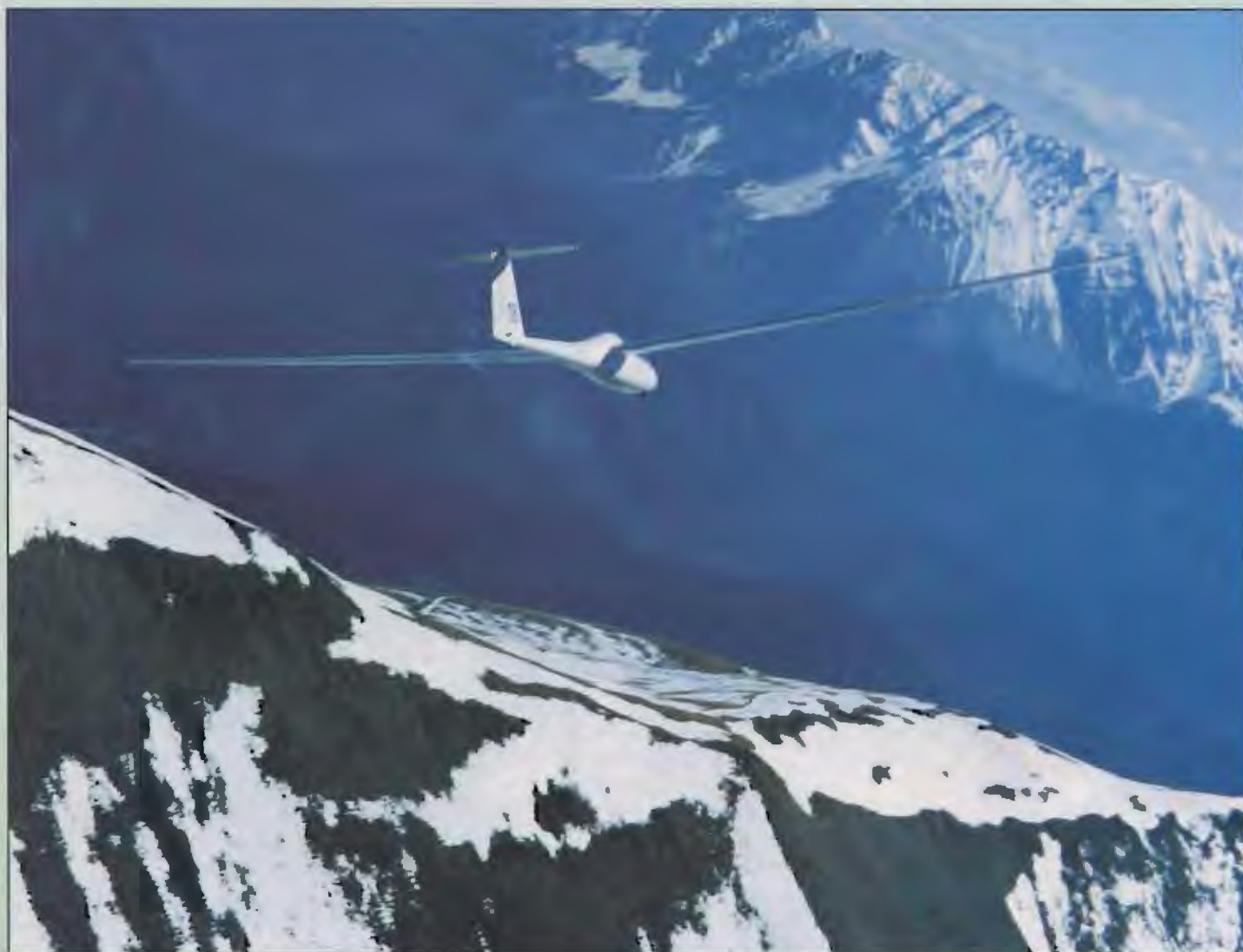
The engine of his motorised sailplane, which he named 'La Falda'.



Two pictures of the Blaue Maus (Blue Mouse) flying from the Wasserkuppe, part of the Rhön Mountains, in 1930's Germany. Copy prints by J. Ewald.

Please put a sticker on the back of *all* prints submitted to S&G, and, with a pencil or a *soft* pen, write on it your name, address and a caption.

Carl Peters: Bannerdown's Janus being flown by Guyn Thomas and Paul Fox at 7,000' near Sisteron, during the GSA's annual expedition to France.



Gliding Gallery



Left: Ed Smallbone's shot of iced wings at Aboyne. Above: Guy Westgate photographed his syndicate partner, Kevin Fresson, in their DG400. Right: Ed Smallbone flying from Ontur, during an expedition from Lasham. Bottom: Neil Bigrigg's picture of his syndicate's Fournier RF-4.



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John Ellis

John Ellis died in his sleep on the morning of December 29th, in South Africa.

John was a past chairman of both the BGA Safety Committee and the Air-space Committee, in the late 1960s and early 1970s.

He made an outstanding contribution to the work of the BGA in his spare time as well as being a pilot in his professional life. He was a British Airways Captain and also flew for the Sultan of Brunei before retiring to South Africa where he continued to fly as a glider pilot.

There is talk of a memorial service in the UK at some stage, but no further details are available at present. A full obituary will be published in the April/May issue of *S&G*.

GPS Errors

This snippet was sent in by Jack Alcock. It is an extract from an email sent to him by a friend in America who had experienced some odd GPS readings at altitude.

"Garry Dickson, Doug Levy, Merle Clements and I joined the glass yesterday in the wave over Julian. We were playing around at 17,000' and discovered that our GPSs were giving us all kinds of unreliable courses to steer.

It wasn't until we were back on the ground asking Dan Ladd whether the satellites had been knocked out that he pointed out that we were flying backwards... and that the GPS bases its computations on your track and not the direction your aircraft happens to be pointed."



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The Air League Trust

1999 90th Anniversary Flying Scholarship and Flying Bursaries

The Trustees of the Air League Educational Trust are pleased to announce the establishment of a special flying scholarship in 1999 to celebrate The Air League's 90th anniversary.

The award will allow the winner to gain a JAR-FCL PPL(A) in 1999. Its annual Flying Bursary Competition no longer requires applicants to have been members of The Air League for at least two years. The closing date for applications for both competitions is 31 March 1999.

90th Anniversary Scholarship

Applications are invited for The Air League's 90th Anniversary Flying Scholarship from young men and women who are British citizens resident in the UK and who will be over the age of 17 and under the age of 26 on 31 March 1999. The award will allow the winner to gain a JAR-FCL PPL(A) in 1999 and the scholarship will provide a maximum of 45 hours flying training together with associated crew training, flying tests and ground examinations.

Selection will be based on a formal application and interview. Applicants should not have completed a formal

course of pilot training and the winner is likely to be an individual with little or no flying experience but who is highly motivated to an aviation career.

1999 Flying Bursaries

Applications are invited for the 1999 Flying Bursary Competition. The awards comprise a fixed sum of money, sufficient to cover between 5 to 8 hours flying, and are intended to assist members to gain additional flying qualifications or to renew a rating in their licences.

Application forms are now available from the League's office and should be completed and returned by not later than Tuesday, 31 March 1999. Applicants must hold either a current Private Pilot's Licence or a Basic Commercial Pilot's Licence (Aeroplanes) and be a member of The Air League (or, be applying to be a member at the time of application for the bursary).

For an application form write to:
The Secretary,
The Air League Educational Trust,
Broadway House, Tothill Street,
London SW1H 9NS
tel: 0171-222-8463
fax: 0171-222-8462
email: flying@airleague.co.uk

Further information can be found on The Air League's website at:
<http://www.airleague.co.uk>.

From its inception in 1909, an integral part of The Air League's activities has been to encourage air mindedness in the youth of Britain. This has taken a number of forms over the years, and it was The Air League (of the British Empire) that in 1938 founded the Air Defence Corps, which became the Air Training Corps in 1941.

The youth air education work of The Air League was formally recognised in 1968 by the creation of the Air League Educational Trust, a registered charity. Today the Trust gives guidance on flying training and flying careers in both military and civil aviation to the many young men and women who seek advice.

The Trust also provides practical assistance in the form of flying scholarships and bursaries, and engineering scholarships. In selecting the award winners, the Trustees look for enthusiasm for flying and for a career in aviation, flying achievement, youth and voluntary service, academic ability, 'outward bound' activities and general 'get up and go'.

The benefit of these awards is evident from the many young men and women who have been motivated to take the first steps in their desired careers in aviation; it is a source of great satisfaction to both the Trustees and the sponsors.

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Soaring from Aboyne

Al Eddie is CFI at Deeside Gliding Club (Aboyne)

At the last AGM I was asked by the Editor to put something together about wave flying from Aboyne. My remit seemed to be open so I have decided to stick to basics and concentrate on some of the problems, misconceptions and misinterpretations which I have come across among our many visitors to Aboyne.

The problems that I identify, and their solutions, are generic to all wave soaring locations. It is often surprising, listening to some instructors' stories (and briefings), to realise how misinformed they are. Maybe there is a need for some notes on teaching basic wave soaring to be incorporated in the BGA Instructors Manual.

Soaring Season – what's that?

"Deeside. In a word, the best soaring in Britain." That's what our information sheets say – so what gives us a right to that claim? I'll give you an example. As I start working up to the editor's hugely flexible deadline [you're not supposed to tell anyone –Ed] (agreed months ago) it is already the 25th November! Yesterday, I had an orientation flight with a visitor from

the Anglia GC who was in the area on business. We were airborne for over an hour and made a climb to 10,000' over the Cairngorms. Typically, although hazy lower down, the visibility above cloud was absolutely stunning. To the west was thickening cloud but to the East, the air was clear with views around the North East coastline from Aberdeen to Spey Bay. When we began our descent, it was through choice because from that height we could have gone for miles, but my visitor had the long drive home ahead of him, and he was beginning to get cold. That flight was fun. However, if you would like juicier examples, I could have told you about the day last September when I took off at 2:20pm, and completed a declared 500km at 98.4kph, landing an hour before dark. The same aircraft had flown a 300km O/R that morning! One of our instructors flew the same 500km earlier in the day for his Diamond. Another local pilot completed the same flight two months later. I could also have told you about a few years ago when I did my last 300km flight of the year on the 19th December and the first of the following year on January 9th. But that would be bragging! The point I am trying to illustrate, when you consider the months I have highlighted, is that we have to

put up with this sort of stuff all year round and not just in the Summer when we tend to be quieter. And the reason we are quieter is because everyone is in England for the comps season. I do it myself and I cannot, for the life of me, understand why! Where else in the middle of summer is it feasible to fly a 300k before breakfast? (You might be able to tell me, but show me your stats!). Or finish a day's work, drive to the airfield, rig, fly 300km, de-rig and be in the bar an hour before dark? It is actually more difficult to achieve Silver distance on a goal flight from Aboyne than long, closed circuit tasks because of the 1% rule which makes this a major achievement.

To be fair to the rest of Scotland, I have to concede that it isn't just Aboyne where it is possible to have as much fun. The same day I flew the 500km mentioned above, a pilot from Feshiebridge also flew 500km for a badge flight. A number of years ago, an acquaintance at Portmoak had a prospective buyer arriving to view his glider (a Cirrus), so he took off in the morning and flew a 500km, arriving back just after lunchtime. The buyer arrived, viewed and test flew the glider and the sale was agreed. The owner then had an evening flight and flew 300km as a parting shot!

One-stop Diamond shop

Pick the right day in England and you can bag all three legs of your Silver in one flight. Come to Aboyne and you can do all three Diamonds in one flight – and if it's that good, it'll take a damn sight less than 5 hours! Nowhere else in the country can you find 7,000-8,000' Cu bases over the most stunningly beautiful countryside, with wave from first light (04:00) until dark (22:30) and unfettered by controlled airspace. Here's a prediction – the first UK 1000km out & return will be flown from Aboyne. I'm going to change our ad-line to "Aboyne in the summer. The best-kept secret in British gliding". Most people who come to Aboyne just want to learn about wave flying and pick up a Gold, or even a Diamond Height along the way. Therefore, they spend most of their time local soaring



Smooth-edged wave clouds photographed from the airfield at Aboyne.

(what is local soaring from 12,000'?) and climbing. There just aren't enough of us doing enough cross-country exploration in wave.

"AAAARRRGH!"

Like everything else, stories about wave soaring tend to describe the extremes of what people experience (and not necessarily personally). Things like "the lift was off the clock" should read "on the aerotow, after we came through the rotor, the air went smooth and the vario went off the scale. When I pulled off, it was into a steady 2kt average". Conversely, "the sink was horrendous" should read "with the airbrakes open at 70 kts in the sink of the wave, I found that I could quite easily lose in excess of 3,000' per min". Some stories are true – "the turbulence in rotor is almost unbearable". Maybe, but if it is that bad we would have stopped launching. And you've no business being in the rotor anyway. I often think that the storytellers are so enamoured with Aboyne that they will say anything which might prevent anyone else coming along and sharing the fun they have.

"Where's the lift?"

Getting away in wave can often be frustrating. A problem with people who normally fly at winch sites is that, when they aerotow, it is usually to 2,000' and they usually get away in a thermal and have a good flight. 2,000' is ingrained, and this leads to frustration when folk come to Aboyne. I have a rule of thumb here, which usually holds true. Most days, when there is wave, it should be possible to contact lift below 2,000'. Sometimes you might have to tow as high as 3,000'. If you find you have to tow higher than that, maybe you are wasting your money. Only occasionally should you have to tow higher. The record is 9,600' – not surprisingly, he didn't get away! The message is that with wave, you usually have to be taken to it. The tug pilots will always take you towards the most likely source of lift. All you have to do is hang on until you get there. So, don't pull off unless you are *certain* that you are in lift. That may seem to be an over-simplification, but climb rates are (roughly) for two-seaters: 600' per minute; single seaters: 900' per minute. Anything consistently and significantly higher than that is a good indication that you are in lift. No tug pilot in his/her right mind will wave you off unless it is glaringly obvious! At lower altitudes the lift is, more often than not, weak and patchy; to stay in it

you must mark time above a recognisable ground feature. This will normally require a series of figures-of-eight, always turning into wind and never getting downwind of your chosen feature. Watch out for small, barely dis-

cernible, puffs of cloud forming around, above and below you; this is most likely to be where the lift is. You should fly to these puffs, keeping yourself on the windward side. Although this technique can be quite tedious the rewards for your patience can be outstanding: the best climb rate I have seen (against a stopwatch) was 1,800' per minute from 6,000' to 14,000' – and I've heard stories of better than that.

It's windy!

The most common error made by pilots climbing in wave is to misinterpret wind speed at height. For example, it is not uncommon for the wind speed at 10,000' to be 50kt or more. Often, similar or higher speeds at lower altitudes are experienced. To confuse matters further, wind speed can sometimes be pretty much uniform to very high altitudes. The only way to keep station is to be aware of features on the ground, constantly monitoring your position relative to them, and to adapt to changing conditions.

"I was climbing beautifully and the next minute, it just disappeared"

The next most common mistake is to position yourself relative to cloud formations. Bad move. The only features that do not move are those on the ground! Cloud formations are continually changing and shifting position. You are moving, and other gliders are moving around you. Wave forms parallel to the terrain and



Flying above the clouds in a glider can only be achieved in wave lift.

not necessarily at right angles to the wind so it would be folly to assume, for example, that if you have a cloud alignment NE-SW that the wind is from the NW (or SE). The actual wind may be as much as 60° off the alignment of the cloud formation (a classic example can be seen over Glen Muick in a south-westerly). Days on which there is little or no cloud (yes, blue wave!) are much easier for navigation, unlike the blue, hazy, pollution-ridden days you get in 'Englandshire' during the summer.

"Where shall we go?"

Cross-country flying in wave is the greatest kick of all – straight lines and long, long glides! What more could you want? (A night rating, perhaps?) With the cloud layer often between 5,000' base and 8,000' tops you can bat along at a fair old pace without having to make too many climbs into oxygen territory. Visual navigation is usually more difficult over four oktas cloud unless you are flying below cloudbase (not wise) or significantly higher than the cloud tops (for which a good safety margin should be left).

One of our information books at Aboyne will show you the best cross-country routes in and out of Deeside



A wave bar. The air between the clouds in sinking and evaporating.



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and around the Grampians, Cairngorms and all points south, through west to north in all wind directions. My favourite run is in a north-westerly wind along Deeside and across to Pitlochry. From there along Loch Tay to Ben More and TP1 at Crianlarach. Turning north over Loch Lyon and Rannoch Moor, Loch Erich points you along Glen Truim into Speyside, past Feshiebridge to TP2 at Grantown-on-Spey, leaving a short run over Tomintoul and back into Deeside; it is an incredible flight of just over 300km across some of the most beautiful and dramatic scenery known to mankind. Alternatively, the first leg can be extended to Loch Lomond for a stunning and usually quick O/R. Another nice run takes you 200km around Feshiebridge and Easterton, homes of the Cairngorm and Highland clubs – better for a south-westerly (and easy to navigate, keeping the Cairngorm plateau to your right!).

When we fly in thermals over flat country, typically with cloud bases from 3,000-5,000', navigation tends to be aided by relatively small features – roads, rails, rivers, national grid, towns & villages, etc. Navigating in wave at 10-15,000' is quite different. Towns in the Scottish Highlands are not big and villages disappear. The road network at that height becomes confusing, placing greater value on large geological features, i.e. lochs, glens, mountains and valleys. Each have their own distinctive features and they can't really be mistaken unless viewed through a gap in the clouds. A portion of loch-side will look very much like any other and no knowledge of the road network will be of any help. A road along a loch side is no nav-aid unless you know which loch you are over! Flying above eight oktas cloud using GPS is stupid; it's only a matter of time before someone has an accident and, in any case, it is numbingly boring!

And he huffed, and he puffed...

If I start yawning or if my attention starts to wander, on goes the oxygen – regardless of altitude. Both are classic early symptoms of hypoxia (oxygen deficiency). Your metabolism, level of fitness, age, whether or not you are a smoker and a host of other factors at any point in time, will determine the altitude at which you start to become oxygen deficient. On any day it will be different, sometimes as low as 5,000'! It is oxygen that gives your body's systems the fuel they need to function. Only when they are functioning prop-

erly can you remain properly alert. Some of the effects of continued oxygen deficiency include impaired vision; fatigue; indifference; forgetfulness; headache and, ultimately, unconsciousness and death. So insidious is hypoxia that the symptoms do not necessarily manifest themselves in any particular order and as height increases, its onset accelerates. Another danger is hyperventilation, or over breathing which may be caused by fear, anxiety, pain or even elation. This is also a natural compensatory response to hypoxia causing dizziness; impaired vision; tingling sensations at the extremities; fatigue; rapid heart rate; headache and, ultimately unconsciousness. Recognise any of those? To test for hypoxia or hyperventilation, first check there is oxygen flow through your system. Take a few deep breaths of oxygen. If you were experiencing hypoxia, the symptoms will go away very quickly. Recovery is almost instant. If it isn't, you might be hyperventilating; you must force your breathing to slow down to a normal pace – talk loudly to yourself (or sing if you can stand it!), relax, and descend!

Basically, there are two types of oxygen system available – diluter demand systems and cheap, less efficient ones. There is also a disturbing trend towards using cannula-type breathing devices similar to those used at hospital beds. These devices make domestic activities such as eating and drinking and use of the radio a little easier. On the other hand, they are very wasteful and if they are any good at all, they can only be good for up to 15,000' at a push. I wouldn't recommend them at all. My money would be spent on a large capacity bottle, a demand regulator and a sequential rebreather type moulded facemask. Even if you don't intend doing much flying at higher altitudes, the peace of mind from having a proper life support

system is worth every penny extra.

A warning! If oil or grease comes into contact with oxygen the reaction is violent and explosive. Remember this when applying petroleum-jelly-based lip balms and sun screens.

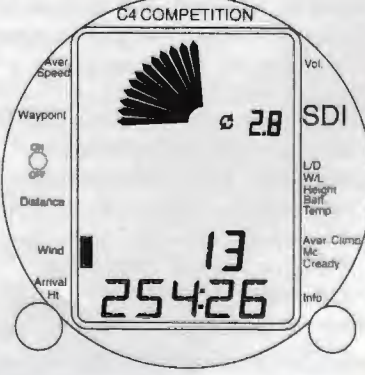
"Brrrrrrr"

Cold is the most likely condition to spoil your flight, and could end up causing a nasty accident. There are days in summer when I've been at over 20,000' dressed only in T-shirt, shorts and trainers. That was when I was young and stupid. Every Scottish pilot will have a favourite combination of warm clothing for high altitude flying (in the last couple of years I have invested quite a few pounds in some very impressive items of modern, high performance insulating garments). Equip yourself with something similar. Keep warm and you will enjoy your wave flying so much more. I have witnessed many pilots who, after only a couple of hours flying, have executed the most appalling circuits and landings. The most common observation they make is that they were so cold they were having trouble controlling the glider!

Is that it?

For now, yes. The deadline is almost reached and I still need feedback from "her Editorship". All that needs to be said is: come for a visit. Getting the best out of your experiences in wave will be made all the easier with the tips I have given you and I, or any of our instructors, will give you all the assistance you require.

As you read this, I will be on tour in New Zealand where I will be finding out how they do it upside down. I'll give good odds that they don't do it very differently from the way I do and I look forward to sampling what the second-best wave-soaring location in the world, Omarama, has to offer. Who knows, I might even climb to Gold height! ✈



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The ASW27: a Review

Tim Scott is a member of the British Squad and is due to fly at Bayreuth this summer.

Most reviews are of gliders that have just been, or are about to be, placed into production. This review is different.

The ASW27 has already been in production for some time, but until Pete Wells, from Zulu Glasstek, took over the agency for Schleicher the glider was virtually unknown in the UK. Now there is a demonstrator in this country, and my observations are based on flights and a detailed examination of that glider.

The fuselage has an obvious family resemblance with the ASW24 with a thin tail boom and large pod-like cockpit. There is more than ample room in the cockpit, and hence only one fuselage version is on offer. There are obvious resale advantages of a glider that will fit any potential buyer. The seat back has a crank handle on the right cockpit wall allowing it to be adjusted during flight; the headrest is also adjustable. The air vent not only performs a good job of de-misting the canopy but also features a swivel nozzle allowing air to be directed wherever additional cooling is needed.

A sensible change from earlier Schleicher gliders is that the undercarriage lever has been moved to the right-hand side of the cockpit, thus preventing inadvertent raising of the wheel whilst trying to open the air-brakes. The spectacle of a glider flying the entire length of the airfield with its wheel going up and down will not

happen with the ASW27! The trim lever is the now ubiquitous trigger-type found on most modern gliders, with the major advantage that this one appears to work.

The structure of the cockpit has been specially designed to help prevent injury in a crash. In fact it won an OSTIV design safety award and is a development of the ASW24 cockpit, which has a proven track-record of sustaining very serious damage while minimising the injury to the occupant. The strap attachment-points, for example, are designed to fail just before the straps squash the pilot. Behind the pilot it is possible to fit a removable 3l water-ballast tank (similar to the fuel tanks on Schempp Hirth turbo gliders) allowing water to be carried without a reduction in roll-rate.

Continuing on the safety theme, the battery box in the luggage compartment, designed to take a standard 12V battery, is embedded in the luggage compartment floor, thus making it almost impossible for the battery to move forward and hit the pilot on the back of the head. It also serves to lessen the risk of damage to the battery and wires by the stowage of items such as hats, coats and books to be read while waiting for the crew. Should your luggage fly forward the headrest will protect you; it is made of kevlar, a material used in bullet-proof clothing.

The instrument panel is large enough to take all those modern instruments that we now consider indispensable. The large overhang on the coaming prevents unwanted reflection of the instruments in the canopy, thus improving visibility at the same time as preventing direct sunlight hitting the instruments. Behind the panel, which lifts with the canopy, there is a carbon fibre moulding that covers the wires at the back of the instrument panel. Although this means removing the canopy to fix minor instrument faults, since most of those faults are



The UK ASW27 demonstrator, Z1.

caused by feet tangling in wires (which is now impossible) maybe the cover is an advantage. It certainly looks neat.

I was very impressed by the attention to detail on the fuselage, particularly the sealing. The nose-hook is not quite in the nose, but about 2' aft on the underside, and has a plastic membrane over it with a slit through which the tow rings pass to reach the hook; the membrane is actually embedded in the structure and the edge coated in gel. The winch hook is in the undercarriage box, which is also very well sealed; this is an improvement on the ASW20.

There is a 500 x 5 main wheel with a powerful hydraulic disc-brake, activated at the back end of the air-brake lever travel. The undercarriage is fully sprung. I liked the removable hatch in the rear of the undercarriage box, which allows easy maintenance-access to the bottom end of the control system. I often inspect gliders, and I feel that this access is a major improvement in safety terms. Good access can also be found in the wings where it is possible to reach all the control bellcranks by removing various covers. This ease of maintenance should make any repair work both faster and less expensive.

There is a 210 x 65 tailwheel, fitted as standard. The fin incorporates a battery box, but unfortunately no tank, which surprised me given the amount of water that the glider can carry. Gerhard Waibel, the designer, maintains that, in the stronger soaring conditions required to carry water bal-

Photograph: Pete Wells.



"Space for all those modern instruments."

last, the optimum centre of gravity is further forward, making a fin tank unnecessary. A prandtl tube, combining pitot-static and total energy probes, is fitted to the leading edge of the fin. This is fitted as standard and has the advantage of virtually no position errors. The tailplane is very small and light and fits on top of the fin in a manner similar to the ASW24, a big improvement being that the tailplane-fixing bolt is now captive.

I am told that the factory is currently investigating the idea of fitting a ballistic recovery parachute. This will be installed just behind the wing and in the event of an emergency in flight it will enable the entire glider to be safely lowered to the ground. This will obviously be safer than trying to jump out of the glider and using a personal parachute. An added advantage is that the fuselage will protect the pilot on landing. I am particularly keen on this idea and look forward to seeing it fitted to all gliders. It may be possible to retrofit it to existing ASW27s. (See p.36 for Tony Segal's article about glider and pilot recovery systems).

Having rigged this glider several times over the summer I was always impressed by how light the wings were. Even the root should be manageable by the smallest lady glider-pilot and, as is usual these days, the controls connect automatically. I found two slight problems with rigging: firstly, with the fuselage ballast-tank in place it can be difficult to wriggle the main pins fully home; secondly, the pins have very little lead-in taper, and the spars must be accurately aligned before inserting them. The winglets are tiny and just slide into vertical slots in the wing tips. A piece of wing tape is all that is needed to secure them.

Thankfully the system for releasing water ballast from the wings again uses a mechanical system; the ASW24 had an electrical system. At present the water is contained in ballast bags, but I understand that trials using tanks are currently being conducted.

The control surfaces on the wing work in a similar fashion to the ASW20's flaperons. The in-board section does not move as far in aileron mode as the out-board section. Both sections move together in flap mode. When changing from thermal flap to landing flap the inner section droops to the landing flap setting, but the outer section pivots into negative flap giving better roll control at low speeds. A row

of turbulator blow-holes are found on the flaperons. NACA ducts, also on the flaperons, provide the air pressure for these, removing the nagging doubt I always had that the pitot tubes hanging below the wings caused more

drag than the turbulator blowholes saved. Care should be taken when polishing the underside of the wing in order not to block the holes. The air-brakes are only on the top of the wing, but are triple paddled and very powerful.

Having owned an ASW20 and an ASW20C I was interested to see what the handling of the ASW27 was like. The cockpit is comfortable and spacious, the controls all coming easily to hand. Forward visibility on the ground roll is very good, and the sprung undercarriage gave a smooth ride on Booker's field. As is usual with a flapped glider I started the ground roll in negative flap, to give better roll control, and pulled the first stage of positive flap to get airborne. In hindsight I am not sure that this was necessary as the roll control was very good in neutral flap.

The glider was stable on the aerotow, no doubt due to its nose hook. Initially I was disappointed with the performance at 80kt. I then remembered to change from thermal flap to negative flap and the glider fairly shot forward.



An ASW in flight over Germany.

It's easy to tell when you're in the wrong flap setting: good news for anyone contemplating their first flapped glider. The stability immediately impressed me during my first thermal climb. I took my hand off the stick for three complete turns and the glider did not even *try* to increase its bank angle! This ease of flying will be a great boon for those who want to make long flights, whether it be a first five hours or in an international competition. I found that the feedback I got, from the thermal through the stiffer wings, was excellent.

The overall impression I got was that the glider's handling is light and harmonised. It seemed to have no vices, and was well behaved when stalling and spinning. The roll-rate is much better than the ASW20, but perhaps not as good as the LS7. The approach control was impressive: the landing flap is not as powerful as the ASW20, but is easily compensated for by the airbrakes. The glider has the same range of approach angle, but with greater flexibility. The fact that the ailerons move to the negative flap position when landing flap is selected meant that there was no problem keeping the wings level during the ground run. There is, therefore, no need to manually select negative flap whilst on the ground to maintain roll control, as with so many other flapped gliders, allowing the left hand to remain on the airbrake lever and control the wheel brake.

In conclusion I would say that the ASW27 is an excellent glider. It is the attention to minor details, so often overlooked by manufacturers, that is impressive. I understand that the standard equipment list is extensive, a point worth taking into account when comparing its price. As for the ASW27's suitability, it is one of the very few flapped gliders that I think would be both easy, and fool-proof enough, for use as a club glider.

ASW27 Data

FAI Class	15m racing
Wing span	15m
Wing area	9m ²
Aspect ratio	25
Height of winglets	0.27m
Fuselage length	6.55m
Cockpit height	0.8m
Height of Tail	1.3m
Empty weight	235kg
Max. all-up weight	500kg
Max. water ballast	165l
Max. wing loading	55.56kg/m ²
Min. wing loading	34kg/m ²
V _{ne}	154kt
Best glide ratio	48:1

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- Prof W Röger: Fundamentals for pilot rescue and glider recovery systems
- Peter Claiden (AAIB): Panel Session on glider safety
- David Roberts: Feedback from BGA Project 2000 working group

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2nd place	United Kingdom National Championships 1998

US National Soaring Records

ASW 27	Straight Distance 1288,79km
	Pilot Karl Striedieck
ASW 27	Straight Distance To A Goal 1288,79km
	Pilot Karl Striedieck

ASW 27

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Surviving Mid-air Accidents

Tony Segal is a retired GP. He has researched safety issues for many years.

During the 1914-18 war a brave pilot of the Royal Flying Corps, who had the misfortune to be shot down with no parachute in his Sopwith Camel, could decide whether to jump regardless, or to burn.

By World War II, fighter pilots were equipped with personal parachutes but survival was rarely possible below 1,000', over 200kt airspeed, or from an aircraft undergoing significant rotation or acceleration. The Luftwaffe Dornier 335 fighter was first flown in 1943, and was fitted with an ejector seat. After the war the Martin Baker Aircraft Company developed the modern military ejection seat and, these days, a pilot escaping from a 'severe' situation has a 95% chance of survival.

Microlights and Hang-gliders

Microlight and hang-glider pilots have been using 'whole aircraft parachute recovery systems' for many years; the low mass and high drag of these aircraft, coupled with the low velocity reached in a dive, makes them particularly suitable. Worldwide, 14,000 such systems are in use and 124 lives have been saved. In the UK the British Hang Gliding and Paragliding Association reported that by 1994 the lives of 23 BHPA members had been saved by these recovery systems. Of 47 deployments, 17 were accidental, 23 were successful and 7 failed; it is clear that no system can give a 100% recovery rate.

Sailplanes

In comparison with a microlight, a sailplane has a high mass, low drag and rapidly reaches a high speed in a dive. The cockpit is clear of surrounding

structures and it would appear, at first sight, to be easy for a pilot to climb out and operate his personal parachute. Until recently these assumptions turned attention away from the use of whole-aircraft parachute recovery systems in gliders.

Research in Germany

The Bundesministerium für Verkehr (the BMV), the German Federal Ministry of Transport, became concerned about the number of fatalities following mid-air accidents in gliders. In 1988 a study was financed by the Ministry and undertaken by Prof. Wolf Röger at the Fachhochschule Aachen (FH Aachen), the Aachen University of Applied Sciences, and is still in progress under Röger and his colleagues.

The Problems of Baling Out

Röger carried out an analysis of the mid-air glider accidents in Germany for the years 1975-1988. There were thirty-four accidents, the majority clearly being collisions between two gliders. In total fifty-eight gliders were involved, of which 14 landed safely. Sixty-four pilots were involved, of which 28 were fatally injured. Thirty two pilots jettisoned the canopy, or

were seen trying to do so, and of these, 19 survived and 13 were killed. The remaining fifteen deaths occurred in the cockpit without any evidence of the pilot trying to bale out.

Following this study, Röger investigated the problems involved in baling out of a glider cockpit. The short time interval between the accident and the glider hitting the ground is an obvious problem.

Canopy Jettison

A series of experiments was carried out involving pilots aged 20-60 years. A three-lever jettison system took 3.5 seconds to operate. A one- or two-lever system, operated simultaneously by both hands, only took 2.5s. One second was saved if the canopy were pulled away by the airstream. The age of the pilot had no effect in these tests.

Getting Out

The time taken to get out of the cockpit, after releasing the seat belt, was affected by age, physical condition and load factor. Getting out took a well-trained fit young person 2.6s, and an older person 4.5s. When a load factor of 1.5g was simulated, by attaching lead weights to the pilot's body, a young person took 3.5s, and an older person took 7.2s. Under this load factor some people, aged 40 years or more, were unable to get out at all. The instrument panel and the height of the cockpit wall also affected the exit time.

Load Factor - Wind Tunnel Tests

Experiments were carried out in the wind tunnel at FH Aachen to investigate the aerodynamic loads on the canopy during jettisoning. The experiments were carried out with a rear-hinged, front opening canopy. With a small for-



A crash test on a glider which has lost a wing in a mid-air collision.



Wolf Röger trying to jettison the LS4 canopy at Geilenkirchen.

ward opening of less than 3cm the airflow past the cockpit produced low pressure inside the cockpit. The resulting force tended to move the canopy forward and held it down on the fuselage. If the front of the canopy were raised above 6cm the airflow lifted the canopy away from the cockpit and tended to move it backwards. Opening the cockpit ventilation and closing the clear vision panel, raised the air pressure inside the cockpit, assisting canopy removal. The internal pressure was raised even more during a side-slip.

Full-size Glider Tests

Prof. Röger carried out tests using a full-size LS4 fuselage mounted on the roof of a car which was driven down the runway of the NATO airfield at Geilenkirchen. The canopy was released and its motion and flight path recorded on video.

Front-opening Canopies

The first tests were carried out with the canopy being raised mechanically, operated by the car's front seat passenger. A front-opening canopy, in position and unlocked, remained in place regardless of the angle of attack. Above 85kt, the canopy lifted off the fuselage. With side-slip of greater than 15°, the canopy separated slowly from the fuselage, hit the instrument panel, hit the pilot, hit the wing and then the rudder.

The test was repeated with the front of the cockpit raised by 20cm. The canopy lifted off, pitched nose down and returned to the fuselage aft of its original position. The airflow then held the canopy closed so preventing exit. With side-slip the raised canopy separated from the fuselage, but the front of the canopy turned into the cockpit, hitting the pilot.

Side-opening Canopies

The left side of the canopy was released and raised slightly. The canopy hinged on the right side, then

released and lifted away. It flew off the fuselage with a nose down movement, across the cockpit to the left side, without gaining height, and hit the pilot. The canopy then flew over the left wing, over the rear fuselage, finally hitting the tail on the right side.

Clearly, this can not be considered satisfactory. An alternative method is to release, and push upwards, the left side of the canopy. The canopy rotates 180° around the right hinges until they break off. The canopy flies back, passing below the right wing and then hits the tail, but passes clear of the pilot without injuring him. This method of jettisoning a sideways-opening canopy is recommended over the method of jettisoning both sides together. There is, of course, a danger that the hinges won't break, in which case the canopy would slam shut.

Real Pilot Tests

All the above tests were carried out with the canopy released by a mechanical device. Tests were then carried out with a pilot in the cockpit and a forward opening canopy. Two handles were fastened to the canopy frame forward of its centre of gravity.

The canopy was released and the handles were easily pushed upwards. The airstream then pushed the nose of the canopy down (the centre of lift of the canopy is to the rear of the centre of gravity) and it was not possible for the pilot to control this movement; within 40 milliseconds the canopy struck the cockpit blocking the pilot's emergency exit.

The next test was a pilot-operated canopy release with a side opening canopy. The pilot was wearing a leather jacket and a crash helmet, and the canopy strut was also padded. The pilot pushed the canopy quickly to the right. There was a nose-down pitching movement, and a

nose-inward yaw of the canopy. The nose of the canopy turned into the front of the cockpit, slid up the pilot's arms towards the pilot's face. The pilot was Wolf Röger himself.

This series of tests showed that during manual jettisoning of the canopy the pilot is unable to control its movement and there is a high risk of injury.

Improved Canopy Hinge

To improve the situation, the nose down movement of the canopy has to be transformed into a nose up movement. Three methods are available to achieve this. In the first method an additional weight at the rear of the canopy would move the canopy's centre of gravity (CG) to the rear of the centre of lift. However, a weight of 18lbs (8.2kg) would be necessary, so this method is not feasible.

The second method is to change the canopy's aerodynamic shape. A theoretical study was carried out of forty-six different canopy shapes, confirmed by wind tunnel tests. One design of canopy produced a slight nose up movement over the whole range of angle of attack and airspeed. However, it would only be of use for the rear cockpit of a two-seat glider.

The third method involves a hinge situated between the rear of the canopy frame and the rear of the cockpit opening: the hinge is designed to disengage at about a 30° opening angle of the canopy. The pilot grasps two handles situated to the front of each side of the canopy frame, and lifts up the front of the canopy which immediately rotates upwards around the hinge. At about 30° the canopy separates from the fuselage, flies clear of the pilot, then passes well above the rudder.



Glider ground-impact tests at FH Aachen, Germany.



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If sideslip is present, the canopy takes a similar flight path but displaced to one side. The "Röger hinge", as it is now called, is the recommended method of attaching the canopy frame to the cockpit.

Ballistic Parachute Recovery

There are two methods of ballistic parachute recovery. In the glider rescue system (GRS), the entire airframe, with the pilot remaining in the cockpit, is lowered to the ground by parachute. In the pilot rescue system (PRS), the glider is first stabilised by a small parachute. This parachute then extracts the pilot from the glider (after automatic canopy jettison and seat belt release). The pilot is then lowered to the ground either by the small parachute, or by his own.

Glider Recovery System (GRS)

Röger analysed 42 mid-air accidents involving gliders in Germany from 1975-1990. Most of these accidents involved collisions. Half the gliders involved lost a wing or part of a wing, one third lost their elevators, and the rest their rear fuselages and tailplanes. The wing-root area mostly remained intact, and the recovery system should, therefore, be installed in this area.

GRS - Flight Path After Damage

Following the loss of part of a wing, the glider rolls into a spiral dive, with the intact wing initially being uppermost. The steepness of the dive depends on the amount of the wing that has been lost. In extreme cases, a negative angle of attack may be reached.

If the elevator is lost, or the tailcone and tail unit is lost, the glider dives into a negative loop - a bunt. The glider accelerates rapidly, the airspeed increases rapidly, and might exceed V_{ne} . These findings were confirmed at FH Aachen by computer simulation, and by drop tests on model gliders.

GRS - Parachute Deployment

T-shaped tails are common in gliders. The deployment system must first pull the parachute bag out of its storage compartment in the fuselage. It must then lift it clear of the tailplane, even when the glider is at a negative angle of attack. The constituent parts of the parachute must then be streamed and stretched in order - the bridle, the risers, the canopy suspension lines, and the canopy itself - in order to avoid the lines tangling and fouling the tail unit. A high-lift drogue parachute would

have poor inflation in the turbulent air close to the fuselage, and would have poor dynamic stability. A ram-air drogue parachute will not fill at high speed, or if spinning, and requires a large canopy area that might collide with the tail during inflation. Neither is suitable for parachute deployment.

For conventional glider designs, a spring or compressed-gas operated device would not supply enough energy to enable the parachute bag to clear the tailplane. A high energy device is required. This can be either a mortar, a gun, or a rocket. A mortar or a gun will cause recoil that might damage an already weakened airframe. The favoured method is therefore a solid fuel rocket.



One of the recovery tests: dropping a glider from a tethered balloon.

GRS - Static Stability

Three or four parachute risers are needed to ensure that the damaged glider remains stable as it descends. These should be grouped around and above the glider's CG. However, if part of the glider structure is lost, the CG position will alter: if the tail or part of the rear fuselage is lost, the glider will pitch nose down; if a wing, or part of a

wing, is lost the glider will tend to roll. The glider will hang so that the CG is below the intersection points of the risers. To minimise the change of pitch produced by loss of glider structure, simple geometry shows that the risers should be as long as possible.

The angle of attack of the aerofoil affects stability. A glider descending under a parachute has a most unusual relation to the airflow which comes from under the wing instead of the normal direction. Röger has shown that for any given aerofoil, static stability is only possible at the following angles of attack:

- a) The normal flight range, up to $+13^\circ$.
- b) A range of $+20-30^\circ$.
- c) From $+50-70^\circ$.

The length of the fore and aft bridle should be adjusted, as they are installed, to give an angle of attack in this range. The third option also gives a satisfactory attitude for ground impact.

These results were based on computer simulation and eighty free-flight tests with a scale model glider (scale 1:4.8) dropped from a tethered barrage balloon. A steady state descent of 160' was obtained. The results were analysed from a flight data recorder and analysis of video film.

GRS - Forebody Wake Glider Rotation

The wing of the descending glider is deeply stalled, and so is producing large wingtip vortices. These hit the side of the parachute canopy, causing the canopy to oscillate and thus lose drag.

The disturbed air is known as forebody wake, and the effect can be reduced by the length of the parachute risers being longer than a wingspan. With this increase in riser length the parachute efficiency is increased.

A further advantage of a long riser is that it will compensate for rotation between the parachute and the glider, as in a spin or a spiral dive. It obviates the need for a heavy swivel. In any event, a swivel is not "failure tolerant", so is not the best solution to the problem of rotation.

GRS - Effect of 'Opening Shock'

When a parachute is deployed, the canopy, suspension lines, and risers are first stretched taut. This produces the "opening snatch". Air then enters the canopy and impacts the crown of the canopy, producing the "opening shock".

The damaged glider might be in any attitude when the parachute deploys. Each riser and its attachment

to the airframe must therefore be able to withstand the entire opening shock.

The parachute canopy in its bag is first lifted upwards so as to clear the tail unit. The airflow then moves it in line with the fuselage. In the event of the loss of the tailplane, the glider will start a bunt, with a downward rotation of the nose, and a negative angle of attack. This will result in the parachute opening below the line of the fuselage. A further factor is that the risers are attached above and in front of the CG of the glider. The result of this is that the opening shock produces an upward rotation of the nose of the glider. A good effect of this is that the air speed of the glider is reduced. A bad effect is that a violent pitching movement will be produced. This pitching movement will have almost no damping in the absence of the tailplane. In the event of a very violent opening shock, the glider might even start to loop and then fall into the parachute lines. Clearly, this would be disastrous.

When the parachute deploys more or less in the line of the fuselage, the opening shock will produce a rapid deceleration of the fuselage. The inertia of the wings will result in forward movement of the wing-tips. This in turn will produce a load on the main spar and on the wing root fittings for which they are not primarily designed. The resulting structural failure could crush the cockpit and the pilot.

A further problem occurs if the pilot delays the operation of the system, and the parachute deploys when the glider is flying inverted at the bottom of the bunt, following loss of the tailplane or rear fuselage. The parachute canopy will exert a force in the direction of the airflow, causing the nose of the glider to drop into the second part of a positive loop. The glider will then fly through or

rotate until it is the right way up. The complete flight path will be "S-shaped". Röger believes that the rotation would be very rapid, and little loss of height will occur. It is clear that the pilot must operate the system as early as possible.

It is vital that the opening shock is as small as possible. A large canopy opens more slowly than a small canopy, but the opening shock might be greater. A "reefing" system must be used – this controls the volume of air entering the canopy, increase the opening time of the parachute, and reduces the opening shock.

GRS – Ground Impact

This is a critical phase of the rescue, especially regarding spinal injury. A 60-year-old pilot can withstand a compression load on the spine of 675lb force. At a nose down attitude of the glider of 20-45°, and a descent velocity of six metres per second, the impact load on the spine should be below this value. This attitude of the glider ties in very well with the angle of attack of the wing required to give stability to the descending glider.

A modern crashworthy cockpit should ensure the pilot does not suffer injury due to the ground impact. The pilot may receive minor injury in an older type of cockpit.

GRS – Suitable Systems

The systems are supplied in three types of pack:

CANISTER. This consists of a light-weight aluminium cylinder housing the parachute canopy, which is pressure packed to 20 tons, and is waterproof. It can be left for six years between factory repacks.

VERTICAL LAUNCH SYSTEM (VLS).

This is a low-profile fibre glass container with a frangible cover, for mounting on the top of the air-

frame. Parachute canopy repack cycle is every four years.

SOFTPACK. These are mounted on a steel tray, and can fit into awkward spaces. Canopy repack cycle is between one and three years depending on the application.

I understand that eight out of ten new gliders in Germany are equipped with an engine. When the recovery system is installed, the rocket can be angled by up to 15° to left or to right of the vertical. I suggest this be done, to reduce the risk of a deploying parachute tangling with the motor pylon. The manufacturers stress that the engine must be shut down prior to system activation.

GRS – Rocket attachment

The rocket must have a means of escaping from the glider airframe. Fabric covers are easily penetrated. Dacron is stronger and requires a velcro-closed panel. Plastic, fibre-glass or aluminium would need a blow-through panel.

Ignition is by dual redundant mechanical igniters. No electricity is required. The activation handle requires a force of 45lb.f. A dual action is required which makes inadvertent operation unlikely.

The canopy should be matched to the all-up weight of the glider. At sea level, a descent rate of 6.4m/sec is obtained. At 5,000', a descent rate of 7.6m/sec is obtained (see Table 1). The all-up weight of some typical gliders, including water ballast where applicable, is as follows:

Nimbus	1,650lbs (comp. weight)
Discus	1,156lbs
Junior	838lbs
ASK 13	1,166lbs

A problem is the relatively low maximum deployment speed of the systems. The peak deployment load for the

GARD-150 is 3g, so the attachment points for the parachute risers will have to be designed to withstand 4.5g. A further point is the increased opening shock at altitude. This will require calculation, and will require an increase of design strength of the riser attachment points. It may be possible to design energy absorbing attachment points, so reducing the required design load.

Table 1. Technical details of various GRS systems (numbers are approximate)

System	Max. glider AUW (lbs)	Max. deployment speed (knots)	System weight (lbs)	Canopy diameter (feet)
BRS-500	500	70	20	24
BRS-750	750	86	22	28
BRS-900	900	119	25	28
BRS-1050	1050	135	27	30
BRS-1200	1200	127	32	32
BRS-1500	1500	127	40	36
GARD-150	1645	120	43	40

Pilot Rescue System (PRS)

This is an alternative to the glider parachute rescue system. A high-energy system deploys a small drogue parachute. Simultaneously, locking clamps on the glider canopy and the seat harness are released. The drogue parachute stabilises the damaged, tumbling glider. The attachment of the drogue is transferred from the glider to the pilot. The drogue first pulls away the glider canopy and then the pilot from the cockpit. The glider then falls safely away from the descending pilot.

Röger recommends that the drogue parachute then lowers the pilot safely to earth. This implies that the drogue parachute has to be as large as a conventional personal parachute.

Mike Woollard, Chairman of the BGA Technical Committee and a past Technical Director of Irvin Parachutes, presented a paper at the OSTIV Congress at St Auban discussing the different rescue systems. He favoured the Pilot Rescue System, but suggested that the pilot, having been extracted from the cockpit, was then lowered to earth by his own personal parachute. This would enable the drogue parachute and the personal parachute to each be optimised for its particular function.

The extraction of the pilot from the cockpit has been studied on a test rig at FH Aachen. The instrument panel needs to be raised or jettisoned with the glider canopy. The test-extractions showed there was no risk of collision between the pilot and the cockpit structure. There was no risk of injury to the knees of the pilot. However, at a nose up attitude of +20°, the pilot's head jerked backwards. The load on the pilot was low, being 1.5-5g.

After the pilot has been extracted, the glider will drop freely in an uncontrolled flight path without a parachute. In the special case of the glider losing one wing it will roll, and there is a danger that the rising, intact wing will strike the pilot, or his parachute.

Minimum Height for Survival System Operating Times

Modern gliders have low drag, and hence gain speed rapidly in a dive, as after a mid-air collision. Assuming the glider is in a vertical dive and has no drag, starting at an initial velocity of zero it will have attained a speed of 95kt after 5s. After 7.5s it will be flying at 145kt. At 10s it will have

reached 190kt, beyond the V_{ne} of most gliders. It is clear that the pilot must initiate the rescue system as soon as possible after the accident.

Comparing the two types of ballistic recovery system, the glider recovery system and the pilot rescue system, they both have an improved capability over a personal parachute.

The minimum height for successful deployment depends on the reaction time of the pilot, and the canopy inflation time. The glider recovery system decelerates the glider immediately, but the large parachute required takes time to fill. The pilot rescue system operates slowly at first due to the complicated mechanical release system, but the small parachute opens rapidly. The pilot rescue system is slightly faster than the glider recovery system.

It is of interest to compare the personal parachute with the glider recovery system (see Table 2). The figures are taken from the St Auban OSTIV paper of Mike Woollard. The time advantage of the glider recovery system over the personal parachute is clear.

Röger considers that after a mid-air accident in level flight, at 50kt and with a pilot reaction of 2.5s, the minimum deployment height is 650'. In level flight at 80kt airspeed, the extra kinetic energy results in a lower minimum deployment height of 400'. A vertical dive will result in a greater height loss, especially at high speed. At 80kts, in a vertical dive, a minimum deployment height of 1,100' is necessary.

The effect of the mass of the glider is of only slight significance. A glider mass of between 200kg and 750kg will only result in a difference in minimum deployment height of 100'.

A parachute reefing stage holding back half the drag area for half a second reduces the opening shock by half. Considering a glider diving verti-

Table 2. Times taken (in seconds) to reach safety.

Action to be taken	Personal Parachute	Glider Recovery System
Decision to abandon flight:	1.5	1.5
Undo straps:	1.0	n/a
Jettison canopy:	1.5-20.0	n/a
Exit glider:	3.0-4.0 (or much longer)	n/a
Pull ripcord or operating handle:	1.0	1.0
Parachute canopy opening time:	1.5	2.5
Time to safe rate of descent:	1.0	1.0
Total Time:	10.0-30.0 (or longer)	6.0

cally at 80kt, the minimum deployment height will only be increased by 70' by the reefing system.

At high altitude, such as 16,500' (5,000m), the opening shock is much greater, but the question of minimum deployment height does not apply.

System Design

The system of ballistic parachute recovery used needs to be carefully designed to reduce the risk of failure. A Failure Mode and Criticality Analysis should be carried out to demonstrate its reliability.

Airworthiness Standards

The German authorities have recommended that the systems should be designed to operate at up to 4,000m (13,000'), and up to V_{ne} .

The OSTIV Airworthiness Standards recommend an operating height of 5,000m (16,500') to allow for the generally higher ground level of some areas of the USA. The velocity is set at the Design Speed, a higher figure than the German requirement.

The two systems are otherwise very similar.

Conclusion

In many critical situations, such as mid-air collisions, these devices could save many more lives than the use of conventional personal parachutes.

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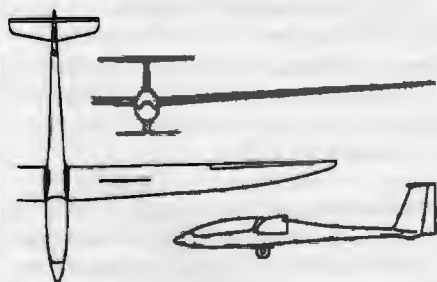
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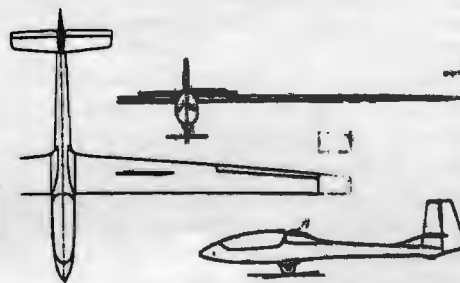


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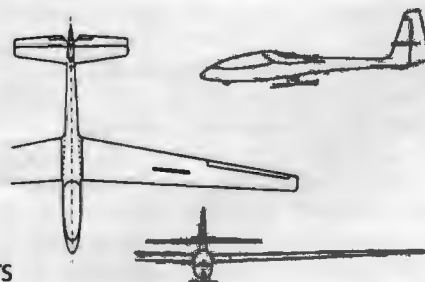


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A Nightmare Scenario!

David Penney is an Air Experience Instructor at Lasham

The first 61 trial flights appear to have gone off without incident, well apart from no. 22, when a lady would not let go of the controls, and no. 52 when a 76-year-old lady, on her first ever flight, was most enthusiastic, but considered me too old to be her toy boy; but I digress.

It was Saturday 14th November, and a typical autumn day. I had been driving the winch for the Saturday early morning course and, after breakfast, joined the other aviators at the launch point. It was my Group day and I was looking forward to my 62nd Trial Lesson.

Our Chairman, Patrick Naegeli, introduced me to my first pupil of the day, a young lady called Sarah. We walked to the hangar, her boyfriend close behind, and extracted a K13.

I took the opportunity of giving them both a full briefing and took the glider to the launch point. Sarah's boyfriend seemed quite excited, more excited, in fact, than Sarah; I didn't understand why, at the time.

Having arrived at the launch point and lined up on the runway, I completed Sarah's final briefing while she strapped herself snugly into the front seat of the glider. I was about to settle myself in the back when her boyfriend urgently beckoned me to the back of the glider. Sarah was talking to the launch controller and was unaware of what was going on.

Two items, an envelope and a small brown box, were produced and I was asked to take them on board with me. Inside the envelope was a card and inside the box was an engagement ring. Yes! You've guessed it... I was to make a proposal of marriage to Sarah, whilst airborne, on behalf of her boyfriend. The excitement that he had shown earlier suddenly made sense. Somewhat shocked, I quickly returned to the cockpit, completed my checks, accepted the cable and launched.

While on tow, I tried desperately to focus my mind, and engage Sarah in conversation; I was aware that my flying was not as accurate as it should have been. I was entirely fixed on finding the words to complete my mission.

Lots of things went through my mind, like: what will be her response when I tell her? Will she become so excited that she causes an Urgency or even an Emergency? Or, even worse, what if she says 'No' and I have to break the news to her boyfriend?

I even asked myself, what had gone wrong with my training. There was nothing in the patter notes to cope with this eventuality. The two-day course with Charlie Covax did not include this as a nightmare scenario, and I certainly do not remember it being part of the syllabus for my AEI course. Before I had time to contemplate further, we were at 2,000' and releasing.

Having gone through the lookout, attitude and elevator, I decided that I would not put off the task any longer, I had to do what was asked of me.

I asked Sarah to prepare herself for a shock and to stay calm. I slackened my straps and passed her the envelope followed by the ring box. I explained that her boyfriend had wanted his proposal of marriage to take place in the air, and that I thought it was a very romantic gesture.

Sarah was extremely red faced and deadily silent. Giving her a few moments to regain her composure and for the news to sink in, I cautiously asked her if she were all right, and if she had made up her mind. Was she going to accept? She burst into life with an enthusiastic "Yes, of course I am".

I still don't know if she heard my huge sigh of relief, knowing that I would not have to return to Earth with bad news. For totally understandable reasons, Sarah's flying deteriorated, and mine improved. We returned to the ground, as one would expect, with a fully held off landing, and were soon greeted by her boyfriend, eagerly awaiting a reply to his proposal.

Back at the launch point, I left the two of them alone, and went to collect some tyres. There was just time for Sarah's boyfriend to do the job properly, holding the wing down with one knee and proposing.

My colleagues tell me that this is most likely a first for the club, and possibly a first for gliding. Does this mean that our future advertisements will read: "Large training fleet, Professional instructors, and proposals of marriage by appointment"? Where will the diversity of gliding end?



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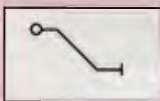
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Aresti Figures

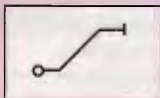
To many glider pilots Aresti figures appear as nothing more than hieroglyphics. In fact, they provide a very useful shorthand method of representing a complex sequence of manoeuvres.

Each figure begins with a circle and ends with a short line. Between the two, a solid line represents erect flight, (flying the right way up), a dashed line represents inverted flight and a little arrow represents a roll, and so on. The k-factor, in brackets, represents the 'difficulty' of each figure and is explained in the main text, under 'scoring'.

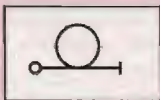
Sports Badge/Class manoeuvres: These are the basic aerobatic figures, and are all positive g manoeuvres, i.e. none of them involves flying upside-down.



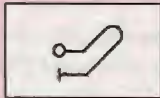
45° Diving Line (k7)
A recognisable path, at 45° to the horizontal, must be flown downwards.



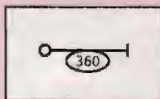
45° Climbing Line (k7)
The same as above, but climbing rather than diving. The trick here is to avoid running out of speed at the top.



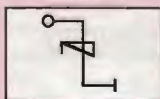
Loop (k10)
This is an inside or positive g loop, meaning that the pilot's head points towards the centre of the circle.



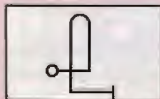
Wingover (k12)
Sometimes known as a chandelle; this involves 45° up and down lines with 90° of bank for the turn at the top.



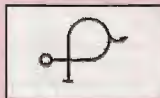
360° Erect Turn (k6)
A 360° turn with a constant bank of 60°, and precise entry and exit headings.



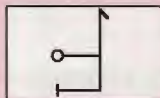
Positive 1-turn Spin (k14)
A cleanly stalled entry must be made to the spin, ending with a vertical downline, and a precise exit heading.



Humpty Bump (k13)
A manoeuvre similar to a loop, but following the path shown here rather than flying in a circle.



1/4 Clover Leaf (k16)
A loop with a quarter roll in the second quarter of the loop.



Stall Turn (k17)
Vertical up and down lines with a flat yawed turn at the apex.

BGA Aerobatics Badge Scheme

by Le Forbes, with the help of John Gilbert

The increasing level of interest in gliding aerobatics has led to the introduction of a BGA aerobatics badge scheme, to be run along the same lines as the FAI's Bronze, Silver, Gold and Diamond badges.

The scheme includes four levels of competence, called Standard, Sports, Intermediate and Unlimited. It is through the existence and presentation of these badges that the high level of co-ordination skills and accuracy required to fly aerobatics can be rewarded.

The names of pilots who win aerobatics badges are now listed with the certificate awards in the *BGA & General News* section of *S&G*.

The Four Badges

Standard: Competent to undertake solo test sequence of basic figures only.

Sports: A high standard of competence in basic positive g figures.

Intermediate: A high standard of competence in advanced figures involving rolling and inverted flight.

Unlimited: A high standard of competence at unlimited level involving complex positive and negative g figures.

Standard Badge

The following figures are flown for completion of the standard badge:

- 45° climbing and diving lines.
- Loop.
- Wingover.
- 360° erect turn.
- Positive, 1-turn spin.
- Climbing turn.

Sports Badge

For this badge a scored sequence, containing twelve figures taken from the following list, has to be flown:

- 45° line.
- Loop.
- Wingover.
- 360° erect turn.
- Positive, 1-turn spin.
- Humpty Bump.
- Quarter Clover-leaf.
- Stall turn.

The total k-factor (explained later in the text) for the sequence is not to be less than 150 and all figures from the prescribed list must be included. No figure can be repeated more than once, and a minimum score of 70% is needed to pass.

Intermediate Badge

The Intermediate Badge test is made up of two sequences, one *known* and one *unknown*.

a) Known Sequence

This is a scored sequence containing twelve figures *chosen by the pilot* from the following list:

- 45° climbing and diving lines.
- Loop.
- Wingover.
- 360° erect turn.
- 360° inverted turn.

Courses (flying)

Lasham will be running two-day aerobatics courses throughout the year which are suitable for all levels of experience. The first two courses will be on:

4-5th March 1999
20-21st March 1999

Courses (judging)

It is not necessary to be an aerobatic pilot to judge the sport, but membership of the British Aerobatics Association (BAeA) is required (£25/year).

A Judging School will be held at The Aviator Hotel, Sywell Airfield, Northants, on March 7th at 9.30am. Everyone is welcome. For more information contact Ben Ellis on 0181 398 2114.

Competitions

There are two national competitions in the UK. The Dan Smith Memorial Trophy will be competed for on 27-28th March 1999, at London Gliding Club.

The BAeA National Gliding Aerobatics Championships will be hosted again by Buckminster Gliding Club, at Saltby, Lincolnshire, from 9-12th September.



Photograph: Guy Westgate

Guy Westgate's computer-enhanced picture of Salby, printed on p.361 of the last issue.

- Positive Spin.
- Humpty Bump.
- Quarter clover-leaf
- Stall turn.
- Slow roll.
- Half roll inverted.
- Half roll erect.
- Cuban eight.
- Half Cuban.
- Half reverse Cuban.
- Split S.

The total k-factor for the sequence must equal 164 or more, and no figure can be included more than once.

b) Unknown Sequence

This sequence contains a maximum of fourteen figures *chosen by the examiner*, on the day of the test, from the list above; the pilot has no opportunity to practise the flight beforehand. The minimum k-factor is the same as for the known sequence. A minimum score of 75% is required to pass in both the known and the unknown sequences.

Unlimited Badge

The Unlimited Badge test is made up of one *known*, one *unknown* and one *free* sequence. A minimum score of 75% in each sequence is required to pass.

a) Known Sequence

This is chosen from a list published for the current year by CIVA, the authority, under the FAI, which represents aerobatics.

b) Unknown Sequence

This is to be constructed by a minimum of three unlimited aerobatics glider pilots and is presented to the candidate on the day of the test and flown without practice. The total k-factor for the sequence is not to be less than 150.

c) Free Sequence

This is to be planned by the pilot and the total k-factor for the sequence is not to be less than 215.

Examining/Competition Judging

The judging and scoring method for badge tests and competition flights is the same. In a competition it is normal to have six judges, and each has an assistant to write down his scores and remarks while the judge's attention is on the glider. For badge tests the number of examiners varies, depending on the type of flights being made.

Competition sequences are flown in a 1,000m cube of airspace, the position of which is normally marked out on the ground (see photograph left). Release height for UK competition is typically 4,000' AGL, but the pilot must be below his maximum height before he begins his sequence. The minimum height by which all manoeuvres must be completed depends on the standard of competition sequence being flown.

The judges sit outside the box, but in line with the B-axis, from where they can see that the pilots are flying on the correct headings (all manoeuvres must be flown along one or other of the axes). The A-axis is always aligned into wind, so if the wind changes direction, the orientation of the box, and the judges' position will also change.

Scoring Aerobatics

The k-factor of each figure represents its difficulty. Each figure is scored out of ten and multiplied by the k-factor. It follows, therefore, that a pilot who scored only 3 for a cuban eight (k31), which is a very difficult manoeuvre, will receive more points than a pilot who scored an 8 for a 45° climbing line (k7), which is an easy one: $3 \times 31 = 93$ whereas $8 \times 7 = 56$.

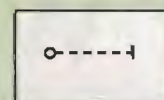
Once the whole sequence has been flown, marks for Framing (how well has the pilot positioned himself within the 'box'), Harmony (how well did all the figures flow together?) and, for the free programme, Versatility (diversity of figure-types) are added to the figure scores. Marks are subtracted if the pilot flew out of the box, or interrupted his flight, perhaps to get back into the box.

The final scores are run through a horribly complicated formula known as the TBL (Tarasov-Bauer-Long) method, to eliminate prejudice (conscious or unconscious) on behalf of the judges.

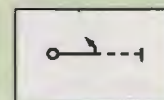
More Information

For more information about getting involved with gliding aerobatics, see details of the courses and competitions listed in the yellow box.

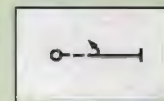
Intermediate Badge/Class Manoeuvres: most of these figures involve some inverted flight, when the pilot experiences negative g. Flying upside-down requires a great deal of concentration and co-ordination.



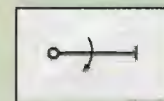
Inverted Flight (k3)
A simple straight line of flight, but upside-down.



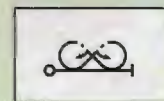
Half Roll to Inverted (k8)
Beginning in erect flight the pilot must perform a 180° roll half way along his line and finish the figure inverted.



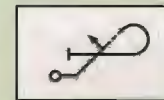
Half Roll to Erect (k8)
The same as above, but starting in inverted flight and ending in erect flight.



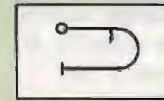
Slow Roll (k14)
A 360° roll starting from erect flight, the time taken to do so being not less than five seconds.



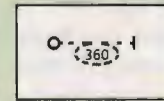
Cuban Eight (k31)
A complex manoeuvre of two loops joined by two 45° diving lines with half rolls incorporated.



Half Reverse Cuban (k19)
The pilot begins the figure with a climbing line, and rolls inverted to begin three-quarters of an inside loop.

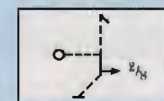


Split S (k12)
Beginning in erect flight, the pilot rolls into half an inside loop and pulls out on a horizontal line.

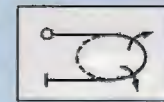


360° Inverted Turn (k8)
A 360° turn at 60° angle of bank; the whole turn is performed in inverted flight.

Unlimited Badge/Class Manoeuvres: Everything physically possible in a glider. The complexity of figures can be increased by adding different parts, e.g. adding a roll to a circle to make a rolling circle. The k-factors for each part are added to find the total for the figure.



Inverted Stall Turn (k28)
Including a hesitation roll (a 90° roll with a pause at 45°) on a down line to inverted flight.



180° Outside Rolling Circle (k28)
A 180° turn along a circular path, while rolling the glider at the same time.



Canopy Down Tailside, to Inverted Flight (k16)
A vertical climb until the glider slides backwards, with the canopy pointing down.



1-turn Cross-over Inverted Spin (k19)
Come to Salby to see this one performed; it is impossible to describe!

Tocumwal has a Day of World Records

The Australians, and their visitors have been having the most remarkable fun at Tocumwal, NSW. The southern hemisphere's spring weather brought them a splendid day on December 11th. Here are some extracts from their December Newsletter.

This is the day after THE DAY and what a day it was. The weather was so good that we had five pilots flying their 1,000km. Rob Looisen, from Holland, flew his first one and was back here after 8h 15m drinking a well-deserved beer in the bar at seven o'clock.

Pam Hawkins and Gerrit Kurstjens both flew the 1,000km as an out and return from Tocumwal to Renmark West. Gerrit did it in 7½ hours (132kph), fast enough for a new Dutch motorglider record. Pam flew a new world record for motorgliders with a speed of 116kph.

Pepe Valero, from Spain, and Paul Bourgard, from Belgium, each flew FAI triangles of over 1,000km. Both pilots broke their national records with speeds around the task of 122kph and 133kph respectively.

Hanna Zejdova flew another world record (she already has three) over 819km in her SZD 56. Spring weather has been really good to us.

Jac van Stratum, from Holland, flew 701km in a DG300. Steven van Haaff flew 500km in a Discus after flying his first 300km two days earlier.

Philippe Pieux from New Caledonia had his first Tocumwal holiday and flew his 50km, 300km, 500km, his 1,000m height gain and his five hours Silver duration.

Stop Press! (31st December 1998)

On Christmas Day, Britain's Pam Hawkins became the first woman to fly a triangle distance of 1,037km, which she completed at an average speed of 122.5kph. She launched, in her Nimbus 4, from Tocumwal at 11.28am, and landed back on the airfield at 8.05pm. This represents new female world records for: a triangle distance; a three turning-point distance; speed for a distance over 1,000km.

Pam also flew a world record 750km triangle at 119.31kph on December 16th, the same day as her partner, Gerrit Kurstjens, flew his first 1,250km triangle.

Stop Press Again! (5th January '99)

(from Brian Bateson in Benalla)

Never having had any interest in competition flying I have been watching the record-breaking taking place around me and comparing it with my own paltry efforts in the UK. I have always considered a three-hour 300km flight to be fast.

Sue Hill and I again have our Ventus with us. We were having a ball in the excellent Nov/Decsoaring conditions. We both flew our first ever 750km flights at speeds that, only a few weeks before, I would not have believed possible.

January 4th 1999 was yet another superb 'hot and high' day so I, and several other pilots flying from Benalla declared a 750km triangle. The day was straight-forward although the last leg was slower than it should have been; but on reflection 133kph around a 750km task can't be all that bad!

One of the really nice things about all this high-speed long-distance fun was that the girls did so very well. First 750km flights were notched up by Jill Burry from Lasham, Sue Hill from Southdown, and Lisa Trotter, a local pilot, not to mention Pam Hawkins up at Tocumwal...



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Flying Upside-down

(or is it us facing the wrong way ... ?)

Flavio Formosa began gliding in 1993 and flies a DG-300 from Prato, Italy.

Australia : call it the myth of every glider pilot in the northern hemisphere, or call it a place so far away that if you drill a hole from here through the centre of the Earth, that's where you come out.

Whatever you call it, the "great south island" seems to exercise an almost irresistible attraction on most of us who fly these motorless things and struggle our way cross-country under 3,000' cloudbase, held up by 2kt thermals, in an atmosphere so dense that 10km visibility is most welcome.

After a season of bad weather, the decision to do something radical became necessary. What better than a two-week Australian flying getaway? My employer's opinion and my girlfriend's opinion were, of course, quite different, but with some subtle diplomacy in one case, and a couple of unfair and most expensive agreements in the other, I got away with it.

Tocumwal, my destination, is a place in the middle of nowhere on the border between Victoria and New South Wales, 350km north of Melbourne. The taxi driver who dropped me off must still be shaking his head at the thought that some fool could travel all the way from Italy to Tocumwal for two weeks. "It's only dirt and snakes, mate, only dirt and snakes." But, of course, taxis don't thermal, so I forgave him.

Half-killed by jet-lag, I had spent four hours on a bus from Melbourne preparing the best excuse to postpone my checkflight until the following day, but I had grossly underestimated the Aussie enthusiasm. Before I knew it, I was strapped in the front of a Blanik with none other than Ingo Renner in the back. My conscious half should have flown decently enough for Ingo to wave me off (but, he's incontestably a gentleman, I learned), and I was allocated an LS4 (8X) for two weeks.

The following morning, at 8.30am the first cumuli were popping out of a crystal-blue sky while we all were sitting in the briefing room listening to the day's met. With me sat some four-

teen or fifteen pilots from six different countries, among whom I was definitely the rookie, with a mere 200 hours and a Silver badge.

As I had never flown an LS4 before, I thought it wise to spend my first day becoming acquainted with the machine. Needless to say, I regretted my decision when, at dinner, my company could account for more than 1000km, apparently flown without too much effort (and there were only three of them).

Next morning I stepped into the briefing room with a determination which started to shatter as soon as I heard of the task Eddie (Sportavia's CFI) had for me: a 300km O/R ("...easy, very easy: Gold distance and Diamond goal in one flight") into the hardly populated north-east. Gosh, it meant a turning-point 150km from home!

The dreaded TP's name was the Rock, a village beside a small hill (the 'rock', indeed) in the middle of an otherwise empty plain. When I asked how I was supposed to find it, Eddie just stood in the middle of the field, pointed his finger to the north-east and said "...easy, very easy. Just fly 20km that way, and you'll see it". I felt cheated: 300km O/R with the TP in sight?

I was so concerned on tow about releasing in lift that when I hit the first true, strong bump, I pulled off *before* looking at the altimeter; I was at 1,100', at 10.45am, and had a long way to go.

It took some sweating and hard work, but I finally got away. Eddie had been right: unbelievably, I could see the Rock from more than 100km away. On the way back, under a wondrous sky of cumuli, I fell into shear wave. I didn't need the climb to 9,500', I was already on final glide, but I couldn't resist the temptation to surf my way home!

That evening, there was some celebrating at dinner: I had flown 300km, a Japanese and a German 500km each, and the pundits had been as far as 700km. It was still *Spring*!

I still don't know how I managed to fly a 320km triangle at 90kph on the Friday, but I know pretty well how I did 500km at 120kph two days later: I was in the back of a friend's Nimbus 3D, and he did most of the flying!



A Nimbus 3 above the plains of NSW.

With my self-confidence at full-strength, I dived into the second week, strongly determined to fly my own 500km, just to confirm that there are no certainties in gliding or, as Eddie puts it, "glider pilots always dream of yesterday or tomorrow".

My first 500km efforts ended on a short crop-dusting strip some 20km from Tocumwal. "Ya' ran out of wind, mate?" While I was waiting for Eddie to arrive in the tug I was treated to coffee and muffins, and listened to some scary stories; it is better to fly high, believe me! I parted company saying I hoped I didn't see them again. I wonder if they took it the right way...

The weather deteriorated towards the end of the second week, and flying involved dodging some spectacular thunderstorms. But I relentlessly declared 500km every morning, to the great amusement of Eddie and his gang. When one of my attempts lasted some 23minutes they called it "the fastest Italian 500km flight ever".

When the weather was ready, I wasn't, and when I was ready, well, the weather just didn't co-operate.

I may not have come back with a 500km, but I have a huge collection of declaration forms, barograph traces, TP photos, good memories and many new friends. I had an enormous amount of fun and I am sure I came back a better pilot.

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Club News

Material for the next *Club News* can be sent to the editor before the **10th February**. Email: le@blot.co.uk (preferred).
Post: PO Box 2039, PULBOROUGH, West Sussex RH20 2FN (disk or crystal-clear hardcopy). **Please do not fax Club News**

Aquila (Hinton-in-the-Hedges)

Hinton resounded to Scottish accents when Highland and Deeside Clubs visited us in July. Only one day was really good, but we flew every day and had great fun in the evenings.

Congratulations to Chris Nicholson who has flown solo, to Mike Roberts for getting his Silver badge in one flight, and to Simon Bates and Tim Wheeler for completing their Gold badges. Simon Kroner flew 300km, and he and Bob Johnson completed their Gold Badges with high flights at Aboyne.

Our AGM has moved from September to November; it was well-attended and gave the new committee a unanimous mandate to involve members (by force, if necessary!) in positive development of the club. Planning is well under way, so watch this space!

Mel Eastburn

Bannerdown (RAF Keevil)

Our Aboyne expedition brought us a lot of hours on the road, but few in the sky. Ironically, within a day of our return, some flew to 10,000' over Bath!

Another group visited Talgarth, unfortunately during the wettest week of the year. However, the Pawnee towed us through cascades of mud and, on three days, we flew in ridge-lift and wave to 12,000'. Ian Smith flew to Gold height. Mel Dawson and Simon Foster made a fast run of the whole ridge to the west of the Brecon Beacons.

We've had a busy autumn with students: Dick Van Eden and Nick Hyde flew solo and Keith McPhee completed his Silver badge. Bob Brain is now a Full-cat Instructor.

Our engineering members have built a two-drum winch to augment the Swiss TOST; the old Beaver has gone to Cyprus. We also have two new retrieve trucks and a replacement Discus CR (R55) has joined the club fleet.

Derek Findley

Bath, Wilts & N. Dorset (The Park)

This season we made the most of the soaring opportunities. Paul Mayle completed his first 300km, and Julian



Ian Skinner, Chris Bolton & Julian Anderson from the Vale of Clwyd, enjoying a winter picnic at Talgarth.

Reynolds, John Garland and Mike Jenks made their Silver distance flights. John and Mike now have their Silver badges. Congratulations also to Bob Bromwich on winning the Northern Regionals in his LS6 and to Mike Edwards who now has his Full Instructor Rating.

We were pleased to host a gathering of vintage glider enthusiasts who flew the Weihe and Oly 2b and enjoyed viewing Roger Slade's restoration project on the Grunau Baby.

A Safety Evening was hosted by our CFI to discuss topics of particular concern, including lookout and avoiding mid-air collisions. A large number of pilots came to hear talks on a range of topics and lively discussions were held on ways of reducing risks on the ground and in the air when flying from our hilltop site.

Our annual buffet and awards presentation was held in the clubhouse late in November. Trophies were awarded to: Ian McDougall; Eddie Gunner; Bob Hitchin; Alastair Macgregor.

We have welcomed a new crop of *ab initios* from Bath University Gliding Club. Work on refurbishing the club fleet continues on damp days but we are also making the most of the ridge lift and hoping for more good winter wave.

Diana Wright

Bidford (Bidford)

Congratulations are due to James Scott for flying solo shortly after his 16th birthday, and to Colin Hussell on the completion of his Gold badge.

Our refurbished K13 will soon be back on line after a superb recovering job by Martin (the knife) Stanley.

The Turbo Competition will be here again next year from 31st July - 8th August; for a relaxed, retrieve-free competition, fly in the only turbo-only comp. in the UK. We will also be hosting our Regional competition and the Junior Nationals in 1999.

J. W.

Black Mountains (Talgarth)

The Autumn wave has continued to give good flying with Adrian Thomas and Tony Burton both going to over 18,000'. Word must have got out because we were actually 'full to capacity' shortly afterwards and unable to accept any more pilots!

Our tug has been fitted with a new engine. Plans are underway to organise a club expedition to Spain after the successful trip to Cerdanya last Easter where we enjoyed good thermal and wave flying whilst most of Wales was under water! A number of club members are booked on the May BGA Soaring Course being held on site.

Mike Tomlinson

Booker (Wycombe Air Park)

Our biggest story this winter is that Dave Allison is claiming the UK 15m 300km triangle record at 153kph. The flight was in South Africa in mid November. ESC and Booker members are obviously enjoying the winter more in SA than in the UK - see p.20.

However, at Booker plans are being made for another series of cross-country lectures, to be followed in the Spring by training in the Duo as well as club single seaters. During the summer we



Dave Watt and his son, Peter, at Booker.

Buckminster (Saltby)

will be training, and holding cross-country briefings, during the week as well as at weekends. G Dale will frequently be in the back of the Duo, alternating with Club instructors including British Team Squad members.

Although our number of launches was down this year, there has been a marked increase in activity and enthusiasm since the start of the autumn. Next year's staff and course instructors are rumoured to be the youngest for at least ten years. We are also devising a plan to allow club instructors, as well as their pupils, to book their flying.

We are making plans for the 18m Nationals; we hope to improve ground facilities for competitors and their crews; this has been a point of criticism of recent major competitions at Booker. **Roger Neal**

Borders (Milfield Wooler)

The weather for our wave-flying weeks was not very exciting, but we still managed to enjoy some modest flights of 12,000' over Holy Island and the Farne Islands. Our visitors enjoyed the facilities and flying, in spite of the relatively poor conditions. Dennis Westgarth took the opportunity to complete his full-cat rating while Roy Gaunt was on site.

The Motor Falke is operational again, and several members have started to train for their SLMGPPL under the tuition of Colin Sword from the Northumbria Gliding club.

Membership has increased since we moved to the new site, and we are starting to attract more country members, taking advantage of our all-year soaring conditions. Soaring the snow-covered Cheviot hills is quite a spectacular experience.

Robert Cassidy

Bristol & Gloucestershire (Nympsfield)

Barry Walker, now a turbo-Discus owner, took over from James Metcalfe as chairman at the AGM after a break of seven years. Secretary Chris Osgood, re-elected, gave James a bottle to keep up his spirits. Members have been flying in wave; Chris Hughes reached 11,000'. Tony Pentelow wangled his way on to the Weather Show to get gliding a bit of publicity.

Bernard Smyth

Atrocious weather

failed to spoil the Portmoak expedition where 125 hours were flown by nine people in two weeks. Bill Morecraft flew to Diamond Height (23,500'). Laurence G reached 11,000', and Graham Kench 13,000'. There were four more flights to 9,000ft and two bronze legs.

Our Venture Motor Glider is now on-line and PPL SLMG training will be continuing throughout the winter.

Neil Rathbone

Cairngorm (Feshiebridge)

We continue to slave away at the interior of our new clubhouse and hangar. The wood burning stove was installed in late November, just as the night temperatures dropped to -12°C and the Cairngorm skiing opened.

We have also managed some flying, due mainly to the enthusiasm of our CFI, Trevor Wilson. Trevor worked hard for the club last year, maintaining momentum on the training front and making the most of a damp season. He also did lots of painting!

Congratulations are due to Ruth Binks for flying solo, John Whyte for completing his Bronze, Bob Forrest for reaching Gold height and Nick Norman for becoming Regional Examiner.

March and April can offer terrific flying at Feshie, with brilliant views over the snowy mountains. We have a tug on site. Visitors are always welcome. We'll be starting full time operation again in mid-March.

Places for Competition Enterprise (3rd-11th July) are almost full.

Ray Lambert

Cambridge (Gransden Lodge)

Following a splendid fireworks display, trophies were awarded to: Peter Baker, John Bridge (for a 764km flight), Len Newnham, Mike Young, Tim Atkinson, Neil Sigsworth, Fraser Hayden, Richard Baker, Andrew Warbrick, Debbie Thomas and Andrew Jude.

During his first winter as CFI, John Morris has been busy converting around twelve AEIs to Assistant Instructors.

After hosting the Nationals last year, our Regionals are back August 21-29th so get your entries in early. Again we will be offering a range of

courses during the summer to suit all levels of experience. Give our office a call on 01767-677077 for details.

Chilterns (RAF Halton)

Many thanks for everyone who helped to make our Longest Day a great success. Congratulations are due to Al Barton (new AEI), Phil Sturley (Gold distance), Jeremy Bangham and John Gobb (Silver duration flights) and Steve Sale (solo).

We are sad to report the death of Colin Worman after a long illness. He was a larger-than-life character with a steady fund of quips, and an inexhaustible supply of jokes. A favourite Instructor amongst the ATC cadets he taught, and all that flew with him.

Ian Pettman & Dave Sale

Cornish (Perranporth)

We have had a few glorious November flying days and our greatest height gain of the year; even December started well with a north-westerly ridge-soaring day. Visitors are welcome to fly with us on Wednesdays and weekends over the winter. With JAR regulations due to come in next summer there is increasing interest amongst club members in gaining Motor Falke qualifications.

Rumour has it that our airfield is about to be sold (it has been on the market for some time but it appears that contracts are now about to be exchanged). We have a few more years on our lease and will have to negotiate with the new owners beyond that time.

Shaunne Shaw



C of A time in the workshop for Cotswold's K8.

Cotswold (Aston Down)

First-solo pilots include Terry Hart, John Muir, Arthur Rosetti, David Hillier and Mike Watson.

With the onset of the winter water-logging at South Wales GC (Usk) a fair number of their members have, as

usual, moved to Aston Down until their field dries out. It's nice that clubs can co-operate in this way and helps swell the numbers on dreary winter Saturdays – perhaps other clubs should think about combining forces in the winter when enthusiasm may be at a low ebb and there may be barely enough folk to organise a launch!

Little by little, over the last few years, members at Cotswold GC have been exploring the winter wave conditions that can set up from the Welsh hills, even though they are quite distant. This autumn, one member reached around 12,000' – not bad from a site that is often only thought of as a thermal soaring base.

Bookings for next year's functions seem to be starting early this winter, with quite a lot of reservations having been already received for summer courses and the Cotswold Regionals.
Mike Shailes

Deeside (Aboyne)

Sue Heard and Fielding Turlington have recently flown solo. Aberdeen University Gliding Club has undergone a revival with Cordula Heinen, who already has a German gliding licence, also flying solo. Richard Holt has completed his Silver with a flight to Fraserburgh. John Tanner has flown 500km; we believe that John, aged 20, is the youngest person to have done this in Scotland.

After a variable start to our wave season, we finally had good flying weather with 75 flights above 15,000' during the last three weeks of October.
Ed Colver

Derby & Lincs (Camphill)

This summer's weather has not been much to write home about but autumn has seen a good amount of wave flying. However more action has been found after dark in recent months. Most notable was the 'Bier-fest', complete with steins of beer, oompa band and music from Steve Robertshaw plus friends.
Tamsyn Cook

Dukeries (Gamston)

Our year is now close to an end and although poor for tasks we have had a number of achievements rewarded at the annual dinner dance; presentations were made to Adele Swannack, Andrew McKenna, Dave Prosolek, Roy Lunn and Trevor Pond.

The visit to Portmoak in late October was the highlight of the year for Paul Etherington, who managed to complete his Gold badge and Diamond height. Lance Swannack flew to gold height in a K6 and James Swannack, who may have the record for the highest flying Downes syndrome sufferer, was flown to Gold height in the club Janus by his dad.
Dave Hall

Enstone Eagles (Enstone)

Although the weather was bad we saw some good achievements from our members. Mike Weston has completed his Gold badge as well as gaining a Diamond goal. Alan Jenkins, Hugh Gasgoyne and Peter Green have their Silver badges.

A number of members are taking private gliders to Dishforth over Christmas, and hope to come back with some height-gains. The Dimona aerotowing is going well with an aerotow-only day on the first Saturday of every month. We are holding a Regionals next year from the 21st - 30th August with Steve Nash directing.

Simon Tucker

Essex & Suffolk (Wormingford) Obituary – Bob Ivermee

It is with much regret we announce the sudden death of Bob at the club on 16th December, at the age of 66. He had flown during the morning, and was in the process of preparing himself for another flight.

Gliding was something he enjoyed so much, he had completed his Bronze badge and recently his cross-country endorsement, although he had been a member for only just over four years.

Paul Foulger

Fenland (RAF Marham)

The expedition to Portmoak was a success. Mike O'Brien (K6E) and Chrissy Thomson (who had converted to the Discus only a few days earlier, and had just 45 mins on type) both flew to Gold height.

Our Discus has now gone to the RAFGSA Centre and we are expecting an LS8 as a replacement in February. Congratulations to Martyn Baverstock on flying solo.

CFI Martyn Pike has been offered and accepted the post of CFI at Bicester. Del Ley takes Martyn's place.
AJ Padgett

Imperial College (Lasham)

We've had the most successful first term for a long time, with many new members. Flying started in early October, and we've flown on fourteen days out of a possible eighteen. On the best days, we've had about fifteen students flying Lasham gliders and our own. All our members are trying to fit in as much flying as possible; places have been booked on a BGA Soaring Course in August for the three pilots who make the most progress this academic year.

Nersebrak "Brakky" Zewde has flown solo again after a two-year break and, after waiting for the C of A to be finished, Andy Holmes and Rob Williams flew our ASW24 for the first time last weekend. Andy is also trying to convince the Students' Union to pay for him to go on an AEI course during the Spring.

Like most of the top universities in the country, we now have a Rebbeck; Luke has been chosen for the British Team in the Junior World Championships at Terlet, Holland next summer, along with ex-student Pete Masson. Ex-student Jane Lewis has also been selected for the British Womens Team. Well done guys!

We have big plans for this year, starting with a joint visit to the Mynd with a group from Lasham at Christmas for ridge, wave and cheap beer! As well as courses at Lasham during the Easter and Summer holidays, we also plan to enter our Grob 103 in the Lasham regionals, with our CFI Martin Judkins as P1, and various students as P2s. For the first time in a few years, we also hope to enter a team in the inter-university task week, and members are planning to enter various regionals and nationals and, of course, the Junior Championships.

Andy Holmes

Kent (Challock)

We have had some reasonable flying of late with a first solo flight by Simon Boyd in November. Four weeks earlier a number of us thermalled to over 3,500' in strong and reliable lift – not bad for the end of October!

The development plan formulated by our previous committee, and continued by the present, has resulted in a successful award of lottery funds. The money will go towards a new winch

Club News

and a building for winches and vehicles. The building will free valuable space in the hangar for the exclusive use of aircraft, including a new SZD Junior, which is expected to be delivered shortly.

We were delighted that the BGA Chairman Dick Dixon, and his wife Mary, were able to join us as guests of honour at our annual dinner in October. **Caroline Whitbread**

Kestrel (RAF Odiham)

Although AWOL from these pages for a while we continue to operate most weekends alongside the DRA club with the trade-offs of a joint operation (they let us make coffee on their bus and we let them use our winch)

Despite the wondrous display of precipitation incidence angles a successful course was run at Upavon this year with the help of the Wyvern club.

Congratulations go to Marc Morley now CFI (at short notice), and Chris Wick on passing their full-cat ratings.

Dick Milton has finished his Silver badge, and Rob Martin flew 50km. Peter Allan flew solo after starting gliding in the 1960s and Peter Appleford re-soloed after a twenty year break; this is no reflection on our instructors.

Lee Bligh, a para-gliding instructor and inter-service champion has come in from the cold and is sampling the delights of 'indoor' gliding. We were represented in the inter-services by Kevin Berry in the club Discus who made sure no one got left behind.

Several projects are in progress including a K13 refurbishment, new porta-cabin workshops, spare winch re-animation and Bessonneau hangar (like a big tent) maintenance. We are grateful to the Rubb Buildings com-

pany for helping us to keep one its last examples operational. Some

of the timber work has been 'eyeball' dated to 1918 and we are convinced it has seen service in at least one world war.

Simon Boyden

Lakes (Walney Airfield)

Our annual dinner/prize giving was reasonably well attended and as much fun as ever. Trophies went to: Neil Braithwaite and Roger Copley; Graham Welch; Linda Dawson; Peter Lewis; Alan Dennis; Roger Copley; Gordon Furness; Peter Redshaw and Gordon Furness; Keith Butterfield and Keith Whitworth; John Martindale.

Congratulations are due to Lyn Martindale who reached gold height on a trip to Aboyne, and to Linda Dawson and Phil Storer have now both completed their bronze badges.

Alan Dennis

Lasham (Lasham)

Cross-country pilots flying to Lasham should be made aware that the Lasham Navigation Aid, the white golf-ball radar dome, has been dismantled. The conspicuous radar domes at Oakhanger are still in place.

Our catering manager, Mike Evans, landed-out while flying from Ontur, Spain, with the European Soaring Club. Over the portico of the nearest building was the sign "FINCA DE LAS ENCEBRAS". He had landed in a zebra farm. Mike is now considering painting his Discus in black and white stripes.

Congratulations to Wally Kahn for his entertaining book, on the history of gliding at Lasham and elsewhere, *A Glider Pilot Bold*.

Tony Segal

London (Dunstable)

Bill Craig will remain CFI for the time being; it is the first time for many years that we have had a member CFI. Bill has started a vigorous instructor training programme with new Full-cat, Assistant-cat, and AE instructors now being coached for Spring courses.

Our annual dinner and prize giving was a success in November with over 70 attendees and a long list of excellent achievements despite a poor summer. On a sadder note both Graham Smith and Ted Coles have been involved in separate accidents abroad. Graham was uninjured in a sadly fatal collision, but Ted has suffered back injuries.

Phil Warner

Midland (Long Mynd)

We had two months in which the term 'permanent waving' took on a whole new meaning. November was the best month for seven years when it came to hours flown per launch, and visitors were in wave every weekend.

October was as good with trial lessons at 10,000' and some club members at 15,000'. David Croyson and George Ansell flew Gold heights and Richard Langford his Silver. Richard also got the flight/fright/ride of a lifetime when he rashly invited an off-duty John Stuart to fly with him in a lenticular-laced sky. Five hours later the K13 was back via the Aberdovey estuary and Cader Idris, an impressive penetration of the Welsh wave system in such a glider. Keith Laidlaw also flew 'to the coast' but some suggested he was unwise to turn back so soon.

Roland Bailey

Needwood Forest (Cross Hayes) (née Marchington)

We moved at the end of November to our new site at Cross Hayes,

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Gransden Regionals

August 21st–29th 1999
Entry forms from the Club on
01767 677077 or
Peter Baker 01954 211412

changed our name (from Marchington) and have started the conversion training from aerotow to winch launching. Members received full briefings by the new DCFI, A.Roberts, before we left, in the comfort of our old portacabin.

As we have little winch launching currency among our pilots there is a considerable amount of training to complete; as you can expect safety is the prime consideration in anything undertaken on the site.

Unfortunately we were unsuccessful in our application to the lottery for funding the clubhouse.

As always we fly at weekends and on Wednesdays and visitors by road or sailplane are welcome.

Ian Robson

Nene Valley (RAF Upwood)

Work continues on the clubhouse and water and electricity should be connected soon. The hangar doors and supports are now being built. We're all looking forward to when the doors are completed as it'll mean no more rigging/derigging of the club gliders.

At the AGM, held in November, Chris Hill stood down as Chairman. Chris has done much hard work behind the scenes to ensure that the club's transition to the new site was achieved with least impact on the club's gliding activities.

Peter Blacker is our new Chairman. Graham Woodward took over from Gary Nuttall as Publicity Officer. Brian Cracknell has taken on the position of Aircraft Member.

The committee report for the year focused on the fact that the club has managed to break even, despite significant increases in costs. The members agreed to nominal increases to membership and launch fees. The club's Christmas Dinner will be held, as is becoming the tradition, in February. Gary Nuttall

Newark and Notts (Winthorpe)

The last six months have seen a considerable number of changes at the club. Roland Carver has taken over from Mike Davies as chairman. Roger Starling, who made considerable contributions on improving safety standards, has retired as CFI, handing over to his deputy John Maddison.

Two K13s have been bought, to replace our old K7s, with the aid of a grant from the National Lottery. The K13s were particularly useful in August when they were used to fly 250 Scouts and Guides. It was hard work for club members, but the satisfaction gained from introducing young people to the sport of gliding and seeing them enjoying flying was worth all the effort.

Congratulations are due to Pat Lowden for completing his Silver badge; Daren Broom and Hilary Curtis for finishing their Bronze badges; Daren for completing his cross-country diploma; David Alvey, David Kassube and Barry Patterson for obtaining their AEI ratings; and Keith Wood and John Butler for flying solo.

Barry Patterson

Obituary - Dennis Snowden

One of the founder members of our club, Dennis Snowden, died in December after a short illness. As an Instructor he taught many of our members to fly gliders and, with his relaxed approach and dry humour, put even the most nervous *ab initio* at ease. Many a time sitting in the rear seat of the glider watching his pupil stray from the airfield he would ask quietly "Do you think you can get back from here?"

Dennis was also a member of Trent Valley and Cairngorm Gliding Clubs and between running his electrical business he enjoyed giving as much to our sport as he derived himself.

John Maddison

Norfolk (Tibenham)

We have at last taken delivery of our smart new Robin after weeks of seemingly endless paperwork, and are seeking to purchase a second one in time for next summer.

Meanwhile our tug pilots are enthusiastically converting to the new type. Enjoyable expeditions have been made to Milfield and Feshiebridge, where John Herring reached Gold height.

Club News

Neville Harrison, 71 years old, has completed his Silver Badge with a duration flight in August.

Bonnie Wade

North Wales (Bryn Gwyn Bach)

With the summer, autumn and early winter weather shaping up to be every bit as poor as last year, our best height so far this season has been limited to 12,000'. However, there has been reasonable local flying and we were all cheered up by Dave and Lynda Stephenson's bonfire-night barbecue.

Dave Compton

Oxford

(RAF Weston on the Green)

As the soaring season has finished, we thought we'd have an AGM to find out what really happened this year. Naturally, distances and hours flown were fewer than last year, though the number of launches was pretty much the same. Steve Evans chaired the meeting and decided that after three years of stalwart service as Chairman, he'd like to go and have a quiet sit-down in a darkened room somewhere; Pete Brookes was unanimously elected to fill Steve's shoes, as they're about the same size.

With the awards of the trophies by CFI Cris Emson, heroes of the year turned out to be Martin Hastings, who as deputy CFI was always there giving strong support, and Howard Stone for not only getting to the top of the club ladder, but (given an attractive companion in the shape of Carol Sheperd) also having the best flight of the year in a club glider. Jack Miller got the trophy for best flight for his 300km, Maz Makari lit up a dozen Silk Cut and whooshed up to 8,500ft for the Deep Breath Trophy (the glider only got to 8,000ft) and Steve McCurdy said goodbye to his bottom for an afternoon to take the trophy for the first five-hour flight in a club glider.

For zeroes of the year, a pocket fire extinguisher went to Nick Brookes for his display of level headed thinking when the winch caught fire - he ran as far away as possible. A crowbar to Howard Stone for landing out in a field with a very locked gate, a pair of brownish trousers to Martin Hastings for being a good lightning conductor, a bent K8 tube to Norman Hedge for



Derek Eastell, his grandson Martin Poppenberg, and Paul Marriott who sent Martin solo at Southdown.

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missing the airfield by 3' and "The Flying Brick" went to Pete Brookes for his outstanding competition flying, though finishing before starting is a concept yet to be accepted as competitive amongst the majority of pilots. Brian Green and Steve Trusler have flown solo.
Steve McCurdy

Portsmouth Naval (Lee on Solent)

A record number of launches (approx. 9,000 total flights) for 1998. Recent achievements include Graham Tucker (300km); Tom Edwards, Dave Tanner and Ray Timlett (new A&Es); Lee Allinson (first solo flight); Ailsa Cooper, Chris Penniford, Dave Ingledew and Jim Clarke (Bronze badges).

Our expedition to Aboyne had eight good flying days and fourteen flights over 10,000'. Julian Oswald, John Bradbury and Richard Noyce reached Diamond height; Cat Stevens and Jim Tucker reached Gold height.

We have added another K13 to our fleet. Our airfield lease has been extended for another year. To anybody with past connections with our club, we would be pleased to hear from you, so you can join us in celebrating our 50th birthday at the end of May.
Yvonne Watts

Scottish Gliding Centre (Portmoak)

Good autumn/winter soaring weather has brought a late flurry of notable flights. Congratulations go to John Williams on completing his third Diamond with a 500km flight from Portmoak. The intrepid Chris Robinson made his Diamond goal and height flights in the club Junior. Steve Nutley, Adi Von-Gontard, Ken Moffat, George Ross and Roddy Ferguson have also completed their Silver badges.

New aircraft have joined the private fleet, including a Std Jantar and a DG-202. Don't forget to book your 1999 wave visits; you can be launched all day everyday!
Gavin Goudie

Shalbourne (Rivar Hill)

Latest achievements include: Jerry Pack and Dave Draper (Silver badge); Dave Draper (Gold distance);

Michael Edmonds (Diamond goal).

Despite both our intermediate and novice pilots winning on the last Inter-club day at Mendip, we missed winning the competition by just one point. However, this is a vast improvement on our success in previous years.

In August we arranged flying days for groups of youngsters from the Newbury Splash group, a local community initiative aimed at getting kids off the streets and involved in activities during the summer holidays. Although they were a bit of a handful it provided some useful publicity for the club.

In October a group of us went to Aboyne to wave-soar and, although there were no great achievements, (apart from Geoff Purcell hitching a ride with Ralph Jones in a Nimbus 3DT) it was a good outing.

Plans to enter a long-term lease with our landlord are still under negotiation, and it may be summer before we finalise matters and seek the much needed lottery funding to improve the Club's facilities.

We will be running an 'Enterprise' style task-week this year, starting on Saturday August 14th. In the best Shalbourne tradition all visiting pilots will be made very welcome, contact Liz Bertoya on ebertoya@iee.org or 01794 301011 for details.

Finally, Liz Bertoya is getting married! It all started when she and then pupil Alan Sparrow got into a tangle in the Ka7 and ground looped it following a low level launch failure. I understand Alan proposed to Liz on the day she managed to bend her Astir; we are wondering what is going to happen at their wedding!

Clive Harder

Obituary - John Dabill

John Dabill died from cancer on October 14th, he was 70-years-old. Although in the last few years John had given up active gliding in favour of aero-modelling, he had only recently flown solo again this summer at Shalbourne, where he was a life member.

John started gliding in the mid 1950s with The Wessex Gliding Club, at RAF Andover. He learnt to fly in a



*John Dabill
1927 - 1997*

T31 and a T21 and, after flying solo in a Tutor, progressed to the 'hotter-ship', a Grunau Baby.

In 1962 the Wessex Gliding Club folded and John joined the newly formed Southern Command Gliding Club, an Army club which operated at Netheravon Airfield. He was to stay for seventeen years, moving with them to Watchfield, and then to RAF Upavon, where it became the South West District Gliding Club. He served, for periods of time, as CFI at all three airfields.

In 1979 John, with some fellow members from Upavon, founded the Shalbourne Soaring Society at Rivar Hill. The first flight was on 12th May 1979, the same day that Andy Gough delivered the Club's first glider, a Ka7, from Bicester. John was to remain as CFI until 1987 when he left to join Dorset GC, finally finishing regular gliding when Old Sarum closed in 1992.

He owned various gliders including most recently a Mini-Nimbus and before that a Libelle in which he completed his Diamond goal.

John may not have been a famous competition pilot but, in his own way, he contributed a tremendous amount to gliding; he was an exceptional soaring pilot and was able to pass on his gliding skills and enthusiasm for flying to his pupils.

Ken Porter & Julia Reid

Shenington (Shenington)

Vince Howson and Pauline Reifenscheld have flown solo, Barry Ellis has completed his cross-country endorsement and Stuart Meier reached Diamond height at the Feshiebridge wave camp. John Vella Grech and Gary Brightman are now Ass-cat. Instructors. 'Red' Staley is now a Full Cat.

We have just bought a number of new parachutes, and are planning to buy a glass single seater for club use in the Spring. Our motorglider is currently having its fabric replaced, but will be back on line around Christmas.

Our Annual Dinner & Dance will be held on February 5th if any of our local friends would like to attend. Otherwise the usual seasonal parties, evening lectures and occasional ridge days are keeping us occupied during the short winter days.

In spite of poor weather, and probably largely because of our busy courses, we have managed to exceed last years launches with a total of 10,933 this year! Thanks are due to our

midweek team of Rowan Griffin, Gordon Burkert and Lu Kennington who helped make this possible. We're already taking bookings for next year, and are also looking to recruit extra staff for next summer. Midweek flying continues whenever the weather allows, so if you'd like to pop in mid-week, please call the office for details – we welcome visitors. Otherwise keep up with the news on our website: <http://freespace.virgin.net/fisher.m/sgc>
Tessa Whiting

Southdown (Parham)

Northerly winds have already been blowing across the South Downs this winter, providing many cross-country opportunities. Patrons of the Devil's Dyke Hotel have been treated to a steady stream of gliders heading to Lewes and beyond.

Chris Offen and Mike Holmes have completed their Bronze badges, Ian Stanley his Silver, and Phil Kirk the Gold. Private expeditions to Aboyne and Portmoak coincided with the brief wave-season this autumn and, despite some tricky conditions, pilots at both sites climbed over 10,000'.

Peter Holloway

Staffordshire (Seighford)

The annual Milfield trip this year was the best so far, in terms of weather conditions and flyable days. Dave Gill and Peter Lowe flew to heights in excess of 16,000' and Andy Oultram found wave in John May's Discus. Everyone enjoyed the trip and they pass on their thanks to all at Milfield for the customary hospitality.

We have held a bonfire night and barbecue and, as I write, we are three days away from the Club Christmas Party and annual Prize-giving.

Congratulations are due to Shaun (Guitar Man) Longden who has made

his first solo flight. Paul Cooper, having flown his Silver duration in August, has now made his 50km flight too.

In the last Club News I mentioned that Glyn Yates can fly the right way up when he wants to; just to make a point he has been back to Syerston and is now cleared to fly inverted.

Norman Ellison, in Washington State, has sent the following news: Our member abroad, Louise O'Grady, whilst flying with the Boeing Employees Soaring Club at Ephrata, Washington State, has flown her Silver distance, height and duration flights, but her barograph didn't work! However, at the annual awards banquet of the Seattle Glider Council in November, she was awarded the trophy for 'Student Pilot' for making the most progress during the flying season. Louise is now back in the UK.

And finally, as promised in the last edition, more Lara News; Yep! She's done it again: five hours for Silver duration at Millfield.

Chris Jones

Stratford on Avon (Snitterfield)

There was lively discussion about future plans for our winches, workshop and hangar extension at our AGM in October. Dave Benton has retired as CFL, and was awarded honorary life membership. He has been succeeded by Peter Fanshawe.

Other awards went to; Tony Murphy; Mark Pedwell; Mike Coffee; Martyn Davies and Peter Kenealy. Geoff Butler (Chairman) paid tribute to all the instructors, winch drivers and supporting ground crew who assisted with courses and trial-lesson evenings so successfully flown in spite of the abysmal summer.

Harry Williams

Club News

Surrey & Hants (Lasham)

Tim Charlesworth and Terry Flatt have completed their Bronze badges and John Foster has his Silver. Richard Abbott and Rick Bastin flew to Gold height in October during Lasham's expedition to Aboyne.
Rick Bastin

Trent Valley (Kirton Lindsey)

Not the greatest soaring season, but several of our gallant aviators achieved notable cross-country flights: John Williams (500km); Steve Wilkinson and Colin Metcalfe (300k). Colin subsequently vowed to fly his next 300km with the barograph turned on. Jeannette Kitchen flew her Ka6CR around a 100km task and Roger Smalley managed over 70km in his competition-prepared Swallow.

Many members attended the Wolds Two Seater Comp. The Portmoak expedition was dogged by poor weather but the local ale-houses did a roaring trade.

Tony Smith, our long suffering air-tec man, is re-covering one of our K13s and the whole club is waiting with bated breath for news of our lottery application.

John Kitchen

Ulster (Bellarena)

By early December it seemed we would end 1998 with 300 fewer launches than in 1997, after what had been, meteorologically, an eminently forgettable and very sunless year.

The general shortage of cross-country opportunities as a distraction, however, encouraged good works on the site. The latest project was fitting plastic-coated profiled steel cladding to the 60x25' workshop we erected in the summer. The main doors were to be enlarged to accept a de-rigged Super Cub or big trailers.

Meanwhile, our recently acquired second tug, a Robin DR 300 is giving great satisfaction while a salvaged Rover 213 has joined our Landrover for on-field retrievals.

Jim Lamb visited Zimbabwe, only to be disappointed at the Warren Hills club near the capital, Harare, to find two of its gliders written off and the third unserviceable. Our latest solo pilot is Mike McSorley.

Bob Rodwell

Enstone Regionals

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Club News

Vale of Clwyd

We have applied for outline planning permission from the local council and await their decision. As an alternative, should it be needed, we are still pursuing a site at the southern end of the Vale of Clwyd close to the Llantisilio Mountains.

Meanwhile club members are flying at other clubs and we thank those that have offered us reciprocal membership.

Chris Bolton is completing his PPL at Cernarvon Flying Club and Ian Skinner is going to the Oxford Flying School in January to do his CPL. We wish him luck, but wonder how they can allow seven-year-olds to train as airline pilots! We're hoping to have made progress with a new site by the next S&G. Gill Pennant

Vale of White Horse (Sandhill Farm)

Gordon Walker has been succeeded by Frank Davies as CFI. So far our winter flying has been much better than we had feared, after such an awful summer. This has given the opportunity for a number of people to make significant progress in their flying, and Derek Robinson has now flown solo.

We trust that 1999 will be a better year than 1998 in terms of soaring conditions, and we should like to extend a warm welcome to all visitors, whether existing friends of ours, or those who have not previously flown from or into our site.

Graham Turner

Vectis (Bembridge)

After the miserable summer we have had a higher number of flying days than normal in October and November. These have included some days with the rare fresh southerly winds which make the nearby 400' Culver Cliff soarable and also the 800' St Boniface Down which is eight miles upwind.

The Blanik did some good flights and Phil Kirby did a two hour flight on Culver in the K8 for his second Bronze leg, while the hotter ships relieved the local congestion by going to St Boni-

face. Peter Seago has flown solo, and plans are going ahead to buy

a second two-seater, for club training, early next year.

At the annual dinner, awards were made to Peter Freelove (logkeeper extraordinary), Ken Box, Malcolm Huddart, Paul Bateman, Alasdair Maclean, Peter Tuppen and Jenny Stewart.

John Kenny



York CFI, Mike Cohler, listening to the tug pilot, before taking a hidden P2 on the first flight of the autumn instrument flying course.

Welland (Lyveden)

Congratulations are due to Nigel Perry, who stayed a day longer at Aboyne and flew to Diamond height. Our new clubhouse is almost finished, thanks to the sterling efforts of Dave, Glyn, Mick and Robert, ably assisted by others. The official opening is scheduled for early spring.

Dick Short

Wolds (Pocklington)

We have had a busy few months with expeditions to Aboyne (three Gold heights and lots of fun) and Borders (lots of fun only).

BP are to build a pipeline across the airfield next autumn which will lead to our closure for a few weeks, but the major compensation is that our E-W runway will be completely relaid. We are wondering if anyone wants to lay another pipeline under our N-S runway...?

We have held our annual dinner dance and a bonfire night, both of which were extremely successful. Two Seater Comp. 1999 is now almost fully subscribed, so if anyone else is interested please contact us a.s.a.p.

Simon Parker

Obituary - Bob Walker

It is with enormous sadness that

we record the death of Bob Walker after a long illness. Bob was a real gentleman, always ready to help rig a glider and drive a tractor. He started gliding late in life, after a career in Naval architecture.

He crammed in several courses and went on to fly his DG300 with great pleasure. His calm, confident and happy demeanour will be missed for a long time.

Simon Parker

York (Rufforth)

After eight years as CFI, Andy Todd has stood down, to be replaced by Mike Cohler. Andy will continue to be an active instructor and motor glider examiner at the club, as well as tugmaster.

With a healthy increase in the number of *ab initio* members there is more training taking place, and hopefully this will bear fruit in a new batch of soaring pilots this summer.

Russell Hardcastle and Dave Wakefield have brought

a DG 200 to add to the fleet of private syndicate machines, so they are looking forward to longer cross-country flights this season.

The BGA DG500 has again been at the club over the winter, and has been well utilised on every flyable day. Early in the winter it was given a nice run to Sutton Bank in northerly wave from the Moors to 6,800'.

Mike Cohler

Yorkshire (Sutton Bank)

The autumn flying season has seen a welcome return of visitors taking up winter membership to take advantage of our ridge and wave soaring. Climbs to over 10,000' have been recorded, with some wave cross-country flights.

At the dinner dance, trophies were awarded to Andy Wright for a height gain of 24,200', Derek Taylor for a flight of 478km and John Ellis for the fastest 300km. Rob Cauldwell, a young aspiring pilot from Durham University, won an award for the longest silver distance of 270km!

Congratulations are due to David Easby, Jon Trueman and John Hudson for flying solo.

David Ashby



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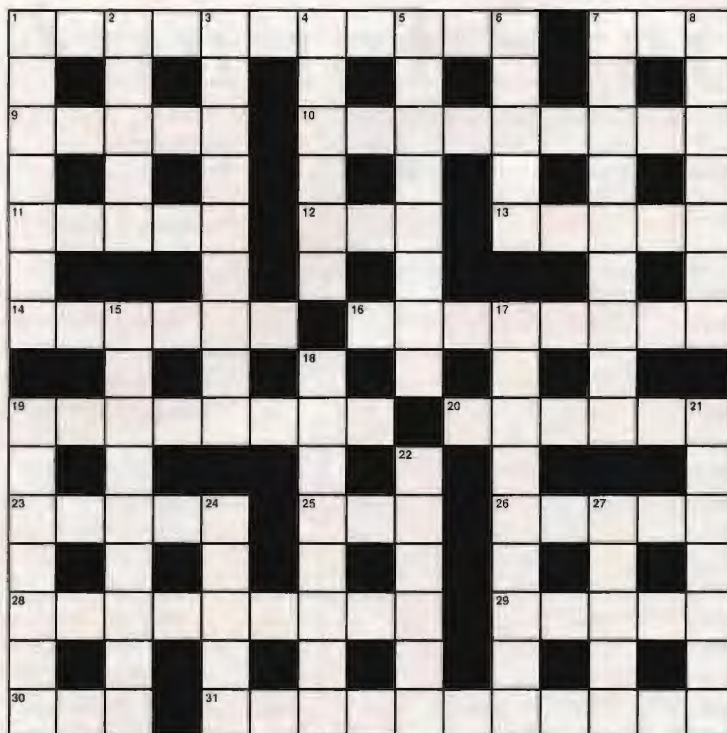
Midland Regionals July 3rd-11th 1999

Annual Statistics

OCTOBER 1, 1997 TO
SEPTEMBER 30, 1998

Gliding Clubs	Aircraft				All Launches	No. of Aerotows	Hours Flown	Kms Flown	Membership		
	Club 2s	Club 1s	PC	Tugs					Full Flying	Estimated No. of Temporary Members	No. of Female Members
Angus Gliding Club	3	1	1	0	1 560	0	223	130	45	81	3
Aquila Gliding club	2	3	26	2	2 047	1 859	1 134	11 030	73	202	1
Bath Wilts & North Dorset Gliding Club	1	4		1	3 414	630	1 527	20 000	115	227	8
Bidford Gliding Centre	3	3	40	2	3 357	3 357	3 100		133	506	3
Black Mountains Gliding Club	3	1	22	1	1 556	1 556	2 676	15 600	64	165	5
Booker Gliding Club	7	9	80	5	8 406	8 406	5 869		269	1 586	27
Borders Gliding Club	1	1	25	2	1 705	1 601	1 300	1 000	71	215	1
Bowland Forest Gliding Club	2	3	31	0	3 410	0	1 367		120	146	8
Bristol & Gloucestershire Gliding Club	1	5	58	2	6 908	1 687	3 755	90 000	215	880	19
Buckminster Gliding Club	3	2	19	2	2 283	1 805	1 260	5 300	72	257	7
Burn Gliding Club	1	4	25	1	6 098	1 612	1 398	7 300	122	516	5
Cairngorm Gliding Club	1	0	11	0	1 200	250	0	0	35	98	2
Cambridge Gliding Club	5	5	75	2	9 310	1 861	3 000	100 000	219	859	23
Carlton Moor Gliding Club	1	1	2	0	696	0	155		11	6	1
Channel Gliding Club	4	1	3	0	3 926	0	127		33	357	4
Connel Gliding Club	3	0	7	0	409	0	123	1 560	14	113	0
Cornish Gliding Club	2	2	8	1	2 229	1 815	759	1 250	56	475	2
Cotswold Gliding Club	3	5	43	0	9 486	369	2 935	25 200	198	907	12
Dartmoor Gliding Society	3	2	12	0	3 587	0	702		65	550	6
Deeside Gliding Club	2	3	19	3	1 180	1 180	1 300		138	445	17
Derby & Lanes Gliding Club	1	3	37	0	6 529	0	3 093	5 001	167	1 124	18
Devon & Somerset Gliding Club	5	2	41	1	7 977	1 111	3 318	18 200	183	812	11
Dorset Gliding Club	2	3	7	1	2 798	681	616		11	315	3
DRA Farnborough Gliding Club	2	2	6	1	683	561	361		31	27	2
Dukeries Gliding Club	3	2	13	0	3 219	1	559	1 000	58	275	4
Dumfries & District Gliding Club	1	1	3	0	317	0	145	600	17	14	1
East Sussex Gliding Club	6	4	17	1	1 948	389	1 357	3 900	118	971	5
Eastone Eagles Gliding Club	2	1	6	0	1 470	51	517	2 500	31	183	2
Essex & Suffolk Gliding Club	3	3	26	0	6 562		1 923	14 325	96	349	6
Essex Gliding Club	3	1	22	1	2 299	888	862	6 500	93	138	2
Glyndwr Soaring Club			5		50		120		7		
Herefordshire Gliding Club	1	1	8	1	685	685	510		23	75	1
Highland Gliding Club	2	1	11	0	1 797	123	556	1 600	51	93	12
Imperial College Gliding Club	1	2	0	0	1 000	400	500	9 000	25	100	5
Kent Gliding Club	4	3	26	1	5 073	1 687			170	703	22
Lakes Gliding Club	3	3	8	1	983	930	615	1 660	40	85	1
Lasham Gliding Society	12		171	5	25 718	9 992	8 944	285 283	471	2 728	71
Lincolnshire Gliding Club	2	1	8	0	2 971	0	129	832	62	106	8
London Gliding Club	8	4	98	4	18 762	6 282	6 772	50 229	320	3 461	26
Marchington Gliding Club	3	1	12	1	1 514	1 511	770		73	213	4
Mendip Gliding Club	3	1	11	0	2 654	38	631	2 976	79	450	3
Midland Gliding Club	4	4	14	1	9 680	404	4 177		172	671	11
Nene Valley Gliding Club	2	2	10	0	3 557	18	802	3 366	19	271	6
Newark & Notts Gliding Club	4	3		0	4 177		675		73	550	9
Norfolk Gliding Club	3	3	35	2	4 170	2 592	1 822	42 600	144	509	11
North Devon Gliding Club	1	0	8	1	223	223	150	350	11	36	
North Wales Gliding Club	3	3	6	0	1 184	0	241		48	80	0
Northumbria Gliding Club	2	2	16	1	2 888	709	916	2 500	61	273	3
Oxford Gliding Club	4	3	18	0	3 782	0	1 110	7 800	108	505	14
Oxfordshire Sportsflying Club	0	0	1	0	0	0	1 200	13 500	40	22	2
Peterborough & Spalding Gliding Club	3	3	20	2	2 008	2 008	1 259	6 000	72	270	5
RAE Bedford	1	0	3	0	13	13			12	0	0
Rattlesden Gliding Club	4	2	20	1	3 138	484	1 024	6 700	73	342	11

Gliding Clubs	Aircraft				All Launches	No. of Aerotows	Hours Flown	Kms Flown	Membership		
	Club 2s	Club 1s	PO	Tugs					Full Flying	Estimated No. of Temporary Members	No. of Female Members
Sackville Gliding Club	2	2	10	1	700	300	450	1 000	27		
Scottish Gliding Union	4	3	46	1	10 343	1 600	5 200		216	730	9
Shalbourne Soaring Society	3	3	31	0	5 300	0	1 555	7 500	108	650	11
Shenington Gliding Club	3	3	33	1	10 933	716	2 318	15 700	142	380	18
Shropshire Soaring Group	0	0	13	1	398	398	720		26	0	1
South Wales Gliding Club	2	3	19	1	3 347	346	1 572		91	905	7
Southdown Gliding Club	3	3	44	3	6 268	4 818	3 744	36 000	216	758	16
Spilsby Soaring Trust	5	3			800		150	220	47	200	27
Staffordshire Gliding Club	4	2	20	0	4 718	32	857	2 630	142	320	15
Stratford On Avon Gliding Club	4	3	23	0	7 861	0	2 104	14 418	131	746	12
Strathclyde Gliding Club	1	2	6	1	477	126	83	0	20	43	1
Surrey & Hants Gliding Club	0	10		0	1 941	494	1 005		161	145	
Surrey Hills Gliding Club	4	2	2	0	5 454	0	781		61	364	3
The Motor Glider Centre	0	0		0			721	3 000	21	20	5
The Soaring Centre	5	7	92	4	12 899	7 338	7 047		309	1 225	22
Trent Valley Gliding Club	3	3	18	1	4 399	674	1 355	6 300	75	230	7
Ulster Gliding Club	2	1	16	2	1 790	1 790	1 244	1 000	55	220	1
Upward Bound Trust Gliding Club	2	1	5	0	2 484	0	408		25	30	4
Vale of Neath Gliding Club	2	1	5	1	459	268	190		25	17	1
Vale of White Horse Gliding Club	2	2	12	1	1 921	495	462	10 150	53	187	4
Vectis Gliding Club	1	1	5	1	664	664	275		32	74	3
Welland Gliding Club	4	3	14	1	3 671	246	722		65	296	6
Wolds Gliding Club	4	3	29	1	10 249	1 270	2 775	17 000	215	1 073	19
York Gliding Centre	5	3	24	2	4 053	2 723	1 703	5 000	163	943	20
Yorkshire Gliding Club	3	5	40	3	7 228	4 709	3 090	26 684	262	719	5
CIVILIAN CLUB TOTAL	232	188	1 740	76	317 283	91 829	122 548	922 694	7 778	34 653	662
Anglia Gliding Club	3	3	1	0	2 379	42	549	4 177	41		
Bannerdown Gliding Club	3	2	4	2	4 573	349	1 452		60	150	5
Eagle Gliding Club											
Chilterns Gliding Club	3	4	10	0	7 847	45	2 428	14 292	110	140	14
Cleavelands Gliding Club	2	4	11	2	4 882	2 059	2 028	24 241	80	330	9
Cranwell Gliding Club	3	4	12	1	5 122	643	1 440	4 463	72	250	11
Crusaders Gliding Club	3	1	0	0	3 178		372		39	830	4
Fenland Gliding Club	2	3	7	0	2 850	152	952	11 469	43	55	3
Four Counties Gliding Club	3	4	16	1	7 567	611	2 929	42 430	92	150	6
Fulmar Gliding Club	2	1	1	1	751	485	282	310	43	25	12
Heron Gliding Club	2	2	5	0	1 580	13	414		65		2
Kestrel Gliding Club	2	3	3	0	950	51	278	1 150	28	103	2
Phoenix Gliding Club	2	4	4	0	2 333	0	481	9 900	66	100	12
Portsmouth Naval Gliding Club	6	6	9	3	9 440	1 744	1 970	3 000	300	200	15
RAF GSA Centre Bicester	6	4	13	3	14 500	5 500	6 500	12 000	150		8
Seahawk Gliding Club	3	3			1 700	32	320	100	50	103	10
Two Rivers Gliding Club	2	4	2	0	1 372	0	454	3 535	19	114	1
Wrekin Gliding Club	2	3	5	1	3 352	582	1 221	2 800	58	144	12
Wyvern Gliding Club	2	4	7	1	4 794	25	1 169	12 506	59	153	6
SERVICE CLUB TOTAL	51	59	110	15	79 170	12 333	25 239	146 373	1 375	2 847	132
CIVILIAN CLUB TOTAL	232	188	1 740	76	317 283	91 829	122 548	922 694	7 778	34 653	662
GRAND TOTAL	283	247	1 850	91	396 453	104 162	147 787	1 069 067	9 153	37 500	794



Send your completed crosswords (or a photocopy of the completed crossword) to: The Editor, S&G, Blot Publishing, PO Box 2039, PULBOROUGH, West Sussex, RH20 2FN by the 20th February 1999. The winner will receive a £20 book token

Name

Address

ACROSS

- 1 At the front Boh precedes fashionable golf margin. (7,4)
- 2 Organisation of gliding bag. (3)
- 9 Untaxed king takes limitless loss (5)
- 10 A prancing reel falls over boundary of short duration (9)
- 11 Instrument to listen to heart, perhaps (5)
- 12 Miserable during the winter months (3)
- 13 Trace, one way or another (5)
- 14 I get into twisted ASK with queen to find old German leader (6)
- 16 Explorer seen in small journal with girl (8)
- 19 Sounds like ring chosen with kindly Ed not present (8)
- 20 Meal stretched out (6)
- 23 Angry thorn at zero degrees. (5)
- 25 Empty tube. (3)
- 26 Award for radio telephony. (5)
- 28 Hat, Hillary loses head in small tube. (9)
- 29 British not needed to take offence, just laced about. (5)
- 30 Wrecked car in bend. (3)
- 31 Night train for resting jaguar, perhaps. (8,3)

DOWN

- 1 Record reserve in record of reservations, perhaps. (7)
- 2 A tailless mongrel with others. (5)
- 3 Fashionable evil to wax hollow. (9)
- 4 Sounds like Mediterranean country needs lubrication. (6)
- 5 Call without collection gives different angle. (8)
- 6 Dash over French sea for a type of wheat. (5)
- 7 Flab consuming Greek, freaked out in glider. (9)
- 8 An oiler representing Turner. (7)
- 15 Cool spirit leaves learner the same. (9)
- 17 Former student covers himself in poison to make a bang. (9)
- 18 Wipe gnat out to get more aerodynamic flight. (4,4)
- 19 Emergency call, a confused top pilot finds cure. (7)
- 21 He speaks critically of French jockey. (7)
- 22 Pilot supports you, say, and you, say, support a support to remain airborne. (4,2)
- 24 For ridges, his protection of two pre-solo pilots is needed. (5)
- 27 Stomach trouble leads CFI on long Inter-club. (5)



Caption Competition

The winner of last issue's caption competition was Ken Brown of Bristol & Gloucester Gliding Club:

And God said "Let there be light" and there was light, and you could see for bloody miles.

Summary of Substantial Glider Accidents

Ref.	Date	Type	BGA No.	Damage	Age	Injury	P1-Hours	Location
65	28/06/98	Bergfalke 4	3551	Substantial	29 15	None None	250 0	Bryn Gwyn Bach

The instructor had been told that his young pupil was good and as a result was "more relaxed than normal" during the winch launch. The left wing went down as the glider accelerated and so P1 released as they left the ground. He was unable to recover before the glider struck the ground sideways and heavily, causing substantial damage.

76	01/07/98	Ka6CR	3329	Substantial	54	None	31	Camphill (near)
----	----------	-------	------	-------------	----	------	----	-----------------

The object of the flight was to make an observed field landing as part of Bronze C checks. The circuit was flown too close in and the final turn was too high. The pilot realised too late he was overshooting but could only land half way into the field. To avoid impacting the far stone wall he groundlooped the glider, breaking the fuselage.

78	16/05/98	Zugvogel 3A	3497	Substantial	46	None	60	Brentor
----	----------	-------------	------	-------------	----	------	----	---------

The cable broke as the glider reached 450ft in light, cross wind conditions. After lowering the nose the pilot delayed before deciding to land ahead and open the brakes. Overshooting the airfield, he started a shallow turn to the left. During this turn the left wing tip hit the ground and the glider slewed sideways into a pile of rubble.

79	07/07/98	ASK21	3679	Substantial	26	None	1.25	Bicester
----	----------	-------	------	-------------	----	------	------	----------

After good check flights the pilot was sent for a short solo flight - having flown 7 solo flights on a previous year's course. However his return to the circuit coincided with the return to the airfield of up to 14 competition gliders. He was distracted and flew a steep approach, bounced back into the air and then landed heavily on the nosewheel.

82	09/07/98	ASK13		Write-off	?	Fatal	?	Dunstable
					?	Serious	?	

The glider was being flown along the ridge and into a large bowl when a thermal was found. P1 turned towards the ridge rather than away from it and stalled, spun into a tree and cartwheeled into the ground, killing P1 and seriously injuring P2 in the rear seat. (under investigation)

Classifieds

Please send the text of your advert, and your payment, to Debbie Carr at the BGA office (not to the editor). The deadline for classifieds to be included in the Apr/May issue of S&G is 3rd March after which any adverts received will be published in the following issue. All prices include VAT. Text: 80p/word, minimum twenty words (£16). Black and white photographs: £6 extra Box number: £3 extra.

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Summary of Substantial Glider Accidents

(continued)

Ref.	Date	Type	BGA No.	Damage	Age	Injury	P1-Hours	Location
83	10/07/98	Ventus 2		Write-off	?	Fatal	?	Mildenhall (near)

A Mid-air collision took place while the gliders were thermalling at about 3000ft during a competition flight. One pilot managed to land his damaged glider safely at a nearby airfield. The other pilot flew on for a short while before the tailplane failed completely. The glider dived vertically into the ground killing the pilot. (under investigation)

85	21/06/98	Discus	3994	Substantial	43	None	338	Aston Down
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The competition pilot made a start enroute then found he had forgotten his map. He made a rapid descent and a normal circuit back to the airfield. As he began to roundout he received a radio call that his wheel was up. He took his hand off the stick to lower it and the glider dived into the ground, impacting heavily on the mainwheel.

86	21/06/98	Kestrel 19	1850	Substantial	34	None	871	Halesland
----	----------	------------	------	-------------	----	------	-----	-----------

The glider was being winch-launched with a slight crosswind from the left, exacerbated by a slight slope from left to right. The pilot thought the wings were level but in fact the right tip was catching in the seed heads of six inch grass. As the glider got airborne it rolled and yawed before he could release and crashed, breaking the fuselage.

93	27/07/98	Kestrel		Write-off	?	Fatal	?	Bidford
----	----------	---------	--	-----------	---	-------	---	---------

Mid-air collision during a competition flight. One pilot successfully deployed his parachute and survived, with serious injuries, but the other was unable to deploy his in time and was killed. (under investigation)

94	21/06/98	Std Cirrus	1785	Substantial	63	Minor	169	Weston on the Green
----	----------	------------	------	-------------	----	-------	-----	---------------------

The glider was being winch-launched when the right wing-tip dropped into the long grass, causing a rapid rotation before the pilot could react. It hit the ground nose first before falling back onto the mainwheel and tail skid. The grass was about 9 inches long with tufts up to 15 inches high.

95	18/06/98	ASK21	4500	Substantial	45 63	None None	740 15	Long Mynd
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While ridge soaring the pilot returned to a bowl that had provided strong lift a short while before. Finding no lift, he flew towards a pre-selected field but had to adjust his approach due to rising ground and land downslope. During the ground-run he saw a substantial fence so groundlooped the glider to prevent injury.

98	21/06/98	Astir Jeans		Substantial	43	Minor	24	Camphill
----	----------	-------------	--	-------------	----	-------	----	----------

After a thorough check flight and briefing the pilot was cleared to fly solo on the ridge. After a short flight he encountered sink and decided, as briefed to return to the field at 60 knots. He was seen to be very low but, instead of turning in early, made a normal final turn, lost speed and stalled in.

101	05/08/98	Ka6		Write-off	62	Fatal	?	Aston Down
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The glider spun in/lost control. (no other details at present)

103	03/07/98	ASK21		Minor	?	None	?	Long Mynd
-----	----------	-------	--	-------	---	------	---	-----------

FATAL ACCIDENT- The landing glider's wing hit the head of a person walking on a track alongside the landing runway causing fatal injuries. (Under AAIB investigation).



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3 WINTER BAROGRAPHS. 12K, 10K & 10K. All with Cal Charts. £100 ono. Tel: Bob Grieve 01780 755921

DG300 (1983). Full outfit with 720 radio, parachute, metal trailer, tow out gear. Excellent condition throughout. £21 000. Tel: 01664 823052

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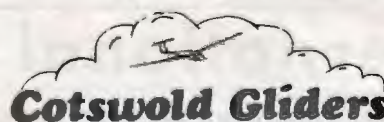
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