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Please note the change of editorial contact details (email remains the same)

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June ~ July 2002	
Articles	April 16
Letters	April 16
Club News	April 16
Advertisements	April 26
Classifieds	May 6

August ~ September 2002	
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Jochen Ewald's cover photograph is of the HPH 304C, a type put into production after the success of the HPH 304CZ (reviewed in our April-May 2001 issue): 45 of the latter have sold worldwide. For his verdict on the newcomer, see p18

Sailplane & Gliding

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Latest world membership figures

THE TABLE below has kindly been supplied by John Roake, Editor of *Gliding Kiwi* and the International Gliding Commission's one-man committee on gliding membership issues.

He says there must be an easier job than extracting membership figures from IGC's 32 affiliated countries: "We finally got accurate figures from Italy," says John, "and replaced the previous ones for 1990-2000" (http://users.ichway.co.uk/tim.newport-peace/memb-int.xls). The US figures for this period have also been replaced. Those previously published were Soaring Society of America membership numbers. As it has since been revealed that SSA has on average only 69.5% of US glider pilots recorded as members, he has substituted the number of licensed glider pilots in America. Where figures have not been forthcoming from a country despite repeated requests, he has applied the world average figures for the year to update their 2001 numbers. He would welcome an update from those countries at any time (email: *John@johnroake.com*).

The excellent IGC promotional video has sold more than 30,000 copies but John is concerned that it is not being used as intended, as a giveaway after a trial flight: "Few clubs/countries are using this concept," he says. "Those that are using it properly are having a major success arresting their decline." Work is in progress on a second video to re-motivate pilots who have Silver or more but risk dropping out of gliding. "There are innumerable challenges facing the pilot who believes he has conquered the sport simply by going solo," says John.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
ARGENTINA	423	423	381	351	286	251	268	253	242	252	264	186
AUSTRALIA	**3796**	**3758**	**3661**	**3519**	**3532**	**3349**	**3240**	**3139**	**3089**	**2976**	**2785**	**2725**
AUSTRIA	4047	4086	4130	4096	4038	3986	4028	3990	3965	3599	3690	3711
BELGIUM	**1454**	**1495**	**1488**	**1561**	**1577**	**1580**	**1571**	**1557**	**1570**	**1591**	**1530**	**1520**
CANADA	1381	1405	1322	1288	1257	1292	1257	1319	1321	1313	1290	1350
CZECH REP	**3413**	**3447**	**3500**	**3202**	**3311**	**3385**	**3531**	**3540**	**3591**	**3190**	**3142**	**3114**
DENMARK	2100	2061	2138	2052	2046	2036	2005	1984	1927	1950	1892	1875
FINLAND	**2555**	**2554**	**2565**	**2540**	**2595**	**2533**	**2442**	**2670**	**2474**	**2602**	**2814**	**2738**
FRANCE	14012	13715	13789	13248	14165	13809	13256	12554	11813	11100	11510	12020
GERMANY	**39900**	**39400**	**38900**	**38465**	**38444**	**37592**	**37624**	**36724**	**36768**	**36687**	**36414**	**35852**
GREECE	76	67	59	52	52	50	50	49	49	51	52	53
HUNGARY	**5062**	**5062**	**4700**	**3110**	**2097**	**1881**	**1881**	**1881**	**1664**	**1664**	**1628**	**1637**
ICELAND	97	100	97	91	94	100	97	96	96	101	98	96
ISRAEL	**222**	**220**	**220**	**225**	**225**	**204**	**193**	**189**	**190**	**190**	**183**	**184**
IRELAND	65	67	69	71	74	75	78	79	81	85	94	98
ITALY	**2240**	**2165**	**2220**	**2140**	**2165**	**2135**	**2105**	**2120**	**2135**	**2125**	**2110**	**2122**
JAPAN	3041	2972	2918	2806	2763	2710	2660	2627	2585	2545	2500	2524
LITHUANIA	**(Figures not available for these years)**								**471**	**469**	**472**	**494**
NTHRLNDS	4432	4572	4358	4259	4200	4024	4090	4046	4125	4079	4065	4088
N ZEALAND	**1091**	**1001**	**1036**	**1007**	**1069**	**1109**	**1047**	**1017**	**987**	**889**	**867**	**901**
NORWAY	1969	1825	1574	1696	1701	1707	1618	1701	1599	1574	1550	1578
PAKISTAN	**(Figures not available for these years)**								**23**	**25**	**28**	**29**
POLAND	2200	2218	2131	2310	2466	2422	2697	2808	3062	2902	2892	3048
RUSSIA	**350**	**350**	**325**	**215**	**145**	**130**	**130**	**130**	**115**	**115**	**112**	**126**
SLOVAK REP	(Figures not available for these years)							780	769	774	777	750
SLOVENIA	**(Figures not available for these years)**					**915**	**898**	**885**	**874**	**861**	**872**	**924**
S AFRICA	629	676	696	577	612	655	651	641	688	728	579	614
SPAIN	**450**	**466**	**462**	**452**	**459**	**467**	**478**	**490**	**493**	**498**	**496**	**435**
SWEDEN	4563	3903	3515	3534	3595	3322	3088	3249	3013	3025	2700	2950
SWTZRLND	**4378**	**4259**	**4159**	**3786**	**3779**	**3574**	**3654**	**3647**	**3666**	**3680**	**3643**	**3145**
UK	10586	10135	9623	9409	9522	9757	9409	9225	9225	9164	8802	8848
USA	**20066**	**19351**	**19432**	**19811**	**19895**	**19497**	**18456**	**18274**	**18554**	**18584**	**19389**	**19531**
TOTALS	**134598**	**131753**	**129468**	**125873**	**126164**	**124547**	**122502**	**121664**	**121224**	**119388**	**119240**	**119266**

Items from the Executive Committee's agenda

MEDICAL requirements: The revision of the medical requirements for glider pilots and gliding instructors has been an on-going consideration for some time, in conjunction with the development of proposals for the NPPL (National Private Pilot's Licence). Remaining issues, particularly with regard to the question of the level of medical certification for gliding instructors over 70, should be resolved by the spring and will be published to clubs and on the BGA website (*www.gliding.co.uk*).

BGA Fleet: The BGA Motor Falke is now 10 years old and a proposal for its replacement has been considered by the Executive. A decision, one way or the other, is likely to be taken in March or April, so watch this space for further details!

Strategic Plan: The Strategic Planning & Finance Committee has been busy updating the Strategic Plan for 2002, for submission to the Sports Council in May, and also designing the action plan following the consultation with clubs late last year. This will be one of the main focuses of the Executive's workshop in April.

BGA subscriptions categories: Over the last two years the BGA Executive has been considering the case for introducing more than one category of "full flying member" for the purposes of member clubs returns that determine the subscriptions payable to the BGA. The issues involved were debated at the Club Chairmen's Conference in October, and with particular reference to the need for a junior category. The Executive will be taking the feedback and aiming to reach a decision about any changes at its annual strategic workshop in April.

Appointing sub-committee chairmen: Each year after the BGA AGM, the Executive Committee appoints chairmen for each of the sub committees. More often than not this means re-appointing existing chairmen, but changes take place from time to time so readers are advised to look at the BGA website for any changes or for contact details.

World Championships Bid: Following discussions at the BGA Conference between the 1st Vice President of IGC, Brian Spreckley, and the Chairman and Vice Chairman of the BGA, a proposal for the BGA to bid for the 2004 World Junior Championships to be held in the UK will be considered by the Executive. Any bid that the BGA may make will be decided at the IGC in March 2003.

Airspace and other regulatory issues: Carr Withall, BGA Airspace chairman, with David Roberts, BGA Chairman have been active in the last six months in attending various meetings aimed at achieving a co-ordinated approach across European gliding and wider air sport organisations towards the changes being proposed across Europe (see also *Look to the future now* on p20 of this issue). These changes not only concern airspace, but also the regulatory framework for the whole of general aviation, of which gliding is a part. Meetings included the European Gliding Union Executive as well as the annual conference in St Auban in early March, as well as a Europe Airsports conference in Amsterdam in February and a Eurocontrol seminar.

David Roberts, BGA Chairman
26 February 2002
d.g.roberts@lineone.net

Medal for Barry Rolfe

the *White Planes* picture co.

BGA SECRETARY Barry Rolfe (above left) was presented with the prestigious William S Ivans Gold Medal by IGC Vice-President Brian Spreckley (right) at the British association's annual dinner-dance in February.

The medal is awarded by the Soaring Society of America for a person's or group's substantial contribution to advancing the cause of soaring through increased political strength or organisational development.

"Barry's career with the BGA," said the citation, "is considered by many to be the epitome of professional service. Barry conducts the business of the BGA with the highest level of integrity, personal dedication and devotion that is of the greatest benefit to all who fly gliders within and outside the United Kingdom.

"Too often, men and women such as Barry toil quietly without recognition. Barry's own quiet, unassuming efforts have resulted in his rising to the top of his chosen profession and have garnered the complete admiration of his peers.

"The purpose of the Ivans Medal is to recognise such performance and Barry Rolfe's name is proudly added to the honour roll."

SSA President Larry Sanderson added; "In gliding we are truly privileged to meet exceptional men and women. I have long admired Barry's personal commitment and performance at the BGA. I consider it one of the great highlights of my involvement in soaring that I can call Barry Rolfe my colleague and my friend."

The FAI and IGC sent their warmest congratulations to Barry. "For many years," they said, "Barry has worked tirelessly to represent Britain's gliding interests at the international level. It is fitting that his efforts be rewarded in this way. Well done, Barry!"

Barry said afterwards: "I was completely surprised and very honoured to be given this magnificent award in memory of the great Bill Ivans. I would like to thank the Soaring Society of America for letting me join some of the more distinguished recipients of this medal and I hope to continue to work on development of our sport through the BGA for a few more years."

Competitions and other events

Dan Smith Memorial Trophy	Dunstable	30 Mar–31 Mar
Gandhi Soaring Comp	India	1 May–10 May
Overseas Championships	Spain	13 May–24 May
National Aerobatic Champs	Saltby	30 May–2 Jun
Turbo/self-launch	Bidford	15 Jun– 23 Jun
Standard Class Nationals	Pocklington	22 Jun–30 Jun
Euro Aerobatics Champs	Germany	1 Jul–26 Jul
Europeans	Hungary	6 Jul–27 Jul
Regionals	Lasham	6 Jul–14 Jul
International Air Tattoo	Fairford	20 Jul–21 July
Competition Enterprise	North Hill	20 Jul–27 Jul
Regionals	Hus Bos	27 Jul–4 Aug
Regionals	Nympsfield	27 Jul–4 Aug
Regionals	Sutton Bank	27 Jul–4 Aug
15-Metre Nationals	Gransden	27 Jul–4 Aug
Inter-Services Regionals	Cosford	3 Aug–11 Aug
Club Class Worlds	Germany	10 Aug–24 Aug
Club + 18m Nationals	Lasham	10 Aug–18 Aug
Regionals	Dunstable	17 Aug–25 Aug
Two-Seater Comp	Pocklington	18 Aug–25 Aug
Open Class Nationals	Tibenham	24 Aug–1 Sep
Regionals	Tibenham	24 Aug–1 Sep
Regionals	Booker	24 Aug–1 Sep
Junior Championships	Hus Bos	31 Aug–8 Sep
Saltby Open Champs (Aeros)	Saltby	7 Sep–8 Sep
UK Mountain Soaring	Deeside	Sep 1–Sep 7

In brief

BGA INSTRUCTORS can get a copy of the new book by Steve Longland (*Gliding: The British Gliding Association Manual,* see review on p15) at a special price of £15 plus £4 p&p – a saving of £10 on the usual price – until the first 1,000 copies are sold. The BGA Instructors Committee strongly recommends that all instructors have the book (you can buy it from the BGA or at *www.gliding.co.uk*)

A LETTER of intent proposing a structure for the new NPPL (National Private Pilot's Licence) will be presented for Parliamentary endorsement and implementation on June 1, following the conclusion of a second consultation period by the CAA. Licensing issues, being progressed by an NPPL Steering Group, will be run by an Air Sports Licensing group including AOPA, PFA, BMAA and the BGA. (*www.caa.co.uk)*

EUROGLIDE has had to change dates due to Operation Clean Hunter, a NATO exercise over Germany, Benelux, France, Czech Republic and Poland on June 10–21. The new dates are: June 23/24–July 6 (*www.euroglide.nl/news.html*)

FOR the first time in 25 years the Inter-Services will be held at RAF Cosford (August 3-11), home of Wrekin GC. The busy training station will suspend all other flying during the comp. (*www.rafgsa.org*)

VIABLE diesel engines are finally taking off in aviation – and that could mean cheaper aerotows. German company Thielert has just produced a 125hp (135hp via a reduction gear) motor which uses only £6 of fuel per hour in a Piper PA-28. And as it's water-cooled there's no shock-cooling to worry about, either. Conversion isn't cheap at around £25,000 for the change of installation, but the savings are impressive.

THE Guild of Aviation Artists' 32nd annual exhibition is moving to the Mall Galleries in London. The event, from July 23-27, is expected to include 350 paintings selected on May 12, including a special collection to commemorate the 60th anniversary of RAF Bomber Command. (*www.gava.org.uk*)

WINNER of the BGA 1000 Club Lottery's January draw was MI Gee (£49.00). Runners-up (each winning £9.80) were: AD Mattin; NA Dean; R Grant; MP Brockington and B Morris. The February winner was A Ramsey (£48.25), with runners-up (each winning £9.65): JG Allen; RSM Fendt; WEJ Pottinger; MJ Wells and RA Firmin

Your letters

Instrument flying and gliders

CHRIS Heames's article (February-March 2002, p32) has outlined a framework for adequate instrument training for glider pilots; this is an positive step forward in closing a known gap in current pilot training, and if applied should make a significant contribution to flight safety.

As a word of caution, once the pilot has received adequate training, before launching into cloud flying pilots should also consider the suitability of the glider. As Chris states: "a small mistake could easily lead to a rapid and dramatic excursion through VNE"; for those flying gliders with flaps the 'soaring flap' limiting speed will be less than VNE and more readily exceeded.

Adequate equipment is also essential. Most older gliders will have a limited panel: altimeter and turn-and-slip (possibly an ex-MoD 24-volt gyro running off a 12-volt battery!). Is this adequate? Full-panel hot ships should note that electrical power consumption is considerably increased with the artificial horizon and turn-and-slip running. In both cases have you a back-up power supply or independent sources for each gyro instrument? Once above cloud can you navigate adequately?

The suitability of gliders, and instruments, for cloud flying is as important as the skills of the pilot to safely operate the glider. Sadly, departures of gliders through limiting speed have resulted in in-flight structural failure. Possibly – as a red rag to a bull – I would question the unquestioned release of gliders to cloud fly by the BGA when not permitted by the country of origin's authority. Should this also be reconsidered?

Despite this, cloud flying is a challenging, rewarding addition to the pilot's skill and has the potential to expand soaring possibilities – if only for the views above cloud.

Scott Harris, PRESTON, Lancashire

More about cloud flying

CHRIS Heames is to be congratulated for his succinct and practical suggestions on training for flying in cloud, which bring the training of glider pilots into line with that of power colleagues. Not surprisingly, the proposals are very similar to the training for the PPL IMC rating, without the lengthy time spent on subjects irrelevant to gliding.

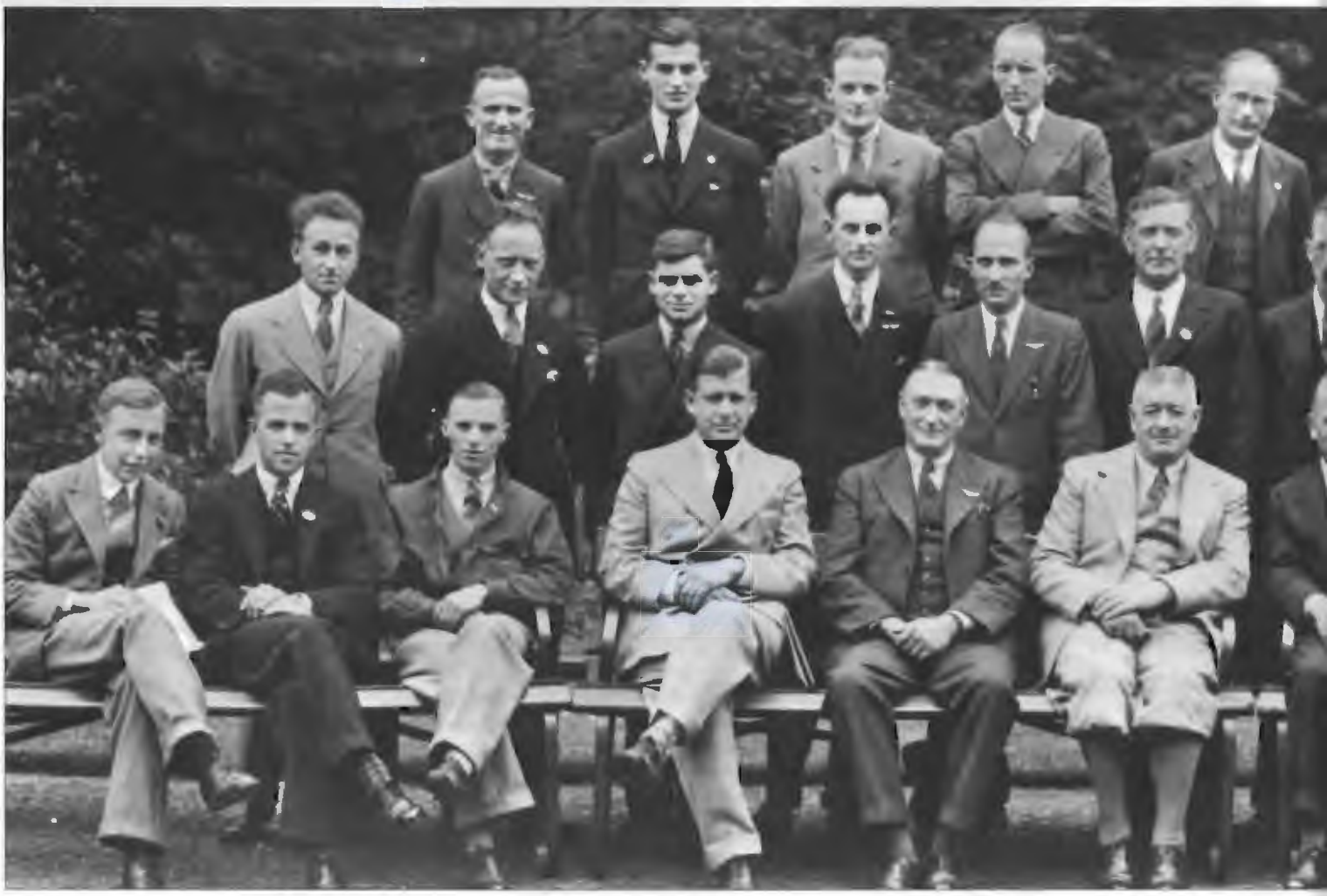
Much of the training might be done in motorgliders.

Early on in my glider flying, I found myself over a layer of cloud that suddenly appeared. Although I knew I was not over high ground I did not have the sense to turn into wind, level the wings, control the speed, and open the brakes. I broke cloud in a spiral dive, but fortunately at a manageable speed. Until it happens, you do not realise how disorientating it is to lose visual references. Perhaps basic steps for a safe cloud-break should be taught as part of training for the Bronze badge. After all, PPL trainees have to do several hours of "instrument appreciation".

Perhaps we should also consider other aspects of good practice, such as cockpit instruments, and local procedures. These might include the need for any pilot entering cloud to have a functioning turn-and-slip indicator, a compass, and a GPS, and those intending to fly in cloud deliberately also to have an attitude indicator. Clubs should publish for members and visitors guidance on safe letdown procedures, taking into account local geography. In some parts of the UK, flying downwind in a strong wind will have you over inhospitable terrain or the sea in a few minutes.

My experience of instrument flying is almost entirely in general aviation aircraft. However, the old adages that I have been taught are equally applicable to gliders: believe your instruments not your senses, make changes in direction and attitude gently, and practise regularly!

Gordon Pledger, MORPETH, Northumberland



Enterprising Platypus

THERE is hope for us all yet! Platypus (*A Scenic Ladder?* February-March 2002, p16) at last searches for something beyond racing around the Didcot-Bicester triangle, and wishes for the spiritual uplift of dramatic territory to soar over, and skyscapes to play in, without the relentless drive of better and better average speeds.

Albeit a late developer, he has discovered the ethos of *ENTERPRISE*! Philip Wills was the mentor behind the Enterprise movement, and the torch is still carried by many. John Fielden has set our tasks these past 28 years, and we look forward to this year's gathering at North Hill (July 20-27). Perhaps Plat will honour us with his presence, his charm and his wit. We shall be mutually the richer for the experience. Yours romantically,

Rod Witter, CHESTER, Cheshire

Plat replies: Codswallop, (Madam Editor has deleted the original word I put in here) with all due respect. Mr Witter writes as if I have never heard of the admirable Competition Enterprise. I flew in it at Sutton Bank and enjoyed it greatly, with much that is still imprinted on my visual cortex even after 10 years. This included a cloud-flying trip up to the Scottish border country with a new-fangled gizmo called GPS strapped to my knee, and a do-or-die dash home to Dunstable on the last day, when far better pilots than I (eg: John Bally) had derigged in the rain and trailered home: in the ASW 22 I stumbled out of drizzly hill-lift into high, dry wave which carried me back effortlessly to the Chilterns. I could almost hear the Bally teeth gnashing 6,000ft below as he realised his error while bowling down the M1. (Indecent, triumphal gloating is just as prevalent in Enterprise as in any other comp.) I suppose what my Platytudes about a scenic ladder amount to is a plea for the ethos of Competition Enterprise to be spread across the year and not just concentrated in one week in the far west or the far north. PS: Are readers allowed to write romantically to the Editor? Does the Editor's husband know about this?

First conference– can you help?

I HAVE a framed photo of the attendees at the first BGA Conference, held at Ilkley, Yorkshire, on July 11 and 12, 1931. It was given to Yorkshire GC by Frank Greenwood, a committee member of the Ilkley GC. The only identification we have is that of Norman Sharpe, extreme front left (*below*), who was a founder member (later chairman) of what became Yorkshire GC. It would be good to put names to faces. Would it be possible for *S&G* readers to help? I guess we should hold the 2006 BGA Conference in Ilkley to mark the 75th anniversary of the first one! Ties and tweed jackets compulsory, plus fours optional. Problem is, there are females involved these days, don't know what the dress code would be for them:..

Phil Lazenby, OTLEY, West Yorkshire

If you think you can help Phil put names to faces, please contact him via the editor or at Lazenby@btinternet.com *We suggest that you identify people by numbering them from left to right and stating which row you are referring to. I have a copy of the programme for the event, kindly given me by Jonathan Mills. It doesn't say who was present at the event but it does list BGA officers and council members (were they all there?) as follows – Ed. President: Lt-Col FC Shelmerdine. Vice-Presidents: Lt-Col M O'Gorman; F Handley Page; Col the Master of Semphill; Miss Amy Johnson. Chairman: EC Gordon England. Treasurer: Seymour Whidborne. Secretary: JLR Waplington. Council: Wm Adams; JR Ashwell-Cooke; A York Bramble; LH Button; DE Culver; JF Cuss; H Davis; Capt F Entwhistle; J Grundy; JR Holden; AF Houlberg; G Humby; LO Keckwick; Capt CH Latimer Needham; Dr EH Milner; E Morton-Hicks; GR Paling; AY Paton; F Pilling; RF Rosoman; AC Smith; Capt AN Stratton; AL Tomison; SW White; F Wilkinson; P Adorjan; Capt HH Balfour; Lee Roy L Brown; AV Cox; JDM Currie; RF Dagnall; WE Dinsdale; DW Genge; Major RG Heyn; Capt WL Hope; RL Howard-Flanders; F Jackman; G Knight; CH Lowe-Wylde; D Morland; Lieut G Nicholls; ED Palmer; Major H Petre; P Pritchard; F Small; G Gould; WJ Stagg; CMC Turner; A Wilkinson; LA Wingfield. It lists officers and committee members of Ilkley & District GC, as follows. President: HP Price. Chairman: WE Dinsdale. Hon Treasurer: JB Boden; Joint Hon Secs: PT Fawcitt and JH Allen. Committee: B Hartley; JK Watson; HS Crabtree; NC Hodgson; SM Thompson; SE Brown; F Greenwood; FN King.*

Your letters

Greetings from South Africa

I HAVE just seen the October-November 2001 issue of *S&G* and was enchanted to read the article on the T-21 (p18).

I had the privilege of a flight in one during August 2000 from Stanley Island, Plettenberg Bay, on the east coast of South Africa. A British pilot, Bob Plane (no pun intended I am sure!), ran one from a grass strip on the island. The flights are fairly short due to the proximity of polar maritime air, but one could see the whales lying just outside the breakers from 300ft up – and this was amazing. The whales come into the bay around August/September to calve.

Although not current, I have had the privilege of being involved with the Cape GC for a few years up to the mid-eighties, achieving a Silver and assistant instructor status and having a wonderful time.

This was my first experience of flight in an open cockpit aircraft and was captivating to say the least – the absence of a canopy makes a huge difference – I felt a lot more in touch with the sky than when flying anything else.

James Parry, CAPE TOWN, South Africa

Another type of T-21

THE T-21 saga has so far not mentioned the T-21c. This was a Slingsby one-off – a normal T-21 with the wings mounted outboard of the fuselage sides, which were carried up to the height of the normal pylon. The span was thus greater than normal and it had enormous ailerons. These ailerons had servo tabs to lighten the load but it took an awful long time for the message from the stick to reach the wings, which made aerotowing sometimes a two-handed job and ridge flying on a rough day a daunting experience. It did, however, have the luxury of a canopy.

Bath & Wilts GC bought this from Dunstable in 1963 as an upgrade from their T-31 and it was sold to a syndicate several years later; it may still be flying somewhere.

A side-by-side two-seater has many advantages; we were able to take our small children flying strapped in two at a time and be able to reach them if there were signs of riot or fighting between them.

In the days of the T-21c *S&G*'s club news used to be enlivened by the reports from the Grauntchester club. Are they still in existence? Is their correspondent still flying?

Ron Lynch, SEEND CLEEVE, Wiltshire

Humphrey, teddy bear and T-21

I CAN'T remember what year it was, but it was around 1960 or 1961. I was about 13 or 14 and was Humphrey Dimock's helper. I met him when I was 11 years old and he taught me so many things – how to drive, autotow and fly. I would go with him every weekend, often to Lee on Solent or Lasham, and do a lot of the light work to help with his glider. In return, he would occasionally give me a ride in a T-21.

Once we were at a military base somewhere, maybe Odiham, when asked if I would like to have an aerobatic ride in a T-21. I said, sure, as I loved to fly and took every chance I could get. I climbed in and strapped myself in tight! He joined me shortly and handed me the biggest teddy bear I had ever seen, along with a small folded parachute.

Ron Lynch sent this mid-1960s photo of a T-21c with Dave Barker (left) and Gordon Mealing at Bath & Wilts. See Another type of T-21, *below left*

The bear was almost as big as I was and he told me to hold on to the parachute as he didn't want the wind to catch it and pull it out of the cockpit. He then stuffed three toilet rolls behind my back.

The Chipmunk taxied in front of us and we hooked up and took off. The bear's head was large enough to shelter from behind the wind. We towed to 4,000ft and released, where he pushed over and straight down we went. He pulled up into the first loop and at the top of the loop, I felt his hand behind my back and out went the first toilet roll, which came down in a long streamer. As we continued into the next loop he flew through the streamer, which wrapped itself around the wing and tail. Up we went into the next loop and again at the top of the loop out went another toilet roll and as we went down the same thing, he managed to wrap this one also. Down we went for the third loop: the same procedure with same result. Now we had three streamers somehow wrapped around the T-21.

As we topped out of the fourth loop, he grabbed the teddy bear and out it went. By this time, we were low enough just for a pattern and a landing. When the helpers arrived to push the T-21 off the field, they were all laughing at what they had seen and the comments of the announcer describing the action to the audience. He was describing the loops and the streamers when in the fourth loop he said: "And now – wait – they are out of control and – now one of them has jumped out!" I don't know what the reaction of the crowd was, but it certainly made the glider folks laugh.

It was a great, but short, flight and one of many memories of flying with Humphrey and of a T-21.

Derek Rumsby, SEATTLE, USA

Safety and instructor currency

TEN per cent of all road accidents involve drivers who have been drinking; therefore 90 per cent are caused by sober drivers – get them off the road and stop them being a hazard to us drunks!

What wonderful things can be proved with a couple of columns of numbers if you think of an answer and then produce the "statistical proof" it is correct.

Graham Morris (*Safety and instructor currency*, February-March 2002, p44) could just as easily have shown that, as 15 per cent of glider pilots are instructors, but instructors are involved in 35 per cent of the accidents, we should ban instructors from flying.

The BGA AGM last year decided that all instructor accidents would result in a period of suspension.

This was agreed after an assurance that in nearly all cases the instructor had been reinstated after consultation with a Regional Examiner. This implied that most accidents were not considered to be serious.

Do we have any evidence that instructors who failed to renew because of not meeting the minimum hours requirement subsequently have had accidents when flying solo?

When the minimum hours requirement was last increased was there a significant reduction in instructor accidents?

Several clubs reported no instructor accidents last year. Are all their instructors Full Cat with many hours, have they got a very safe method of flying, or were they shut down by foot-and-mouth?

The BGA encourages the use of the motorglider for instruction of the basic exercises, field landings, cross-country navigation, and airmanship yet allows none of this time to be counted towards instructor renewal time. Why? It can be a very effective method as it gives more time to absorb the lesson than winch launching.

The quality of instruction can depend on the time spent in briefing, debriefing and "talk and chalk", yet all Graham considers is the time that the two-seater is strapped to the instructor's back.

There is a lot more to increasing gliding safety than hours in the air. If this were all, why have there been so many accidents when one instructor has been checking another? We are involved in a sport where complacency at the wrong time can demand a high price.

The use of statistics is a specialist subject and I am sure that within the movement we have members who would be prepared to help with a proper study.

We all wish to reduce accidents and injuries, but there is a lot more to consider than just blaming the low-hour instructor. There are many low-hour weekend instructors who are very good at getting the best out of their students.

Bill Thorp, BRAYTON, Yorkshire

For another response to the article, from York GC's CFI, Mike Cohler, see p52 – Ed

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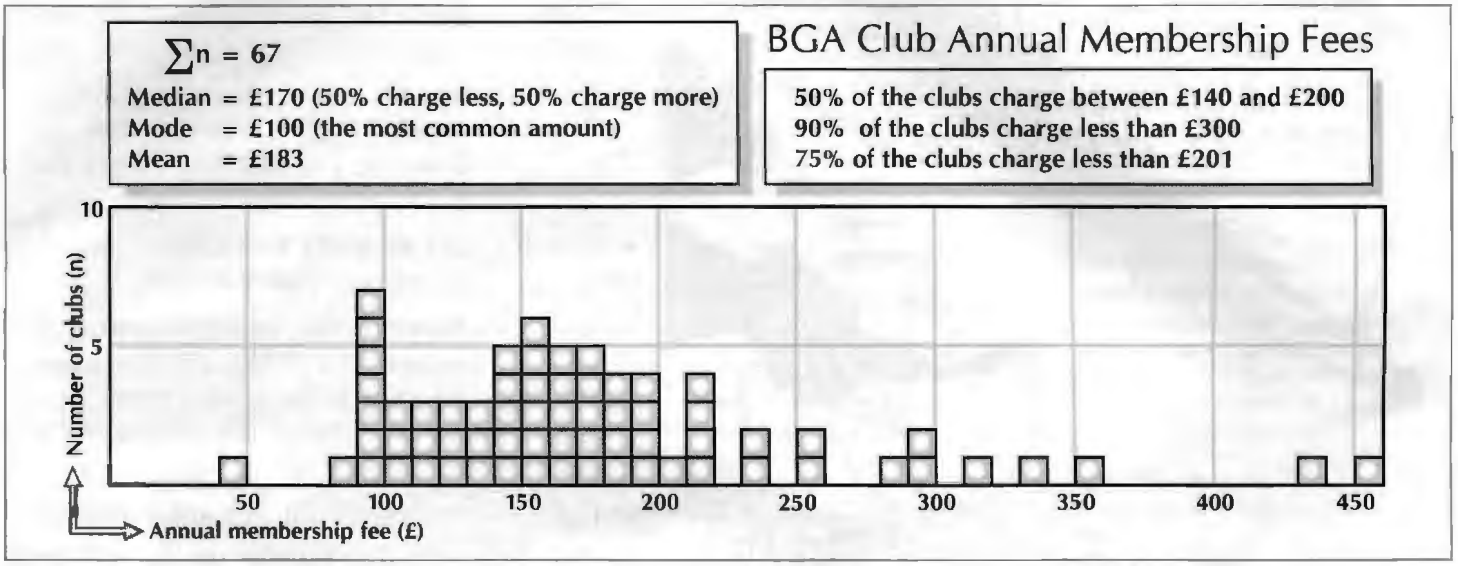


THE LATEST annual statistical returns from BGA member clubs included a question about membership fees or subscriptions. The response from 67 civilian clubs indicated that a very wide range of subscriptions exists within the gliding movement.

Although the membership subscriptions are on the comparable basis of "adult, full-flying member", the facilities provided by clubs vary enormously from a two-seater and a winch operated from a farmer's field to a full professional service from an all-weather aerodrome. A statistical analysis provides some useful information which might help clubs in negotiating rent reviews, discretionary rates relief and anything else where reliable background information can override speculation and rumour with authenticated facts. The statistical analysis for the 67 clubs, as depicted on the diagram, provides the following information:

Median: £170 (50% of clubs charge less and 50% charge more)

Mode: £100 (The most common level of subscription – seven clubs)

Mean: £183 (The average subscription level)

For reasons of confidentiality, individual clubs are not identified.

Where does your club fit into this?

What percentage of the population charges less than you – and how many charge more?

As with all statistics, if they are useful then you may wish to quote them.

If not, it is probably better to keep quiet about them!

Roger Coote
BGA Development Officer

More on Olympia 419s

I SHARE with Tony Gee (*Elliotts of Newbury*, February-March 2002, p8) a nostalgia for the type. On my first visit to a gliding club hangar in 1960, alongside the T-31 and Tutor that I was shortly to be let loose on were parked TWO Oly 419s. My instant ambition to fly one was fulfilled less than four years later. I have flown four of the type, as well as the 17-metre 403.

The variation in handling between individuals was marked, particularly the aileron feel, which varied from remarkably light and effective to severe aileron snatch at thermalling speeds. The strength of the aileron centring bungies and the precise shape of the Frise aileron leading edge were critical. Rumour had it that Jim Cramp would fine-tune the aileron leading edge profile with his penknife until the test pilot pronounced the handling satisfactory.

My recollection of inter-thermal speeds is much more like 60-70kt, although the nose-down attitude in the cruise could give a false impression of a steeper glide angle than reality. In smooth thermals the most effective climb seemed to be at 36-38kt.

On an historical note, Tony is incorrect to suggest Anne Burns won the Nationals in the Elliotts' demonstrator. She became the first Woman National Champion flying the prototype SHK in the 1966 Nationals. There were, in fact, not 11 but seven 419s in total; one was exported to Russia along with a Skylark 3B. Elliotts' own was written off at Booker in 1966; the Army 419 was exported to South Africa by Major John Evans. I last saw it in the Western Cape GC hangar at Uitenhage in 1979. The remaining four were still flying in the UK at least until 1989.

The confusion over numbers could have arisen from Elliotts' practice at the time of certifying their gliders with a civil ARB C of A, all acquiring a second identity with a BGA or RAFGSA number. At least there is less confusion than with the earlier Olympia 4 development, when one set of 15-metre wings and two sets of 17-metre wings shared three different fuselages under six different type identities.

Peter H Purdie, BURNT HILL, Berkshire

Please send letters – marked "for publication" – to the editor at the new address on the contents page or to: helen@sandg.dircon.co.uk *Please include your phone number and postal address. The deadline for the next issue is* ***April 16***

The laminar flow Olympia

RECENT correspondence about Olympias reminds me of flight tests on a laminar flow section, which Mac Head of Cambridge University Aeronautics Department and I carried out using our Kite II at Farnborough in 1952. They were instigated by Harry Midwood to verify the performance of a NACA 6 series section (63415?) with the intention of designing and constructing new wings for the Olympia. Elliotts built a short span plywood sleeve onto the port wing of the Kite. Drag measurements used a wake pitot traverse system operated from the cockpit via a Bowden cable. Wake width and the adverse effect of a thick trailing edge member were also tested. Tests covered a range of 40-100mph. Using a china clay/paraffin evaporation method, the extent of laminar flow on upper and lower surfaces was investigated, also the turbulence wedge arising from a small hemispherical droplet. Regrettably, this work was never written up but I remember that a satisfactory drag curve was obtained, showing that the desired extent of laminar flow was achieved. I believe these results encouraged Horace Buckingham with the 401's construction.

Bob Ward, EXTON, Hampshire

Gliding:
The British Gliding Association Manual,
by Steve Longland (A&C Black)
£25 plus £4 UK p&p, from the BGA Shop on 0116 253 1051/*www.gliding.co.uk*

WHAT a wonderful book! This volume was originally intended to be the "Part Two" of the BGA Instructors' Manual, but fortunately some far-sighted members of the BGA Instructors Committee realised the book was far too valuable for instructors only.

When I first read the manual it was apparent the style differs from other text-books, and I wasn't sure it was appropriate to the subject matter. But after a little further reading I did not want to put the book down, and soon developed a sense that the author was there with me, as a very capable instructor teaching in one-to-one mode. This is a real achievement, and should make it easier for students to absorb the knowledge.

The book is full of gems – the history lesson in Chapter 2 is a fascinating example – and a wealth of information. I have spent many hours explaining some of the JAR 22 requirements to glider pilots, and all of the important bits are here, presented in an understandable format. We glider pilots often fly close to the limits of our machinery, and understanding why these limits are there should encourage pilots to respect them.

Much of the information is of practical use as well. After reading the section on instrumentation we should all know how to test a variometer system, and the section on low-drag aerofoil sections should encourage us to keep our wings clean.

I could only find a few items where I disagree with the text but they are criticisms of a nitpicking nature that do not detract from the quality and value of the manual.

Throughout the book illustrations of the highest quality jump out at the reader, explaining a variety of concepts clearly.

The BGA now has the finest set of English language gliding manuals in the world. ALL instructors should read this book before their students do, otherwise some embarrassment could result!

I am far too lazy to ever write a book, preferring to rely on the efforts of others. We should all thank Steve Longland for this valuable up-to-date addition to our text-books. There are more than 300 pages of information here for 25 quid! This has got to be good value. I strongly urge all glider pilots to buy this book. I will certainly keep one on my bookshelf, and use it as a reference for my instructing. I predict this will become a modern classic.

Terry Slater

For details of a discount if you are a BGA instructor, see page 5

Stormbyrd Aero Jacket
£99 plus £3 UK p&p/*www.stormbyrd.com*

FORTUNATELY for this review a planned job in Cape Town didn't materialise and I was able to spend the festive period with the hooligans in the adventure paradise of the Northern Hemisphere – Portmoak. The weather was perfect (for testing jackets and for flying): below freezing all week with blue skies and northerly winds.

Having spent lots of time on frozen airfields and in winter wave, you get a bit fussy about how to keep warm but also trying to avoid looking like the Michelin man for your efforts.

Stormbyrd is a UK-based company run by pilot Stephen Bloomfield, which designs and manufactures a wide range of clothing for pilots. Its Aero Jacket is a blouson-style hip-jacket designed for general aviation pilots. Made from an abrasion-resistant breathable fabric, it is water-repellent, windproof and lined with Polartec 100. This combination of modern materials maintained an impressive amount of warmth, considering how thin the jacket is, and the reduced bulk was notably beneficial in the cockpit where, for me, height and width can be an issue. It has a full-length two-way zip, which closes over the full length of jacket, and is cut to waist length to avoid any 'riding up' when seated. The elasticated wrists seal well and were excellent at keeping the draughts from going up my arms; the large collar even covered my ears from the cold.

A zipped inside pocket is deep enough for a handheld radio. A double pen pocket on the left breast is aimed more at power pilot but doesn't interfere with the straps.

The Aero is by no means a general-purpose everyday jacket and on some days it required an extra layer to keep out the cold or one a bit more waterproof to avoid a soaking from downpours. Now that the warmer weather is approaching I have noticed that it has good breathability – after spending several hours towing on milder sunny days.

Flying jackets aren't to everybody's taste but the Stormbyrd Aero Jacket is a functional, stylish and comfortable piece of clothing that I would recommend to anybody looking for a jacket for use in the cockpit and on the airfield.

Gavin Goudie

(photograph courtesy of the manufacturers)

Lyrical Aviators: Traveling America's Airways in a small plane
by Sandra McClinton
Whistling Swan Press/*www.whistlingswanpress.com*

The author of this light-hearted look at light aviation learned to fly in sailplanes. This travelogue is her account of the skyways and byways of the US, Canada and more: from the corridors of the Grand Canyon to a crossing of the Bermuda triangle

The AFE UK VFR Guide 2002
£19.95–£34.95 (depending on format) plus p&p
Airplan Flight Equipment (incorporating RD Aviation)
www.afeonline.com

This guide – available in perfect-bound, spiral-bound or loose-leaf format (pictured) – is now on sale in its 2002 edition. Bigger than ever, comprehensive and packed with much more than just the airfield info, it's an interesting read for the glider pilot and a must if you've an engine up front

Wind & Wings: the history of soaring in San Diego
by Gary Fogel
US $30 (inc UK p&p)/*www.rockreef.com/gf.html*

Gary Fogel's book about an area with a significant soaring tradition is noteworthy not only for the amount of effort that has clearly gone into his research but also its association with the campaign to save the historic gliderport of Torrey Pines. An inspiring read

Cover story

ELEGANT new wing covers nearly 90ft long have just arrived. They're made by the same excellent people who made the last lot, so I expect no problems at all, except paying for them. But years ago it was a different story.

When did wing covers start? I can't remember them being used till the 1970s, and even then only sparsely. I think it all began in earnest when three modern trends met: when we discovered that ultra-violet went for white gel-coat the way piranhas go for red swim-trunks; when gliders got to enormous span, with four-piece and six-piece wings, with connectors that were invisible and unreachable, with dozens of tiny safety-pins to be secured; and when, highly correlated with the latter, the only people who could afford big wings were mature geezers who could not be bothered with rigging and derigging and connectors and pins and things. So now wing covers are quite an industry, and since the wind, rain, industrial pollution and ultra-violet savage the fabric instead of the gel-coat, budgeting for new covers every three years or so is an essential part of a syndicate's Strategic Fiscal Plan. What? You haven't got a Strategic Fiscal Plan, and wouldn't recognise one if it came and poked you in the eye? Who do you think you are, a hundred-billion-dollar international corporation?

The mature geezer who writes this column bought his first set of covers back in the 1980s. They were lovely. I think they had been designed by Yves St Laurent: the price, their diaphanous quality and their inability to survive till the next Paris Spring Collections all were consistent with the output of a top couturier. "Get that old Nimbus over there, dahling, wearing last season's outfit. What a frump!"

I learnt a number of hard lessons. Some early glider-trousers collected water by the gallon, bending the wing tips to the ground. If you ever get wrecked on a desert island, the best way to survive is to have a few yards of Platypus's old wing-covers slung between a couple of palm trees. Turn away casually as if going for a stroll down the beach under the relentless sun, wondering which eight recordings would entertain you and also demonstrate to the world your faultless good taste (though with the common touch, like an Eric Clapton single amongst the Bach fugues) then boom! – the skies turn black, and fresh drinking water is filling the old bags in a trice.

It can't do a glider any good to have so much water sloshing about within a few inches of the wing from Sunday evening to Saturday morning – even if the intervening week has been mostly dry. A brilliant hi-tech solution was found by the next generation of designers of lingerie for sailplanes – holes. Square holes, round holes, it doesn't matter so long as you have lots of them. On the underside of course, silly.

Ripping yarns

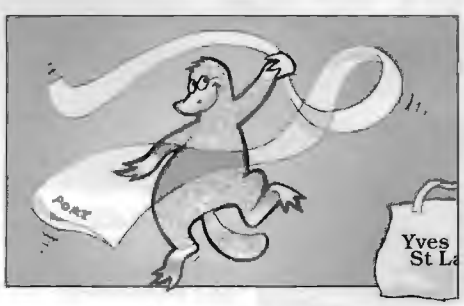
I mentioned in the last issue how much more painful it is to walk into a trailing edge than a leading edge. It is equally so for the poor wing covers. So I try to park the glider facing into wind as I put on and take off the covers. This slightly reduces the chances of the playful wind pushing a little bit of fabric into the gap between aileron and flap, so that when you give an irritable tug *(that unexpected gust from behind was the first thermal of the day going off, dammit, and here we are nowhere near ready to launch, c'mon, c'mon...)* the little bit of fabric snags noisily on a razor-sharp right-angle of carbon fibre.

Playful wind, one; wing cover, nil.

Every time a rip appears in your covers you naturally race to patch it with aileron tape. You now have a tough, white oblong surrounded by totally knackered, yellowing fabric. Any smart engineer can see what happens next: the juxtaposition of new and old, strong and weak, just undermines the original material and leads to more tears.

"Do you mean tears pronounced 'tares' or tears pronounced 'tiers'?" Ed.

"Now you mention it, I mean both." Plat.



... by Yves St Laurent

It always shrinks more than you expected

So you and your partners agree to get new covers for the new season. As the team of tailors and seamstresses offer up the part-finished garment to the wing, you stick your oar in where it is not wanted and bellow: "Don't forget about shrinkage! They always shrink at least a foot after a few months!" A chorus of condescending jeers from one's soul-mates, "Shut up, Plat. Don't bother them, they know what they're doing!"

What happens six months later? You've guessed it. The whole thing is tighter than a drum and it takes a massive effort to make the two halves meet in the middle.

So the team of needle-workers descends once more and inserts a gusset. A bit like the airship R-101[1]. With foresight it should not have been necessary.

All in all, though covers save a deal of misery in rigging and derigging, getting covers on and off carefully takes quite a time. I am well aware that a little glider can be derigged and put away in its box quicker than a supership can be dressed decently for the night.

The only difference is that the supership is back on its home site, and the little guy is in some meadow being nibbled by cows, praying for its box to trundle up sometime before midnight.

Batteries not included

In every newspaper or television picture I see of hirsute fighters in Afghanistan, each seems invariably to be carrying a Kalashnikov in one hand and radio in the other. Kalashnikovs are wonderfully reliable, I am told, but little walkie-talkies are another

1. Talking of the R101, I recently picked up and read for the second time Nevil Shute's autobiography, *Slide Rule*. Everybody interested in aviation should read it, especially those who say: "Uncle Plat, what's a slide rule?"

matter. In my experience since the 1960s, these gadgets have either used disposable batteries or in more recent years rechargeable batteries, usually nickel-cadmium. Some fancier chemical compositions have also come into use latterly: lithium, arsenic etc. They are all a damned nuisance; may God rain death and plague down on these pests. (The radio batteries, he means, not the brave warriors of the Northern Alliance, interpolates the Editor nervously.)

How do those chaps out in the dusty plains or high in the freezing mountains manage to shop for new batteries, or find a mains electricity supply to recharge their ni-cads? I am eager to learn.

It could of course be that their batteries are long since dead. Maybe the hand-held radios are all for show and are the local equivalent of officers' epaulettes, and about as much use. But a people that can make ancient tanks and abandoned helicopters work are clearly resourceful, so they could know something that I don't. Those who have any ideas should email me.

No, don't bother to come round to the house in person, I appreciate how awfully busy you must be.

shop for new batteries

Loss of a great man

When Geoffrey Stephenson died at age 90 in January this year it was not just British but world gliding that lost a great figure. He will always be remembered as the first pilot ever to soar across the English Channel, but he was much more than that. He was an intensely thoughtful man, who strove to understand the nature of the risks he faced: witness the mental strength required to complete world championship tasks in the mountains of France in 1956. That is true courage, much more lasting and profound than brash dare-devilry. His passing makes me reflect on what we have gained and lost in 63 years.

What progress gives with one hand, it takes away with the other. The technical challenge of crossing the Straits of Dover in a modern sailplane is half as daunting as it was in 1939. But if you want to see the bureaucratic challenge, just pick up a half-million map of Southern England and look at the tangle of air lanes crammed into that popular highway. There is no question of cloud-flying to make the crossing. Pilots who sneak along under cloud and stay in legal airspace have had narrow escapes and scares that would have impressed even Geoffrey Stephenson.

Geoffrey was able to fly across large tracts of London with no fear of the airspace authorities. And the English countryside had not yet been despoiled by motorways, sprawling housing estates, power-lines and giant military and civil aerodromes which, whether in active use or fallen into disrepair, are covered in hideous erections, eyesores visible for miles. It is a sad fact that in the countryside today people are allowed to put up monstrosities that would not be tolerated in the middle of our scruffiest industrial cities. And the weather really was better then – it's not sentimental nostalgia but meteorological fact.

Geoffrey's logbooks are filled with briefly-described cross-country scenes which we have to colour in with our imaginations. So we should envy this quiet, decent and determined man, who lived through and contributed to the golden age of our sport.

I am proud to have shared gliders with him for years, and to have had his example to follow.

mdbird@dircon.co.uk

The Platypus Papers: fifty years of powerless pilotage *(hardback, 160 pages, 100 Peter Fuller cartoons) costs £19.95 + £3.50 p&p. See* www.hikokiwarplanes.com
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www.gliding.co.uk

HPH 304c

A tipped version of a Glasflügel design has joined the club scene – Jochen Ewald tries it out

WITH competition Standard Class gliders becoming ever more expensive, the need to offer cheaper alternatives has resulted in a 'club' of slightly simplified versions of former Standard Class hot ships: today the Discus CS, the DG-303 and the LS4 are still in production and enjoying a new lease of life. Now the HPH Glasflügel 304c joins the 'club'.

In the early 80s the Glasflügel 304 was one of the most modern flapped gliders and well liked until production ended. Five years ago, the licence and moulds were taken over by the Czech HPH factory.

Called the 304cz, it was upgraded with winglets and 17.43-metre tips (*S&G*, April-May 2001, p18) It established itself among pilots who wanted a cheaper, easy to fly, flapped high performance glider, but who didn't feel the need to buy into the competition classes.

After seeing its success – more than 45 have been sold – HPH decided to develop a Club/Standard Class version suitable as a club single-seat workhorse and the 304c was born. It does without flaps and has conventional upper-surface Schempp-Hirth style airbrakes instead of trailing edge ones. The wing area is 9.9m² and has the same HQ profile as the flapped version in 0° flap position, but the outer tips are newly designed and removable.

Rigging the glider, which has an empty weight of 235kg (518lb) and a max take-off of 450kg/992lb, allowing wingloadings from 30.8–45.45kg/m² (6.3–9.3lb/sq ft) is easy and quick. The spars have a fork (left) and tongue (right) and are held together by a single mainpin on the left (which stores neatly in a bag fixed to the fuselage close to where it's needed). The ailerons and airbrakes connect automatically.

The new winglets have small spar tongues and are secured by a screw; it's simple, but I would prefer a snap-in connection to minimise the number of loose parts needed to rig. The tailplane is held by a spring-loaded bolt at the front (as with Schempp-Hirth gliders) and the elevator connects automatically.

The optional waterballast system, which takes 115 litres (25 gallons), has a new, simple filling system; you simply snap the tube into a valve under each wing and pour or pump in the water. Disconnecting the tube closes the valve.

The cockpit is roomy, with an optional carbon-aramide seatpan. The seating position is best called medium, not too

upright. The back rest can be adjusted by a cable on the right cockpit wall, and the headrest is also adjustable.

All the controls, grips and levers are well placed, visible and of different shapes. The spring trim is integrated into the front of the parallelogram stick's wooden grip. It's a well proven system from older Glasflügel gliders such as the Club Libelle or Hornet. The undercarriage lever also has a wooden grip and its operating forces are very light.

Winglets are elegant, but slightly reduce aileron size; control still good on the ground, though

A neat new feature on the rudder pedals are metal bars fixed to the bottom of the pedal holder which allow the pilot to use the rudder with comfortably stretched legs and then slide his or her heels back down to operate the brake on the Tost drum (or optional disc) wheelbrake; this avoids having to move the pedal adjustment for landing. In front of all this there's an optional ballast weight holder allowing pilots ranging from from 55kg (121lb) to 110kg (242lb) to fly.

Whatever their size, pilots get a good forward view and the panel has a flat top which provides a clear line parallel to the horizon. For less experienced pilots this, combined with the wing dihedral, makes it easier to avoid dropping a wing during take-off or landing.

When I flew the 304c it felt just right. Despite a crosswind, the tailwheel guided me straight and the ailerons were responsive after the first few metres of ground run; with the trim set slightly forward, it took off almost by itself. Control responses were light and direct, but not over-sensitive. The cockpit noise level was low and my only criticism was the prototype's poor fresh air supply which meant I had to open the side vent. Production versions will have panel vents.

On aerotow, as well as in free flight, the trim system worked perfectly: after pressing the knob in front of the stick the loads were gone and the hands-off speed remained nearly constant. Control forces were low and, with a glider like this, flying is really fun and easy. The control harmony is good, too, although the rudder is a little more effective than usual due to the smaller ailerons.

With my medium C of G position and an all-up weight of about 320kg (705lb), the stall was as gentle as you'd expect from a club glider: Below 68km/h (37kt) there's a shake and at 65km/h (35kt) the 304c starts to stall gently without any tendency to drop a wing. With the very effective airbrakes opened, the shakes start at 75km/h (40.5kt) and the stall establishes at 72km/h (39kt), but again it's stable. Stalling during circling didn't result in a wingdrop. At 95km/h (51kt) I measured a roll rate from 45° to 45° of 3.8 seconds. This is quite a good average value for a Standard Class glider, but a bit slower than the flapped version. The reason is that with the new design of the outer wing, the ailerons are a little shorter at the outer end. Despite that, the light control forces and the good harmony still give a pilot not using a stopwatch the impression of a handy glider.

Thermalling in gentle lift at about 80km/h (43kt) was relaxing, effective, easy and comfortable. At high speed, the glass-fibre wing damps rough air well, giving the pilot more comfort than in many carbon-fibre-winged gliders. The control forces rise with increasing speed, but not as much as in older gliders.

Setting up for landing, the wheel lowered as easily as it raised. I tried a sideslip with the airbrakes in and found it easy, effective and stable with just a slight nose-down attitude. Such a way of steepening the descent isn't really necessary, though, as the brakes are very effective and allow steep dives when fully open.

Trimmed to 85km/h (46kt) and flying straight and level, the speed increases to 100km/h (54kt) 'hands off' with the airbrakes open – just the right amount to allow you to fly the circuit and landing without changing the trim setting. Fully held off, the 304c doesn't float far and will touch down main- and tailwheel together. Thanks to the well suspended, strong undercarriage, neither your back or the glider will suffer from landing on rough ground. The heel-operated wheelbrake (a Tost drum brake was installed in the prototype, but a disc brake is an option) is effective and easy to use, nor was there a significant tendency for the glider to nod onto the nose.

You'll have noticed the word optional crop up frequently: that's because the 304c is quoted at a basic price of 32,530 EUR, allowing pilots to choose their equipment. For one like this prototype (winglets, water-ballast, two towhooks, ballast holder, seat-belts, Röger Hook, carbon-aramide seatpan and tinted canopy) the final price is a touch over 35,800 EUR, plus instruments and VAT. This is quite reasonable for a club single-seater with a performance not far below the top Standard Class gliders, which cost some 10,000-15,000 EUR more.

Overall, the 304c is a fine all-round club glider. Safe, comfy and easy to fly, it serves well as a first single-seater and for first cross-country attempts and field landings. Club pundits will like its excellent price-to-performance ratio, not far off that of the latest Standard Class competition gliders.

Text and photos: Jochen Ewald
See also www.hph.cz


Cockpit is roomy; parallelogram stick and wood handles


Automatic connections for controls and single pin slot

Schempp-Hirth airbrakes replace trailing edge 'brakes

Look to the future now

Helen Evans reports on the British Gliding Association's AGM and conference, held on a snowy day in February

THINK the unthinkable. That was the challenging message for delegates at the BGA's annual conference at Eastwood Hall in Nottinghamshire on February 23, 2002.

The call came from Ron Elder, Head of Personnel and Licensing at the Civil Aviation Authority (CAA), whose presentation on the future of General Aviation pulled no punches. "This government," he said, "has found by experience that, if you are dealing with organisations in any industry, unless you are dealing with one that can genuinely claim to represent the interests of 80 per cent of that sector you could be wasting your time.

"The BGA has that level of representation in gliding but, when you add the other recreational airsports activities, to me it becomes absolutely self-evident that what you have to do is act and speak with one voice on the major issues.

"You have got to think about alliances, affiliations – you may even have to think about the unthinkable: mergers."

The NPPL Steering Group, he said, was one example of a successful alliance including the BGA that might serve as a catalyst for future co-operation.

"If you want to have a voice in Europe you have got to have a powerful lobby," he pointed out. "You have got to convince ministers that you must be listened to."

His presentation highlighted how quickly decision-making is moving to Europe, with the creation this year of EASA, the European Aviation Safety Agency. This new body, to be responsible for air safety in the European Union (a smaller Europe, of course, than that defined by the International Civil Aviation Organisation) will be accountable to the European Parliament.

Due to start operations in 2003 and be fully effective by 2007, EASA is intended to have equivalent status to the US FAA. National civil aviation authorities will be embedded in it, and its protocols, rules and procedures are meant to be in place by autumn this year.

Ron Elder pointed out that if gliding does nothing now, everything will be agreed before we are in a position to affect it. "EASA," he said, "is looking at gliders being defined in law as aeroplanes above a certain weight, probably in the range of 70kg to 150kg. If we can negotiate a solution that is pragmatic, coherent and sustainable, that's where we want to go, but we have to take our European colleagues along with us – or buy into what they are doing in Europe. Now is the time to lobby." (As the last *S&G* reported, David Roberts and Carr Withall are very active currently at European meetings to try to achieve exactly this goal).

Ron Elder said he would like to see a system for controlling recreational aviation in the UK based on appropriate regulation backed by codes of conduct, to be administered by the CAA or a "recommending organisation". The benefits would be: minimum bureaucracy; controlled devolution to aviation bodies; quantifiable risks for those bodies, the CAA and the public; a flexible, easy-to-amend set of rules and clear advice to the public. The system, however, must be sustainable, clear and coherent, and no less safe than before; and airsports bodies would have to take the initiative to set it up. "We will match you step for step," he concluded, "but you will be setting the pace. That's the offer."

Ron Elder's presentation was preceded by a well-received talk by Marilyn Hood, chairman of the BGA's communications and marketing committee, and by Harry Middleton's report on British teams' outstanding world championship success in 2001: five Gold medallists and three Silvers.

An entertaining and thought-provoking presentation by Robert Danewid, of the Swedish Soaring Federation, looked at the problems faced by gliding and described some initiatives his country had taken in response. (*S&G* will return to this theme.)

After lunch came the AGM itself. Last year's accounts and the 2002/3 budget were approved, meaning a subscription for full members of £21.50 next year. Several questions focused on the marketing of gliding. Frank Jeynes of Bidford said the BGA aimed to promote and administer gliding but the amount allocated suggested that it was more about administration than promotion. Chairman David Roberts said that to spend more on national promotion, the BGA would have to raise additional income (sponsorship), reallocate resources, or persuade member clubs to pay more for enhanced marketing. Frank said he would like to see budget reallocation and David said he would raise the matter at Executive.

Mel Eastburn of Aquila GC asked the BGA to budget for a smaller profit from *Sailplane & Gliding* to invest more in it, for example, making it full colour. David Roberts said hypothecation of *S&G*'s profits would be inappropriate but that perhaps the new marketing and communications committee




Elected to the Executive Committee at the AGM were: Claire Emson (re-elected) and (pictured from left above) John Hoskins, Jon Hall, Diana King, and Gordon Pledger. Claire is well known as the organiser of the annual conference and sits on the communications and marketing committee. John Hoskins was the BGA's Senior Accident Investigator until March 2002 and instructs at Lasham. Jon Hall is publicity officer for Midland GC while Diana King served on the Exec from 1984 to 1993 and belongs to Stratford on Avon, Midland and Herefordshire GCs. Gordon Pledger, a retired doctor, belongs to Borders and Yorkshire clubs. They join David Roberts (Cotswold), re-elected as chairman; Paul Hepworth (York); Mike Jordy (The Soaring Centre); Doug Lingafelter (London); Val Roberts (Needwood Forest); Barry Rolfe (BGA secretary, ex officio); Dave Salmon (Derby & Lancs) and Richard Yerburgh (Bath, Wilts & N Dorset). Executive members who stood down during the year or at the AGM were: Ron Armitage (Channel); Harry Middleton (The Soaring Centre); Malcolm Sanderson (Borders) and Keith Mansell (Midland), though the latter remains as BGA Treasurer for the time being

could consider *S&G*'s finances.

Chris Nicholas of Essex GC sought an assurance that the BGA would never again take a payment holiday from the Planning and Environment Trust (PET), which had helped his club significantly. He asked the Executive to consider upping contributions to it. David Roberts said the Executive would consider the latter but that he could not make a commitment to the former, as to do so would reduce the BGA's future options.

Ted Norman of RAFGSA Bicester asked why instructor renewal fees had increased so significantly and was told it was a direct passing on of the increased premium for the BGA instructors' back-up insurance policy.

The AGM agreed clarified wordings for Operational Regulations 3.5 and 7.10 and voted for two new Op Regs: "All clubs shall allow site visits by BGA officials for safety and regulatory checks on their operations" and "All clubs on admission to membership agree to accept and comply with the BGA regulations and, if found to be in breach, may face disciplinary action, including expulsion, as deemed appropriate by the Executive Committee".

The chairman then fulfilled a commitment to report to this AGM on the issues raised by a resolution proposed by Bath, Wilts and North Dorset GC at the previous AGM, but subsequently withdrawn. The issue, he said, was about the proper level of consultation with club representatives over the annual hours renewal requirements for instructors. He listed five management measures since adopted by the BGA (including revision of terms of reference of sub-committees and appointing an Executive member to liaise with each); plus a further seven initiatives to improve communications. The proposed BGA audit committee would also assess the effectiveness of communication with member clubs, he said.

After the AGM came presentations by Lembit Öpik MP and Tilo Holighaus of the glider manufacturers Schempp-Hirth, Tilo spoke about the development of turbos.

As in recent years, the dinner again was fully booked. The after-dinner speaker was Brian Lecomber of Firebird Aerobatics.

As well as the award of the William Ivans Gold Medal to Barry Rolfe (*see page 5*), the new Bill Scull Safety Award was presented by Yvonne Scull to Arthur Doughty.

BGA trophies were awarded as follows: Enigma Trophy (National Ladder Open Section winner): John Bridge; Firth Vickers Trophy (National Ladder Open Section, 2nd) Andy Davis; L Du Garde Peach Trophy (National Ladder Club Section winner) Chris Starkey; Slingsby Trophy (National Ladder Club Section 2nd) Kevin Hook; Spitfire Trophy (Junior Ladder winner) Will Harris; Wakefield Trophy (longest distance) Jack Stephen for 764km in a DG-400; Furlong Trophy (longest triangle) John Bridge for 500.6km; California In England Trophy (longest distance by a female pilot) Wendy Head for 333.7km; Volk Trophy (longest O/R) John Bridge for 379.7km; Seager Trophy (longest distance, two-seater) Colin Smithers for 443.75km; Frank Foster Trophy (fastest 500km) Peter Baker at 82.0km/h; Manio Trophy (fastest 300km) Phil Jeffery at 96.5km/h; Rex Pilcher Trophy (earliest Diamond distance) Nick Norman on May 7 from Feshiebridge; De Havilland Trophy (max gain of height) Robert Tait for 6,492m; Goldsborough Trophy jointly to Steve Jones, Gillian Spreckley, Sarah Steinberg and Jay Rebbeck; John Hands Trophy (for outstanding support in the organising or running of competitions) Bob Bickers.

The winners of this year's Ted Lysakowski awards were announced at the AGM. Those present are shown above, from left: Terry Moyes, who wins (with Hemraj Nithiandarajah, not pictured) a mountain soaring course in Rieti; Claudia Buengen, winner of a soaring course at Lasham; Hugh Kindell, of the Ted Lysakowski Trust; Ed Foxon and Neil Goudie, winners of a hors concours *entry in the 18-Metre Nationals at Lasham, flying P2 with top pilots*

Three BGA Diplomas were awarded at the AGM and presented to the recipients by BGA Chairman David Roberts (seen left in the middle photograph above). They went to: Ron Lynch (above left, nominated by Richard Yerburgh and David Roberts), a former CFI and now chairman of Bath, Wilts and North Dorset GC, "for his long period of outstanding service and successful leadership of his club both on and off the field"; Jim O'Donnell (seen right in the middle photograph and nominated by the chairman of the Scottish Gliding Union Ltd), himself a former chairman and CFI at Portmoak, "in recognition of Jim's outstanding service and contribution to gliding"; and to David Evans (right), formerly of the Cambridge club and now gliding at Welland GC, which nominated him for a Diploma "in recognition of his great service as an instructor" over 32 years

Drop-testing a two-seater

Dr Tony Segal reports on an investigation into why in some accidents the instructor in the rear seat can be severely hurt while the front pilot isn't

All photos: Liz and Tony Segal

Les Neil (left) and Dr Tony Segal (far right) during testing of a two-seater undercarriage at RAFGSA Bicester

MANY OF you will have completed glider accident forms conscientiously as club officials, pilots or witnesses. I wish to assure you that your efforts are taken seriously and acted upon. As a member of the BGA Safety Committee I picked out three "interesting" accidents. The accidents involved two-seat gliders impacting heavily onto the main wheel. The rear pilots in each case received a spinal injury, serious in two cases, while the front seat pilot was unharmed or received only minor injury. This contrasted with the more common accident where the glider impacts on the nose and front of the cockpit, resulting in injury to the front pilot with little or no injury to the rear pilot.

By an act of serendipity, I was woken at 8am one morning by a telephone call from Tim MacFadyen, CFI of Bristol & Glos GC. He informed me that he and Terry Joint (who had arranged the insurance of the glider) had decided that following an accident the club SF-34 two-seat glider was a write-off. "Would I like the two-seat fuselage for my tests into glider crashworthiness?".

Before I had time to think, in a state of drowsy stupor, I replied: "Yes please". A year later, the impact test duly took place.

The fuselage arrived at Lasham, minus the wings, which had been donated to Bristol University. The rear fuselage and tailplane were also missing. The club had retained the seat harnesses. Nevertheless, the fuselage was, to me, of a value beyond rubies.

People involved in glider crashworthiness studies have their own little Mafia, so I was aware of work at Aachen Technical University (Fachhochschule Aachen) under the supervision of Prof Wolf Roger. Wolf invented the Roger hook for glider canopies and has carried out extensive studies on glider parachute recovery systems. One of his students, now Dipl Ing Niels Ludwig, had designed and constructed two welded tubular structures to which metal weights were attached, to represent the mass of the wings in a series of cockpit crashworthiness tests of single-seat gliders. My wife, Liz, and I put a couple of canoe racks on the roof of our car and drove to Germany to collect the wing stubs. Wolf and his wife Marlis were most hospitable. Our supper was made to grandmother's recipe, cabbage and smoked belly of pork simmered slowly for 24 hours – delicious. Wolf hijacked me to give a lecture (in English) on the recent sad fatal accidents in the UK. The girder structures on the roof of our car looked like surface-to-air missile launchers, but no-one batted an eyelid as we emerged from the Channel Tunnel.

The wing stubs were adapted to fit the wide two-seat fuselage by Dave Dripps, ground engineer of Lasham Gliding Society. Maintaining the MT equipment of LGS is rather like painting the Forth Bridge, a never-ending job, so I got the distinct impression Dave greatly enjoyed doing something out of the ordinary routine. One of the fittings connecting the lower portion of the wing stubs to the wing attachment points on the fuselage was missing, so Dave machined a replacement out of solid metal. He also had to widen the spacing between the wing fittings so they would fit on the fuselage. The upper part of the wing stubs were meant to be bolted together above the fuselage. However, they were too narrow and too low to fit. A welded metal structure and high tensile bolt filled the gap. An oval hole was cut in the top of the fuselage behind the cockpit to accommodate the metal structure. I surrounded this gap with ten layers of fibreglass. I was concerned there would be a stress concentration where this stiff structure met the thin material of the rear

Above: the two-seater hoisted in position for a test against the backdrop of the sight screen. The lights enabled the use of high-speed video to record each of the six tests

The glider after the final test, when the structure broke. The girders, borrowed from Germany and brought to the UK on a car roofrack, simulated the weight of wings

Above: three frames of the high-speed video for test G01 (drop from 10cm/4in). The fuselage drops (left); the wheel compresses (centre) but does not compress fully (right). This drop height is what the international airworthiness standards currently stipulate

Below: three frames of the high-speed video for test G06 (drop from 60cm/2ft). The fuselage drops (left); the wheel compresses (centre) then the structure fails. This test was the last of six and instrumentation showed that in this case the rear pilot takes the brunt of the impact.

fuselage, but there were no problems during the test. Two sets of reconditioned seat harness were also supplied by Lasham.

The test was carried out at RAFGSA Bicester, the home of the Joint Services Adventurous Training Gliding Centre, by kind permission of the officer i/c, Ted Norman. All members of his staff were most enthusiastic in supporting the project, and I made full use of their skills. I was grateful for being made an honorary member of the Crew Room. My original full-size Libelle glider impact test in 1988 was carried out in this hangar; and the flight testing of a six-point harness was carried out in a Bicester glider. Working in the hangar at Bicester felt like returning home.

The wing stubs fitted onto the fuselage very smoothly. To take the rebound load on impact, Ian Tunstall, a member of the Bicester staff, suggested fitting metal tubes around the high tensile bolts of the wing stubs. He made and fitted these tubes, and the wing stubs stayed firmly in place during the subsequent test. Ian was also responsible for constructing the cable suspension rig. I was keen to avoid having a solid test rig, as this would interfere with the video of the test. Wolf Roger had suggested that if I allowed the glider to drop freely, the inertia of the glider would maintain its lateral and fore-and-aft stability until it hit the ground. Four suspension cables, made from winch launch cable, were used, attached to a common shackle. This was attached to a weapon slip (bomb release) itself attached to a chain hoist in the hangar roof. Two suspension cables were fastened to the wing stubs, and two to the front of the fuselage, near the strong front transverse bulkhead.

Four steel weights, each weighing 10kg, were fastened to each wing by U-bolts. "Foxy" Fox showed me how to use the Bicester workshop pillar drill, and I spent a day drilling 32 holes through the tough metal. One learns something new every day. I bolted 33kg of lead to the rear fuselage, the glider then being just tail heavy. Because the rear of the fuselage was missing, the moment arm of the fuselage was shortened, so I required more lead than the weight of the original tail structure. A new inner tube was fitted to the main wheel. The main wheel was inflated to 3 bar, the nose wheel to 2.5 bar. The undercarriage had been damaged in a previous accident. Following this, the gas struts of the undercarriage suspension had been replaced, and the tube to which their upper ends were attached was replaced by a stronger tube.

Technical support was provided by The Centre for Human Sciences, QinetiQ, Farnborough. Les Neil (Senior Consultant Engineer, Occupant Impact Protection), was in charge. Graham Reece was responsible for the instrumentation. Phil Murtha was the test engineer. Les Neil had been in charge of technical support for my original Libelle drop test in 1988 – we have worked together as a team for a long time.

Two pilot dummies were provided, both being 50th percentile Hybrid 111 manikins, each weighing 79kg. They were seated directly on the fibreglass seat, no cushion being used. No parachutes were fitted. The backrest of the front seat was attached at its upper end to an adjustment cable; this probably enabled some extra movement of the manikin to take place. The backrest of the rear seat was not adjustable, so the manikin reclined backwards at a greater angle than the front manikin. There was no time to construct a solid backrest to correct this. Instead, I placed a firmly rolled blanket behind the manikin's upper chest.

Transmission of load via the pelvis and lumbar spine would not be affected, although the transmission to the thorax and head would be altered. As I was not measuring the latter values, this did not matter.

An accelerometer was attached to a solid structure on the floor of the glider in front of the wheel box. Another accelerometer was attached to the floor of the cockpit in front of the forward bulkhead.

These instruments measured in the X axis (the longitudinal axis) and the Z axis (the vertical axis) of the glider fuselage. Units of g, the acceleration due to gravity, were used.

An accelerometer was placed in the pelvis of each manikin, again these measured in the X and Z axis. A load cell was in position in the lumbar spine of both manikins. These measured the load in the X and Z axis using Newton units. The load cells also measured the lumbar spine rotation (moment) around the Y axis (the transverse axis), the units used being Newton/metres.

One complication was that the load cells were angled at 22° to the spinal axis of the manikins. The hybrid 111 manikin is designed for use in motor vehicle impact research, and the manikin is assumed to be leaning forward towards the vehicle steering wheel at an angle of 22°. I have made a correction for this, multiplying by the secant for 22°.

Three video cameras were used, one normal speed to give a general view, and two high-speed digital cameras. One of the latter recorded the entire cockpit area, the other focussed on the main wheel. A "sight screen" to be placed behind the test site to enhance the video photography was constructed by my wife Liz: wood strips measuring six feet by one inch were painted black and then nailed together at one foot centres to give a square lattice. The structure was backed by white paper secured by drawing pins. This inexpensive structure measured six feet by eighteen feet.

The centre of gravity was found by ➢

➢ dropping a plumb line from the weapon slip. It was 300mm aft of the datum, the wing leading edge. The c of g range is given as from 199mm to 367mm aft of the wing leading edge. The weight of the glider with both manikins in place was measured as 473kg. The design maximum all-up weight (AUW) is given as 540kg. The AUW of the test glider was less than the design maximum AUW required by JAR22, Joint Airworthiness Requirements relating to gliders and powered gliders. JAR22 give the following standards for undercarriage loads:

JAR22.725 Level landing

a) The shock absorbing elements (including tyres) must be capable of absorbing the kinetic energy developed in a landing without being fully depressed.

b) The value of kinetic energy must be determined under the assumption that the weight of the sailplane corresponds to design maximum weight with a constant rate of descent of 1.5m/s, wing lift balancing the weight of the sailplane.

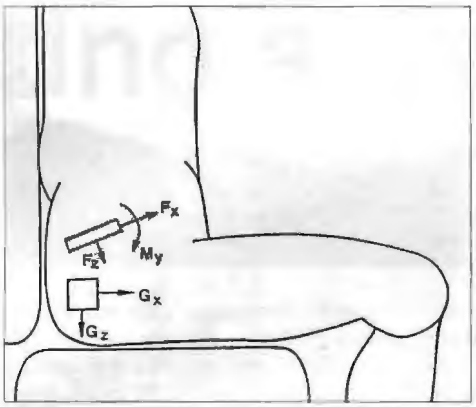
c) Under the assumption of (b) the C. of G. acceleration must not exceed 4g.

Assuming the glider is in free fall with no aerodynamic drag, calculation gives the following impact velocity for the given drop height. The test coding for each impact is given alongside the figures:

10cm (4 inches)	1.4m/s	G01
20cm (8 inches)	2.0m/s	G02
30cm (1ft)	2.4m/s	G03
40cm (1ft, 4in)	2.8m/s	G04
50cm (1ft, 8in)	3.1m/s	G05
60cm (2ft)	3.4m/s	G06

It was decided to commence with a drop height of 10cm (4 inches), until the undercarriage collapsed or serious structural failure of the glider occurred.

Cedric Vernon has kindly given me the history of the development of standards for glider undercarriages. Prior to WW2, the standard in Germany or Poland was 1m/s descent rate of the glider. In 1959 Beverley Shenstone (Chief Engineer for BEA) and Cedric (aerodynamicist for Handley Page) wrote a first draft quoting this figure of 1m/s. In 1962, this was accepted as the OSTIV Airworthiness Requirement (OSTIVAR). In 1966, a recommendation was made that the OSTIVAR should be increased to 1.4m/s. In 1971, the OSTIVAR was increased to 1.5m/s. In 1977, the OSTIVAR rate of descent was not altered, but it was made clear the undercarriage had to cope with 3g, the wing lift accounting for 1g, a combined



Above: The rectangle represents the lumbar load cell at an angle of 22° to the spinal axis; the square represents the pelvic accelerometer

total of 4g. The 1999 OSTIV Airworthiness Standards (OSTIVAS) gave a figure of 1.6m/s for two-seat gliders used for training and 1.5m/s for other gliders at maximum dry mass, the g loading being as before. A further condition was added – that the shock-absorbing elements (including the tyres) must not be fully compressed at a rate of descent 1.1 times the above figures. This gave a measure of reserve energy in the undercarriage requirement.

The JAR22 figure arose in 1975, in the German publication LFSM, paragraph 3411 (*Airworthiness Rules for Gliders and Motorgliders*). The figure of 1.5m/s descent rate at design maximum weight was given, with 4g at the C of G, made up of 3g for the undercarriage and 1g from wing lift. At the present time, the JAR22 Study Group are actively considering the provision of reserve energy in the undercarriage. JAR22 is mandatory, whilst OSTIVAS is advisory.

I was pleased to welcome the following observers to the test: David Cockburn (Safety Promotion Officer, Civil Aviation Authority), Jonathan Mills (Chairman, BGA Safety Committee), Dr Peter Saundby (BGA Medical Advisor) and Jim Hammerton (BGA Chief Technical Officer). The following comments on test conditions should be noted. There was clearly no wing lift during the test. Following on the impact on to the main wheel, the fuselage rotated forward and down around the axis of the mainwheel, on to the nose-wheel. In the absence of aerodynamic damping from the missing horizontal tail, the force resulting from this rotation was increased.

Test Findings

The video: The behaviour of the mainwheel tyre under the impact load could be clearly seen on the high-speed video. While the shock-absorbing gas struts themselves could not be seen, their behaviour could be inferred from the downward movement of the fuselage relative to the main wheel.

In Test G01, the tyre and the gas struts absorbed the energy without being fully compressed in accord with JAR22. The fuselage rotated gently forward onto the nosewheel.

Test G02 was less clear. The tyre and gas struts may have been just fully compressed, If so it was a very gentle full compression. Again, forward rotation occurred.

In Tests G03, G04 and G05, both the tyre and gas struts were fully compressed. The tyre was in contact with the wheel hub, and the bottom of the fuselage touched the ground. Forward rotation of the fuselage occurred. The fuselage bounced upwards until the mainwheel was clear of the ground, due to stored energy causing re-expansion of the tyre and gas struts.

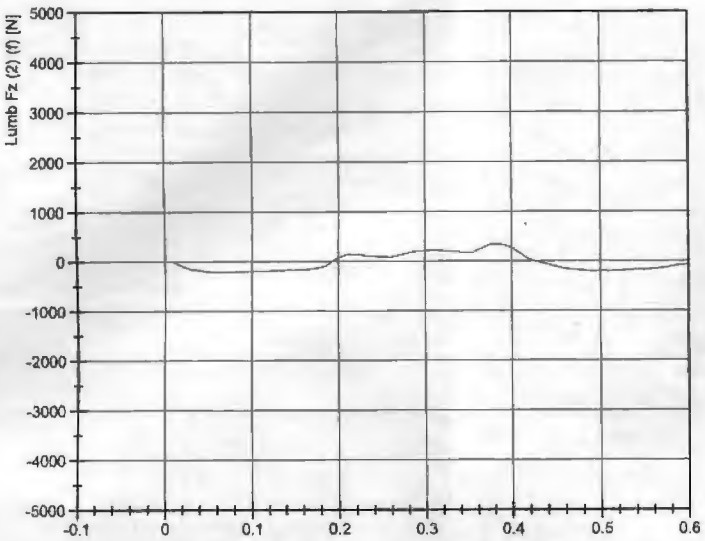
Collapse of the undercarriage occurred in test G06. The cross-tube to which the upper end of the gas struts were attached broke away from its mountings to the fuselage side wall. The wheel box was damaged. A U-shaped frame to which the cross-tube was attached was split. The fuselage made one gentle bounce, the main wheel staying in contact with the ground as it was no longer constrained by the gas struts. The fuselage rotated forwards.

The instrument tracings: Two records were made of each reading, one with a time base of 0.6 seconds to show the impact clearly, the other with a time base of 2.5 seconds to show any rebound. This gave a total number of instrument traces of 72! I will concentrate my discussion on *the floor pan acceleration in the Z axis* (the vertical axis), and *the lumbar spine force in the Z axis* (the axis of the spine).

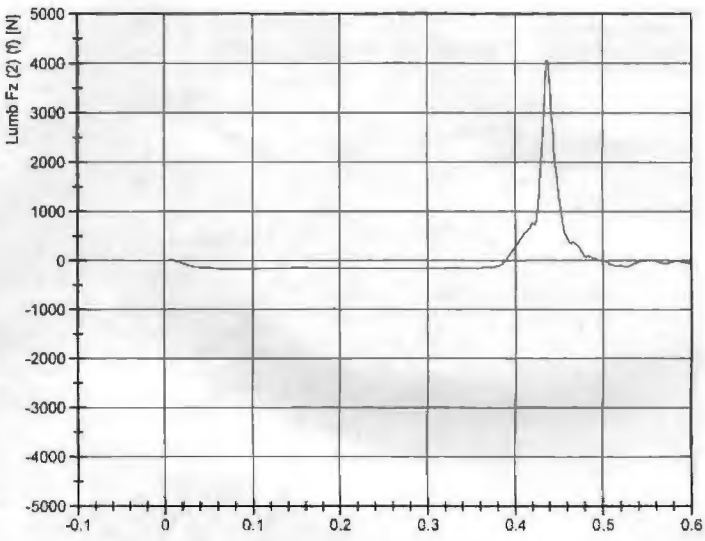
In test G01, both instruments showed a low value, with a gentle rise to a peak. The front reading was delayed by 0.15 seconds following impact as compared with the rear ending. This showed the load on the front pilot was due to the nosewheel making contact with the ground following rotation of the fuselage, and not due to direct spread of the load in the cockpit structure.

All other readings, from G02 to G06 showed large peak values, with a high rate

		Test number					
Parameter	Manikin position	G01	G02	G03	G04	G05	**G06**
Cockpit floor acceleration (g)	Rear	2.1	11.6	24.5	34.2	42.9	**42.2**
	Front	4.6	11.8	24.2	31.5	38.0	**24.6**
Manikin pelvis acceleration (g)	Rear	1.8	4.1	8.8	13.7	13.8	**21.0**
	Front	3.0	2.9	8.8	14.6	16.9	**15.2**
Lumbar spine load (Newtons)	Rear	373	877	2032	3191	3155	**4391**
	Front	563	636	2025	3240	3201	**3022**



Above: In test G01, there was a low peak load, as the graph showing the lumbar spine force in the Z axis (in the rear) shows. The shock was absorbed by the main wheel and by the gas struts



Above: In the last test, number G06, when failure of the undercarriage occurred, a sharply-peaking force with a high rate of rise was felt in the lumbar spine Z axis in the rear cockpit. It was much greater than the load in the spine of the front pilot

of rise or "jolt". The peaks in both rear and front positions occurred at the same time following the impact, showing the load was transmitted through the cockpit structure. The duration of these peaks was 0.01 seconds to 0.02 seconds. It was not possible to recognise the effect of nosewheel impact.

All readings in the rear and front positions were of approximately equal magnitude, until Test G06.

Test G06 showed very high values, with a high rate of rise. Both rear and front peaks were at the same time following impact. The value in the rear position was much greater than in the front position. This finding was very significant.

The acceleration in the Z axis at the rear of the cockpit floor in test G01 was within the JAR22 limits; these limits were exceeded in all the other tests.

The acceleration values in the Z axis of the pelvis of the manikins paralleled, but at a lower value, the acceleration readings in the cockpit floor.

The lumbar spine rotation around the transverse axis was of very low value.

All the instruments recording the X axis (the longitudinal axis of the glider, and the fore-and-aft axis of the manikin) showed a reading of moderate value. In the case of the lumbar spine load, this was partly due to the angle of the load cell in the spine. The forward rotation of the fuselage may have had some effect. Les Neil suggested that these loads in the X axis may result in a shear load where the lower lumbar spine joins the pelvis. I believe this is the first time this has been suggested.

Fracture of the lumbar spine

The mean breaking load in compression of the lumbar (lower) spine by age groups is as follows:

20-39 years: 7140 Newtons
40-59 years: 4670 Newtons
60-79 years: 3010 Newtons

Both rear and front pilots, if over the age of 59 years, involved in an accident under test conditions G04, G05 and G06 would have received fractures of the lumbar spine. Pilots of a younger age group would need to be involved in a more severe accident to suffer a spinal fracture.

Conclusions

When the impact was within the limits of JAR22, force and acceleration values were low, with a low rate of rise. The impact on the front manikin was due to impact of the nose wheel with the ground.

As soon as JAR22 values were exceeded, high peak values with a high rate of rise resulted. The peaks occurred at the same time after impact in rear and front manikins, showing the load was transmitted directly through the cockpit structure.

The magnitude of the values in the rear and front manikins were approximately the same. The nose wheel impacts were gentle, and could not be recognised on the instrument tracings.

A significant change occurred when the mainwheel collapsed. High peak loads occurred in the rear and front spinal lumbar loads, with a high rate of rise. The load in the spine of the rear pilot was much greater than the load in the spine of the front pilot. This explains the severity of the injury to the rear pilot in the accidents discussed at the start of this report.

Similar injury to the lumbar spine of the rear pilot of a two-seat glider could occur in the following circumstances: rounding out too high then stalling, or failing to round out and then ballooning, followed by a heavy landing.

Recommendations

The vertical velocity for undercarriages in JAR22 should be increased. There should be no sharp stop at the limit of stroke. The ultimate breaking load of the undercarriage should be increased. These values will have to be set by what can be complied with by the manufacturers.

I intend to make these findings available to the JAR22 Study Group, and to the OSTIV Sailplane Development Panel.

Above: Les Neil of QinetiQ (formerly DERA) hoists the test glider with manikins into position at RAFGSA Bicester

Main picture: Iain Baker returning to Gransden in his 17-metre Vega *(photo: Martin Boycott-Brown)*

Above: Iain's epic flight. He says that by engineering the winning factors, minimising mistakes and with a little luck, 600km-750km flights are within reach of the average UK cross-country pilot *(map: Steve Longland)*

Iain Baker shares his seven success factors to help your flying this season – based on his experience of flying 750km in a Vega one English summer

I WAS CONTEMPLATING a cold beer on a hot day in Le Blanc, when Brian Spreckley said casually: "I hear you had a good flight recently".

I murmured assent, presuming he was referring to a 750km flight I had made the previous month. "And what did you do it in? An LS8?" Brian asked.

"A Vega," I replied.

"A Vega?" he echoed in incredulity, doing a passable impression of Dame Edith Evans.

"A Vega." I confirmed with satisfaction.

Brian's disbelief is the typical reaction. The common perception is that 750km flights are the domain of the überpilots (which I certainly am not) flying the newest, sexiest gliders – not something designed in the mid-1970s. (The Vega 17 was the subject of the possibly apocryphal comment by Chris Rollings: "Fly it – I wouldn't walk underneath it!")

The reality is that by engineering the winning factors, minimising mistakes, and with a little luck, I believe that 600-750km flights are within the grasp of the average cross-country pilot.

(It's rash statements like this that cause an increase in outlandings – Ed.)

But remember that the right success factors will not just happen – they need to be managed. So what are the success factors for that dream flight?

How to fly longer distances

The right stuff

Having the right mindset is critical. The psychological element of gliding has been explained by George Moffat (*How to be a winner*, February-March 2000, p22). It's not about inherent personal characteristics; it's about the right mental attitude (which training can help create).

For me, it's a blend of inspiration and determination, balanced by healthy self-awareness. A little of the American "can do" attitude helps, as long as it is matched by realistic targets. The other fundamental success factor in gliding is decision-making. The actual mechanics of flying are relatively unimportant.

It is the ability to make decisions that distinguishes the good pilots from the average, and the ability to make decisions at multiple levels simultaneously that makes the great pilots: continually assessing the rate of climb, where the lift is strongest, whether to continue climbing or to press on.

On a tactical level, where the energy lines are, which clouds are building, which clouds are collapsing. On the strategic level, what's happening to the weather, is it developing according to the forecast, is it worth diverting to a better area? The thinking pilot collects all available information, compares it to their experience, makes the analysis and decides. It's about positive decision-making, not floating around in a daydream.

Preparation

The weather pattern in early June had been steadily improving. A telephone call with one of my syndicate partners convinced me that a big flight was on. The next day he was to attempt his Diamond goal in the Discus so I would fly the Vega. While the extra two metres supplied by the tips may not make a noticeable performance difference, the aileron handling is transformed, making it easier to extract the best from every thermal.

I arrived at Gransden Lodge to find the first private glider already being towed out and a frenzy of rigging activity. Clearly others were convinced that the day was going to be good.

I was fifth in the ensuing speed-rigging contest thanks to automatically connecting controls – a Slingsby innovation – no water, and much practice at rigging and de-rigging.

At the launch point I discovered that Richard Baker (no relation) had already set off on a 750km flight so chose the same declaration: Gransden Lodge – Doncaster – Goring – Sheffield North – Gransden Lodge. Mistake number one – with hindsight, I should have had tasks pre-planned. I was fortunate that I could default to Richard's.

The Rollings Theory

Take-off at 10:12. Richard, Steve and Rob were ahead of me, all on the same task. An immediate 4kt climb at Caxton Gibbet to 3,300ft confirmed it was going to be a stonking day – and that I'd already missed out on 30-40 minutes of soarable weather. With time to make up I began using the Chris Rollings Theory of cross-country flight.

As you might suspect, the Rollings Theory is based on the analogy between gliding and poker. Professional poker players do not gamble, they calculate the odds of having a winning hand, based on all the information available.

The application of this theory to gliding is balancing the probability of finding a better climb against the probability of landing. While climbing, there is only one question to ask: "Of the clouds/thermals within reach, what are the chances that the thermal strength under any one of those clouds will be stronger than the current true climb rate?"

If the judgement is that the current climb rate is the best available, then stay climbing. Otherwise go. The decision process is the same, whatever the height. It's as simple as that. The theory only breaks down when there are lines of energy such as cloud-streets, or storm fronts.

An important success factor is to have some good soaring techniques that work for you.

North and south

Any long task requires an early start, when cloudbase is low but thermals are generally ➢

closely spaced. Using the Rollings Theory helped me make reasonable progress on the first leg, despite a natural desire to stay high. I was trying to stay in touch with the other three, ignoring any thought of outlanding. I finally caught up with Steve near Newark, struggling to climb his ASW 20 full of water. We shared a low scrape (less than 1,000ft is low for me) before finding a solid 3kt climb.

I'd never been as far north as Doncaster before. Rounding the turning point at 12:23 completed the first leg at only 73km/h. I didn't realise this, being too busy trying to work out the alignment of the photo-sector. My (one) photograph was only just in and the trace shows a single point on the very edge. Mistake number one again – good preparation includes drawing the task on a map.

After a rather sticky patch near Sherwood Forest conditions steadily improved. Cloudbase was 3,800ft abeam Mansfield, 4,200ft at Melton Mowbray. I could see that the weather had changed from the closely spaced but weak climbs of the morning to a classic romp from cloud to cloud. I began to "faire le cheminment", a French term used at St Auban. The literal translation is "to make the progression" but the underlying meaning is similar to making a roadway in the sky. It's flying the energy lines, creating a mental image of the thermals as stepping stones along a route.

Soaring with Spreckley

Concentration became everything, applying the lessons learnt from flying with Brian Spreckley in the ASH 25. Brian had explained the cardinal sins. I already had a grasp of greed, anger, lust, gluttony, envy, pride and sloth. *(Evidenced by the ability to list all seven – Ed.)*

The additional cardinal sins were flying slowly in sink and turning in sink. Every time my concentration lapsed, a cutting comment came from the back seat, sometimes accompanied with a blow to my beanie hat from a banana.

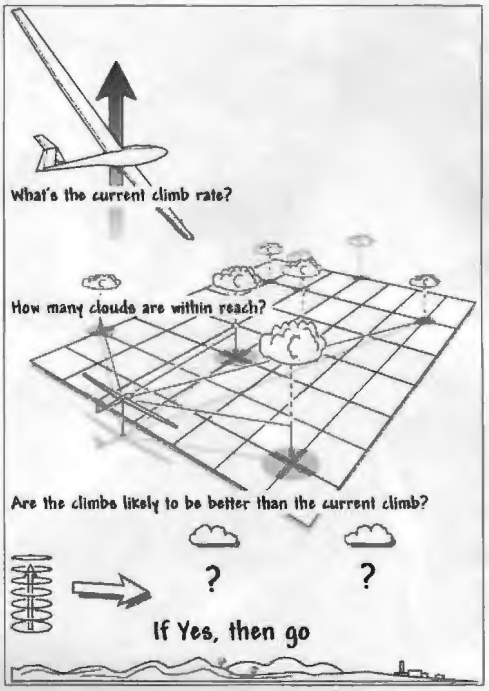
An unorthodox teaching technique, perhaps, but when the banana is wielded by a world champion, the lesson is well learned.

I had learned how to listen for thermals, the peculiar surge of noise as the core is reached. Or that sometimes the core feels like stepping onto an upward-moving lift.

I had learnt to have absolute belief in the instruments, especially the speed-to-fly and final glide calculation. Over-optimistic climb rates, conservative final glides, flying between thermals at min sink speed. All reduce cross-country speeds, and slow speeds translate to shorter distances.

Success factor number three again – application of good soaring techniques.

An excellent climb near Benson led into the second turning point at Goring. The second leg was a more healthy 94km/h, but the clock was still winning – only halfway after four-and-a-half hours flying. I was blissfully unaware of this fact.



Decision-making in cross-country flying – dubbed by Iain Baker "the Rollings Theory" after Chris Rollings (illustration by Steve Longland)

Retracing my steps past Oxford, I found that conditions had improved a little, and cloudbase was now around 4,500ft. A climb near Hinton and I aimed for Husbands Bosworth, conscious of the need to skirt around East Midlands airspace.

Another mistake. By trying to think too far ahead I let my concentration lapse. I forgot the balance between strategic, tactical and immediate decision-making. Falling down to 1,300ft at the M1 marked the lowest point for four hours, and I began to struggle. Too late I remembered another Spreckley lesson – avoid getting lower than halfway between the ground and cloudbase.

It was a real struggle past Hus Bos, with the temporary relief of a climb north of Leicester followed by my gradually sinking towards Nottingham. My brain became overloaded, concentrating on flying well and making positive decisions, while at the same time trying to calculate how fast (or slowly) I had flown, how far to go and the time available. In the end I ran out of mental capacity: unable to do the sums, I just kept going. Post-flight analysis shows that in the previous hour I had covered less than 70km. It was 17.00hrs – with 220km to go.

The lucky break

And then I could see another change in the weather ahead. It looked like a cloudstreet, but with no gaps, and very grey. A climb to 5,000ft at Chesterfield and I was committed. There was no point in turning back, with less than 20 miles to Sheffield.

I flew off the end of the cloudstreet with Sheffield in sight. I turned at 3,000ft, lower than I had hoped, and at 17.41hrs, much, much later than I wanted. A dash back to the cloudstreet was rewarded by a fast climb to 4,800ft. The sky had changed completely. No sun, and no puffy white clouds, just a grey cloud sheet. I had no choice, and set course for home under the darkest lumps.

Success Factor number seven – luck. Everyone gets lucky at some stage and my biggest piece of luck was stumbling into a convergence zone directly on track.

I'd no idea what it was, I just knew it was taking me closer to home, which meant a shorter retrieve.

Staying high and close to the blackest bits of cloud, I kept going and going, until the convergence ended near Rutland Water. I had made 94km in 50 minutes.

All the clouds had gone, just a very blue, very still sky was left. With no apparent sources of lift it was a matter of flying at best glide. Long final glides can be very boring – this was nerve-racking. I kept doing and re-doing the final glide calculations in my head. With 60km to go, convert to feet, divide by the Vega's glide angle, means ... means I might make it, but it's marginal.

I tried radioing home, but there was no answer. Nothing from the other three pilots either – in fact Richard and Steve had turned back on the third leg, and Rob was landing out at Saltby. I found some rising air, but nothing worth climbing in until Molesworth – and then only 300ft.

But that 300ft gave me confidence. As the doubts faded and the final glide music started, the adrenalin was replaced by a euphoric sense of relief.

I accelerated for a fast glide over the last few miles, with a final turn over the evening flying group for a hangar landing.

And how did I feel?

Relieved at getting back, despite being at Sheffield at nearly 6pm. Exhausted from the need for protracted concentration – I'd only flown two tasks over 500km previously. Physically tired from being cockpit-bound for over nine hours with nothing to eat or drink (another mistake).

It wasn't till later that the satisfaction and exhilaration kicked in.

The success factors you need

1= Mental attitude
1= Positive decision-making
3 Apply soaring techniques appropriate to the conditions, and use techniques that work for you
4 Familiarity with glider and instruments
5 Preparation
6 The weather (of course!)
7 Good luck

I made several mistakes – insufficient preparation, letting my concentration lapse on the third leg, and not taking anything to eat or drink. The key to winning is making sure the success factors outweigh the mistakes. I was fortunate that the luck of finding the convergence zone more than compensated for my mistakes. So whatever your dream flight is, plan well, practise and don't let the fear of your limitations overcome your ambitions.

Photos courtesy of the Perlan Project

Soaring to space

Pressure suits at the ready, two pioneer glider pilots are planning a flight in stratospheric wave to 100,000ft. Diana King reports

FLYING at 100,000ft will be a bit like flying at low level over Mars, the air density will be about the same, says Einar Enevoldson calmly as he discusses one of the greatest challenges to be taken up in gliding for many years.

This relaxed, very matter of fact man is the pilot who, with adventurer Steve Fossett, is planning to fly a DG-505M to 62,000ft in stratospheric wave to set a new gliding altitude record. If they are successful, they then plan to build a pressurised glider to soar to 100,000ft, the edge of space.

The Perlan Project – the name is taken from the Scandinavian word for pearl and inspired by high altitude mother-of-pearl clouds – is one of the most ambitious projects attempted in modern-day gliding.

The plan is to climb first in conventional lee waves and then make a transition into stratospheric mountain waves which, in the right conditions, propagate strongly and continuously into the middle and upper stratosphere. It won't, however, be as straightforward as a traditional wave flight. First, the team will have to be on hand in the right place to stand any chance of getting into the stratospheric wave. Although the current gliding world altitude record of 49,009ft was set in 1986 in the Sierra Nevada, the team will have to travel much further afield to find the monster they seek; probably Omarama in New Zealand, or a site in the north of Sweden. The reason for this is that a polar vortex forms at high latitudes in winter and spring, circulating air from west to east around the poles. This circulation extends to great altitudes well above 100,000ft and the maximum wind speeds are found around the edge, where the temperature contrasts are greatest. This creates a narrow area of very high winds, the polar jet stream, which is the extra ingredient needed to enable soaring flights to the very high altitudes proposed.

New Zealand's famous wave conditions have long been exploited for height and distance flights *(for more about NZ wave, see also page 40 of this issue)*. In Sweden, at 68° north, a strong polar jet directly over the mountains combined with a frontal passage is the situation most likely to create the right conditions. At Omarama, the plan is to use the sub-tropical jet stream to the north of the islands and the polar jet stream to the south. When these two are aligned, they create a continuous wind field through the tropopause, propagating the strong west/south-westerly winds from the surface up into the stratosphere.

Team leader Einar – who has logged many hours in the UK flying from Upavon in Wiltshire – is a former NASA research pilot now based at Edwards Air Force Base in California. Asked why they have decided to take on such a risky challenge – they will have only seconds to live if they lose their oxygen – he says he is motivated by the concept of doing something amazing and "unimaginable".

Einar is quite matter of fact about the prospect and no stranger to flying at the limits of possibility. He has flown 13 types of aircraft above 50,000ft, eight above 60,000ft and three above 70,000ft. He believes the edge of space ought to be explored and that flights there may enhance scientific knowledge about the ozone layer, meteorological

Robert D Davis/Norjen inc

Left: getting ready to launch. Above: kitted out in pressure suit

Above: artist's impression of the 95ft-span Perlan, which will push back the boundaries of sailplane design

turbulence and other high-altitude phenomena. There should also be aerodynamic lessons for future flight in these regions, including information on the required strength of aircraft, their controllability and the margins of safety that can be achieved.

With his background in research and his experience of gliding, he believes soaring flight is probably the only way of discovering some of this information.

Einar will be co-pilot on the exploratory flights and is also Operations Director, with a small team working with him on the project. Steve, whose previous record-breaking exploits are well known and who is providing the funding for the first phase of Perlan, will be the chief pilot and has been receiving wave soaring training over the last year at Minden with Carl Herold, one of the world's most experienced wave pilots.

In addition to the pilots, the project is drawing on expert aircraft engineers and specialists in life support, flight management, communications and avionics and electronics systems, plus, of course, met experts who will access internet data to identify windows of opportunity as far ahead as possible.

Phase One of the plan, to reach 62,000ft, is to demonstrate that it is possible to get through the tropopause and establish a glider in stratospheric wave. The pilots will also learn more about reaching 100,000ft and test much of the equipment. Some testing and development has taken place in the Sierra Nevada wave in the US, but conditions there are not expected to enable flights much above the existing 49,000ft record.

To explore the flight techniques and structural loads involved at the high altitudes they plan to fly at, the team has used NASA simulators. They have concluded that ordinary wave soaring techniques will be appropriate for Phase One, but the second phase will require very precise GPS-assisted navigation to stay in the lift, because of the very high true airspeeds involved.

The DG 505M being used for the first phase is thought to be easily capable of reaching 62,000ft. Mods include double canopies and a system to vent exhaled moisture to reduce fogging, and the use of a drogue parachute for emergency descents. Electrical extras include lights for night flying, gyros, electric boot heaters and, last but by no means least, the pressure suits. All these extras, plus a huge array of recording and soaring instruments, will require serious battery power. Some 100lb of batteries will be carried as well as a liquid oxygen system which will be mounted in the engine bay.

Even at lower altitudes the detrimental effect of cold and UV light on the gelcoat of modern gliders has been well documented and the Perlan team expect the finish of the DG to be ruined rapidly by the cold. The UV at 62,000ft will be strong, but acceptable for the short time they plan to be there. There is also a concern over ozone, which rapidly degrades some materials, including, possibly, the parachutes. The solution is not to stay in the ozone layer too long – with the glider being pressurised in Phase Two, the internal materials will be protected from ozone, although the external surfaces may require additional protection.

Some components, including lubricants, adhesives and some materials and instruments have been tested in cold chambers and pressure chambers to see how they will stand up to the temperatures of –56°C. In flight, the pilots will climb to 40,000ft and "cold soak" the whole system before going any higher.

For Phase Two, the Perlan glider is expected to take about two years to design and build. Its performance is predicted to be about 50:1. Handling is expected to be sluggish low down and very loose at high altitude and the design will probably incorporate a long fuselage and large tail to enhance stability. A yaw damping system will be needed above 90,000ft.

No decision has yet been made on the material to be used, although Einar has previously been involved in building an unmanned research plane from boron fibre, which can reduce flutter at high altitudes. Other possibilities include glass- or carbon-fibre. Perlan's span will probably be in the

Above: ready to aerotow in the modified DG-505M on a proving flight in the Sierra Nevada, California

Einar Enevoldsen (front) and Steve Fossett prepare for a test flight

region of 95ft, with a maximum all-up weight of 2,450lb.

The design will require a high degree of compromise to withstand severe cold and altitude yet be controllable at low levels. The demands at 100,000ft are so extreme, however, that they will provide the primary focus of the design.

The crucial conflict at higher altitudes is between increasing stall speed and decreasing VNE. At 100,000ft, air pressure and density decrease to about 1.4 per cent of the sea-level value. As the wing needs to move faster to generate the same lift, the true stall speed of the glider increases from the typical 40kt or so for a modern high-performance glider to over 350kt, or about Mach 0.6.

At the same time, with increasing altitude, the speed of sound reduces and VNE must be reduced to avoid sonic flow being reached on parts of the aircraft, leading to buffeting and loss of control.

At extreme altitudes the minimum and maximum controllable speeds coincide. At this so-called "coffin corner" any decrease in speed causes the aircraft to stall, while any increase in speed results in loss of control due to Mach effects. For any particular aircraft design, these factors dictate the highest altitude where controllable flight can be sustained.

An additional unknown is the Reynolds number, which, at 100,000ft, is about 13 per cent of normal, drastically reducing the amount of lift the aerofoil can generate. The combination of low Reynolds numbers and high Mach numbers is an area that has never yet been fully explored. Perlan may be the first project to take up the challenge.

Most of the instruments and equipment used for the flights will be typical of those used in conventional soaring. However, it will be difficult to measure altitude with conventional altimeters because minute pressure changes represent huge changes in height. Perlan may use GPS or temperature height measuring, or even have a powered aircraft flying below the glider with a remote microwave temperature profiler transmitting to a readout carried in the glider. Accurate total energy will also be difficult, as the usual systems rely on air pressure, which will cease to work properly in the extremely low-pressure environment in which Einar and Steve plan to fly.

None of us is likely to travel to Mars, but if Einar and Steve succeed we might just get an idea what soaring there is like.

The pain of a record height gain

WHILE most glider pilots are happy enough to achieve their Diamond height, Dave Benton was for some years the holder of the UK Absolute Altitude and Gain of Height gliding records, achieved in Scotland in 1980 in a Nimbus 2.

On the morning of his flight, there was 8/8ths cloud, but the forecast was favourable. After towing to cloudbase, he started climbing in a slot in the cloud which was too narrow to do a 360º turn in clear air. He climbed 15,000ft in the slot before clearing the top of the cloud mass at 18,000ft. During the climb, there was always the possibility of the gap closing and, although he had his cloud flying instruments running, Dave admits that he was "not very happy".

After clearing the cloud tops, he continued the climb, reaching 30,000ft after two hours. Throughout this time he had no sight of the ground, no idea of the wind speed or his exact position other than dead reckoning based on the forecast – these were the days before GPS. He did, however, know of two areas where it would be safe to let down through cloud on dead reckoning.

After a further two hours, the climb topped out at 37,000ft. By this time he had become concerned about the potential dangers. There was a risk of becoming disoriented above cloud and drifting out over the North Sea; the airbrakes were frozen and the glider felt very unstable, reacting badly to ice on the wings, and needing constant attention to avoid stalling. VNE was significantly reduced and the instruments were beginning to fail due to cold affecting the batteries.

On the personal side, the discomfort was intense at –50ºC. Dave had the ventilators open to keep the canopy clear, but above 30,000ft he could no longer stand the cold and shut them. This caused the canopy to freeze up so he had no clear view. He was trying to conserve oxygen and now he believes he was probably partially starved of oxygen above 30,000ft.

"I felt like a witch on a broomstick," Dave recalls. "I have a clear memory of seeing the curvature of the earth – that made a big impression on me."

Would he do it again? "No, it's not worth it, for reasons of self-preservation and because the glider was badly damaged by the cold," he adds. "And anyway, what's the point? Once you've done something like that, you don't need to do it again."

How to find a gliding club in the UK

If you want to go gliding – or sample a new site – we hope the map overleaf and the list below will help you. Happy soaring!

ANDREAS GC (9):
Andreas Airfield, Braust Farm, Lezayre, Isle of Man
secretary@manxgliding.flyer.co.uk
http://www.manxgliding.flyer.co.uk

ANGLIA GC* (10): *stephenmynott@hotmail.com*
http://www.geocities.com/angliaglidingclub

ANGUS GC (1):
Drumshade Farm, Roundyhill, Glamis, By Forfar
01575 572994/*eve47_mands@yahoo.com*
http://www.angusglidingclub.ukf.net

AQUILA GC (11):
Hinton-in-the Hedges Airfield, Steane, Brackley NN13 5NS
01295 811056/*info@aquilagliding.com*
http://www.aquilagliding.com

BANNERDOWN GC* (12): *info@bannerdown.screaming.net*
http://www.bannerdown.co.uk

BATH WILTS & NORTH DORSET GC (13):
The Park, Kingston Deverill, Warminster BA12 7HF
01985 844095/*info@bwnd.co.uk*
http://www.bwnd.co.uk

RAFGSA BICESTER* (14): http://www.rafgsa.org
01869 252493/*manager@rafgsa.org*

BIDFORD GLIDING CENTRE (15):
Bidford Airfield, Bidford on Avon B50 4PD
01789 772606/*office@bidfordgliding.co.uk*
http://www.bidfordgliding.co.uk

BLACK MOUNTAINS GC (87):
The Airfield, Talgarth, Powys LD3 0EJ
01874 711463/*blackmountainsglidingclub@hotmail.com*
http://fly.to/talgarth

BOOKER GC (16): Wycombe Air Park, Marlow SL7 3DR
01494 442501/*office@bookergc.nildram.co.uk*
http://www.bookergliding.co.uk

BORDERS GC (17): The Airfield, Milfield Wooler NE71 6HD
01668 216284/*help@bordersgliding.co.uk*
http://www.bordersgliding.co.uk

BOWLAND FOREST GC (18):
Lower Cock Hill Fm, Fiddlers Lane, Chipping, Preston PR3 2WN
01995 61267/*enquiries@blgc.co.uk*
http://www.blgc.co.uk

BRISTOL & GLOUCESTERSHIRE GC (19):
Nympsfield, Nr. Stonehouse GL10 3TX
01453 860342/*secretary@bggc.demon.co.uk*
http://www.bggc.co.uk

BUCKMINSTER GC (20):
Saltby Airfield, Sproxton Road, Skillington, Grantham NG33 5HL
01476 860385/*office@buckminstergc.co.uk*
http://www.buckminstergc.co.uk

BURN GC (21): The Airfield, Park La, Burn, Selby YO8 8LW
01757 270296/*burnglidingclub@bigfoot.com*
http://www.burnglidingclub.co.uk

CAIRNGORM GC (2):
Blackmill Airstrip, Feshiebridge, Kincraig, Inverness-shire
01540 651317/*gliding@feshiebridge.freeserve.co.uk*
http://www.gliding.org

CAMBRIDGE GC (22): Gransden Lodge Airfield, Lodge Farm, Longstowe Road, Little Gransden, Sandy, Beds SG19 3EB
01767 677077/*office@glide.co.uk*
http://www.glide.co.uk

CARLTON MOOR GC (23):
Carlton Moor, Nr Stokesley, North Yorkshire
01642 778234 (w/e)/*enquiries@carltonmoorglidingclub.org.uk*
http://www.carltonmoorglidingclub.org.uk

CHANNEL GC (24):
Waldershare Park, Nr. Whitfield, Dover, Kent CT15 5NH
01304 824888/*NicBearcraft@aol.com*

CHILTERNS GC* (25): http://www.chilternsgc.fsnet.co.uk
01296 623535 x7002 mailbox 5198/*info@chilternsgc.fsnet.co.uk*

CLEVELANDS GC* (26):
http://www.dishforthairfield.freeserve.co.uk
polly.whitehead@tesco.net

CONNEL GC (3):
Oban Airport, North Connel, By Oban, Argyll PA37 1RT
01631 710428/*stewart@macfarlane.evesham.net*

CORNISH GLIDING & FLYING CLUB (27):
Perranporth Airfield, Trevellas, Nr Perranporth TR6 9QB
01872 572124/*cornglide@aol.com*
http://members.aol.com/cornglide/page1.htm

COTSWOLD GC (28): The Control Tower, Aston Down Airfield, Nr Minchinhampton, Stroud, Glos GL6 8HT
01285 760415/*pat@cotswoldgliding.co.uk*
http://www.cotswoldgliding.co.uk

CRANWELL GC* (29): http://www.cranwellgc.freeserve.co.uk
Ian@Fitzpatrick.co.uk

CROWN SERVICE GC (30): RAF Odiham, Hook RG29 1QT
01256 703157 clubhouse/*smhills1@dstl.gov.uk*
http://freespace.virgin.net/jon.knowles/dra-gc.html

DARTMOOR GLIDING SOCIETY (31):
Burnford Common, Brentor, Tavistock, Devon
01822 810712/*mark.cooper5@ntlworld.com*
http://homepage.ntlworld.com/mark.cooper5/

DEESIDE GC (4):
Aboyne Airfield, Dinnet, Aboyne, Aberdeen AB34 5LB
01339 885339/*deeside@glidingclub.co.uk*
http://www.richardcaw.freeserve.co.uk

DENBIGH GC (88): Mold Road, Denbigh, Clwyd
01745 813774/*denbighglidingclub@welshnet.co.uk*
http://www.denbighglidingclub.welshnet.co.uk

DERBYSHIRE & LANCASHIRE GC (32):
Camphill, Great Hucklow, Tideswell SK17 8RQ
01298 871270/*dlgc@gliding.u-net.com*
http://www.dlgc.org.uk

DEVON & SOMERSET GC (33):
North Hill Airfield, Broadhembury, Honiton EX14 3LP
01404 841386/*dsgc@ fly.to*
http://www.fly.to/dsgc

DORSET GC (34):
Eyres Field, Puddletown Road, Hyde, Wareham BH20 7NG
01929 405599
http://www.dorsetglidingclub.freeserve.co.uk

DUKERIES GC (35): Gamston Airfield, Gamston, East Retford
(Not a postal address)
01909 731436/*adele@swannack60.freeserve.co.uk*

DUMFRIES & DISTRICT GC (5):
Falgunzeon, By Dalbeattie, Dumfries & Galloway
01387 760601/*kaz@paszki.freeserve.co.uk*
http://www.paszki.freeserve.co.uk/ddgc.htm

EAST SUSSEX GC (36):
Kitson Field, The Broyle, Ringmer, East Sussex BN8 5AP
01825 840347/*stewforst@aol.com*
http://members.lycos.co.uk/eastsussexgliding/

ESSEX GC (37):
North Weald Airfield, Merlin Way, North Weald CM16 6AA
01992 522222/*egc@glidingclub.co.uk*
http://www.essexgliding.org

ESSEX & SUFFOLK GC (38): Wormingford Airfield, Fordham Road, Wormingford, Colchester, CO6 3AQ
01206 242596/*Glide@esgc.flyer.co.uk*
http://www.esgc.co.uk

FENLAND GC* (39): http://www.glidingclub.freeserve.co.uk/
delboy@glidingclub.freeserve.co.uk

FOUR COUNTIES* (40):
http://www.fourcountiesglidingc.freewire.co.uk
01636 525300 (w/e)/*suearmstrong1@btinternet.com*

HEREFORDSHIRE GC (41):
Shobdon Airfield, Shobdon HR6 9NR
01568 708908/*gliding@shobdon.com*
http://www.shobdon.com

HERON GC* (42): RNAS Yeovilton
CFI: *derek@laleham-house.fsnet.co.uk*/01935 863055

HIGHLAND GC (6): Easterton Fm, Birnie, Elgin, Morayshire
All post to: Secretary, Highland GC, Drum Farm, Keith AB55 5NP
01343 860272/*admin@highglide.co.uk*
http://www.highglide.co.uk

IMPERIAL COLLEGE GC (43):
Lasham Airfield, Lasham, Alton GU34 5SS
01256 384900/*icgc-committee@ic.ac.uk*
http://www.su.ic.ac.uk/gliding

KENT GC (44): Squids Gate, Challock, Kent TN25 4DR
01233 740274/740307/*soaring@kent-gliding-club.co.uk*
http://www.kent-gliding-club.co.uk/

KESTREL GC* (45):
01372 458 579/*chriswick85@hotmail.com*

➢ 36


64 Seahawk (RNAS Culdrose & Predannack)
65 Shalbourne (Rivar Hill) ▲
66 Shenington (Shenington) ▲
67 Shropshire Soaring Group (Sleap)
68 Southdown (Parham) ▲
69 South London Gliding Centre (Kenley)
70 Spilsby (Spilsby)
71 Staffordshire (Seighford)
72 Stratford on Avon (Snitterfield)
73 Surrey & Hants (Lasham)
WALES
87 Black Mountains (Talgarth) ▲
88 Denbigh (Denbigh) ▲
89 North Wales (Llantisilio) ▲
90 South Wales (Usk) ▲
91 Vale of Neath (Rhigos) ▲
Statute miles
0 10 20 30 40 50 60 70 80 90 100
Motorways
Other major roads
Ridge site ▲
ENGLAND - continued
74 The Motor Gliding Club (Hinton-in-the-Hedges)
75 The Soaring Centre (Husbands Bosworth)
76 Trent Valley (Kirton in Lindsey)
77 Turweston (Turweston)
78 Upward Bound Trust (Thame)
79 Vale of White Horse (Shrivenham)
80 Vectis (Bembridge) ▲
81 Welland (Lyveden)
82 Wolds (Pocklington)
83 Wrekin (Cosford)
84 Wyvern (Upavon)
85 York Gliding Centre (Rufforth)
86 Yorkshire (Sutton Bank) ▲
Dublin
Lancaster
Harrogate
York
Hull
Leeds
Manchester
Liverpool
Sheffield
Lincoln
Denbigh
Stoke on Trent
Nottingham
Grantham
Kings Lynn
Norwich
Shrewsbury
Leicester
Peterborough
Birmingham
Aberystwyth
Bury St Edmunds
Banbury
Cambridge
Ipswich
Bedford
Hereford
Brecon
Pembroke
Gloucester
Oxford
London
Bristol
Swindon
Reading
Cardiff
Basingstoke
Maidstone
Folkestone
Barnstaple
Taunton
Salisbury
Southampton
Brighton
Bournemouth
Exeter
Plymouth
Penzance
UK Clubs Directory
2002
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SCOTLAND

1 Angus (*Drumshade*)
2 Cairngorm (*Feshiebridge*) ▲
3 Connel (*Oban*) ▲
4 Deeside (*Aboyne*) ▲
5 Dumfries & District (*Falgunzeon*) ▲
6 Highland (*Easterton*) ▲
7 Scottish Gliding Centre (*Portmoak*) ▲
8 Strathclyde (*Strathaven*)

NORTHERN IRELAND

92 Ulster (*Bellarena*) ▲

ENGLAND

9 Andreas (*Isle of Man*)
10 Anglia (*Wattisham*)
11 Aquila (*Hinton-in-the-Hedges*)
12 Bannerdown (*Keevil*) ▲
13 Bath, Wilts & North Dorset (*Kingston Deverill*)
14 Bicester (*RAF Bicester*)
15 Bidford Gliding Centre Ltd (*Bidford*)
16 Booker (*Wycombe Air Park*)
17 Borders (*Milfield*) ▲
18 Bowland Forest (*Chipping*) ▲
19 Bristol & Gloucestershire (*Nympsfield*) ▲
20 Buckminster (*Saltby*)
21 Burn (*Selby*)
22 Cambridge (*Gransden Lodge*)
23 Carlton Moor (*Carlton Moor*) ▲
24 Channel (*Waldeshare Park*)
25 Chilterns (*RAF Halton*)
26 Clevelands (*RAF Dishforth*)
27 Cornish Gliding & Flying Club (*Perranporth*) ▲
28 Cotswold (*Aston Down*)
29 Cranwell (*RAF Cranwell*)
30 Crown Services (*Odiham*)
31 Dartmoor Gliding Society (*Brentor*)
32 Derby & Lancs (*Camphill*) ▲
33 Devon & Somerset (*North Hill*) ▲
34 Dorset (*Hyde, Wareham*)
35 Dukeries (*Gamston*)
36 East Sussex (*Ringmer*)
37 Essex (*North Weald & Ridgewell*)
38 Essex & Suffolk (*Wormingford*)
39 Fenland (*RAF Marham*)
40 Four Counties (*RAF Syerston*)
41 Herefordshire (*Shobdon*) ▲
42 Heron (*RNAS Yeovilton*)
43 Imperial College (*Lasham*)
44 Kent (*Challock*)
45 Kestrel (*Odiham [Army]*)
46 Lakes (*Walney Island*) ▲
47 Lasham Gliding Society (*Lasham, Alton*)
48 Lincolnshire (*Strubby, Alford*)
49 London (*Dunstable*) ▲
50 Mendip (*Halesland*) ▲
51 Midland (*Long Mynd*) ▲
52 Needwood Forest (*Cross Hayes*)
53 Nene Valley (*Upwood*)
54 Newark & Notts (*Winthorpe*)
55 Norfolk (*Tibenham*)
56 North Devon (*Eaglescott*)
57 Northumbria (*Currock Hill*)
58 Oxford (*RAF Weston on the Green*)
59 Oxfordshire Sport Flying (*Enstone*)
60 Peterborough & Spalding (*Crowland*)
61 Portsmouth Naval (*Lee on Solent*)
62 Rattlesden (*Rattlesden*)
63 Sackville (*Riseley*)
64 Seahawk (*RNAS Culdrose & Predannack*)
65 Shalbourne (*Rivar Hill*) ▲

BGA MEMBER CLUBS

LAKES GC (46):
Walney Airfield, Barrow In Furness LA14 3YJ
01229 471458/*peter.seddon@telco4u.net*
http://www.lakesgc.force9.co.uk

LASHAM GLIDING SOCIETY (47):
Lasham Airfield, Alton GU34 5SS
01256 384900/*office@lasham.org.uk*
http://www.lasham.org.uk

LINCOLNSHIRE GC (48):
Strubby A/F, Alford LN13 1AA
01507 450698/http://www.cix.co.uk/~lgc

LONDON GC (49):
Tring Road, Dunstable LU6 2JP
01582 663419/*info@gliding.powernet.co.uk*
http://www.londonglidingclub.co.uk

MENDIP GC (50):
Halesland Airfield, New Rd, Priddy, Wells, BA5 3BX
01749 870312 (Thurs+w/e only)/*haxell@clara.net*
http://www.mendipglidingclub.uklinux.net

MIDLAND GC (51):
The Long Mynd, Church Stretton, Shropshire SY6 6TA
01588 650206/*office@longmynd.com*
http://www.longmynd.com

NEEDWOOD FOREST GC (52): Cross Hayes Field, Maker Lane, Hoar Cross, Burton upon Trent DE13 8QR
01283 575578/*nfgc@gogliding.co.uk*
http://www.gogliding.co.uk

NENE VALLEY GC (53):
Marshals Paddock, Ramsey Road, Upwood PE26 2PH
07761 478417/*jbhatfield@athworld.com*
http://website.lineone.net/~gpnuttall/nvgc/

NEWARK & NOTTS GC (54):
The Club House, Drove Lane, Winthorpe, Newark NG24 2NY
07761 478417/*newarkgc@hotmail.com*
http://www.newarknottsglidingclub.freeserve.co.uk/

NORFOLK GC (55): Tibenham A/F, Long Stratton NR16 1NT
01379 677207/*norfolkgc@hotmail.com*
http://www.ngcglide.freeserve.co.uk

NORTH DEVON GC (56):
Eaglescott A/F, Burrington, Umberleigh, North Devon EX37 9LH
01769 520404/www.eaglescott-airfield.com

NORTH WALES GC (89): Llantisillo Airfield, Gefnffordd Lane, Nr Llandegla (Not a postal address)
07956 498078/*brianp@nwgc.org.uk*
http://www.nwgc.org.uk

NORTHUMBRIA GC (57):
Currock Hill, Chopwell, Newcastle Upon Tyne NE17 7AX
01207 561286/*info@northumbria.flyer.co.uk*
http://www.northumbria-gliding-club.co.uk

OXFORD GC (58):
RAF Weston On The Green, Nr Bicester OX6 8TQ
01869 343403/*secretary@oxford-gliding-club.co.uk*
http://www.oxford-gliding-club.co.uk

OXFORDSHIRE SPORTFLYING LTD (59):
Enstone Aerodrome, Church Enstone OX7 4NP
01608 677208/*osf@enstoneaerodrome.co.uk*
http://www.enstoneaerodrome.co.uk

PETERBOROUGH & SPALDING GC (60):
Postland Airfield, Crowland, Lincs
01733 210463/*Chairman@psgc.co.uk*
http://www.psgc.co.uk

PORTSMOUTH NAVAL GC* (61): http://www.pngc.co.uk

RATTLESDEN GC (62): Rattlesden Airfield, Hightown Green, Rattlesden, Bury St. Edmunds IP30 0SX
01449 737789/*andy.page.ap@bayer.co.uk*
http://www.ratair.co.uk

SACKVILLE GC (63):
Sackville Lodge Fm, Riseley MK44 1BS
01234 708877

SCOTTISH GLIDING CENTRE (7):
Portmoak Airfield, Scotlandwell, By Kinross KY13 7JJ
01592 840243/840543/*office@scottishglidingcentre.co.uk*
http://www.scottishglidingcentre.co.uk/

SEAHAWK GC* (64): RNAS Culdrose
Sec: 01326 573845/*cjbryning@hotmail.com*

SHALBOURNE SOARING SOCIETY (65):
Rivar Hill Airfield, Henley, Nr Marlborough SN8 3RJ
01264 731204/*Datac@compuserve.com*
http://fly.to/Shalbourne

SHENINGTON GC (66): Shenington Airfield, Shenington OX15 6NY
01295 688121 or 680008/*Gliding.club@virgin.net*
http://freespace.virgin.net/fisher.m/sgc/

SHROPSHIRE SOARING GROUP (67):
Sleap Airfield, Nr Wem SY4 3HE
01939 232045/*c.ratcliffe@tesco.net/keithfield@welshwave.co.uk*
http://www.welshwave.co.uk

SOUTHDOWN GC (68):
Parham A/F, Pulborough Rd, Cootham, Pulborough RH20 4HP
01903 746706/*Southdown@sephton30.freeserve.co.uk*
http://www.southdown-gc.demon.co.uk

SOUTH LONDON GLIDING CENTRE (69):
Kenley Airfield, Caterham On The Hill CR8 5YG
0208 763 0091/http://www.southlondongliding.co.uk

SOUTH WALES GC (90): The Airfield, Gwernesney, Usk
01291 690536/*Dave.jeffries@btinternet.com*
http://www.users.globalnet.co.uk/~tonyho

SPILSBY SOARING TRUST (70):
Great Steeping, Spilsby, Lincolnshire
01754 830221/*aerosports@manby.fsbusiness.co.uk*

STAFFORDSHIRE GC (71): Seighford A/F, Seighford, Stafford
01785 282575/*office@staffordshiregliding.co.uk*
http://www.staffordshiregliding.co.uk

STRATHCLYDE GC (8): Strathaven A/F, Strathaven
01357 520235/*mail@strathclydeglidingclub.co.uk*
http://www.strathclydeglidingclub.co.uk

STRATFORD ON AVON GC (72): Snitterfield A/F, Bearley Road, Snitterfield, Stratford on Avon CV37 0EG
01789 731095/*geoff@gbutler.demon.co.uk*
http://www.gbutler.demon.co.uk/soagc/index.htm

SURREY & HANTS GC (73):
See **Lasham** or *www.lasham.org.uk/members/surrey/surrey.html*

THE MOTOR GLIDER CLUB (74):
Hinton-in-the-Hedges Airfield, Steane, Brackley NN13 6LX
01295 812775/*Tompft@aol.com*

THE SOARING CENTRE (75):
Husbands Bosworth Airfield, Lutterworth LE17 6JJ
01858 880521/880429/*office@thesoaringcentre.co.uk*
http://www.thesoaringcentre.co.uk

TRENT VALLEY GC (76):
The Airfield, Kirton In Lindsey, Gainsborough, Lincs
01652 648777/*pwdewick@hotmail.com*
http://www.tvgc.freeserve.co.uk

TURWESTON GC (77):
Turweston Aerodrome, Turweston, Brackley NN13 5YD
01280 705400/*info@turwestonflight.com*
http://www.turweston.co.uk

ULSTER GC (92):
Bellarena, Seacoast Road, Nr Limavady, County Londonderry
028 7775 0301/*tom.snoddy@nireland.com*
http://www.ulsterglidingclub.co.uk

UPWARD BOUND TRUST GC (78): Aylesbury/Thame Airfield, Haddenham, Bucks (Not a postal address)
david@aromatic.fsnet.co.uk

VALE OF NEATH GC (91): Rhigos Airfield, Mount Road, Cefn Rhigos, Nr Glynneath, Mid-Glamorgan
http://hometown.aol.co.uk/rhigosgliding/myhomepage/flying.html

VALE OF WHITE HORSE GC (79):
Sandhill Farm, Shrivenham, Swindon SN6
01793 783685/*vowhgc@email.com*
http://www.vowhgc.8m.com

VECTIS GC (80): c/o, Pilatus Brittan Norman, Bembridge Airfield, Bembridge, Isle of Wight/*j.c.leonard@btinternet.com*
http://www.btinternet.com/~vectis.gliding

WELLAND GC (81): Lyveden Airfield, Harley Way, Lyveden Road, Brigstock, Kettering, Northants
01832 205237/*suzanne.harris@lineone.net*
http://www.welland.skynet.co.uk

WOLDS GC (82): The Airfield, Pocklington, York YO4 2NR
01759 303579/*office@wolds-gliding.org*
http://www.wolds-gliding.org

WREKIN GC* (83): RAF Cosford
Clubhouse: 01902 377255/mobile: 07719 732746 (Sat/Sun)

WYVERN GC* (84): *secretary@wyvernglding.org.uk*
http://www.wyvernglding.org.uk

YORK GLIDING CENTRE (85):
Rufforth Aerodrome, Rufforth, York YO2 3QA
01904 738694/*yorkglidingcentre@btinternet.com*
http://www.users.york.ac.uk/~mdc1/ygc.html

YORKSHIRE GC (86): Sutton Bank, Thirsk YO7 2EY
01845 597237/*enquiry@ygc.co.uk*
http://www.ygc.co.uk

NOTES:
* = Services club (may restrict civilian entry). GC = Gliding Club; A/F = airfield. For more details of BGA member clubs or of university clubs affiliated to them, see *http://www.gliding.co.uk*
To contact a BGA club secretary, ask the BGA (see p3) for its list.
(This *S&G* list is believed to be correct as at 27.02.02.)

Above: autumn flying above the inversion, near Jihlava Aeroclub. Jan Beranek, who passed his pilot's exams in 1993 and flies cross-country and in comps, has access to three types of club aircraft: the L-13 Blanik two-seater, the VSO 10 (Club Class, similar to an ASW 15) and the L-33 Solo (the all-metal runner-up to the PW-5 in the contest for a World Class glider). Jan, a designer by profession, is also a keen photographer (using a Nikon F80) in his spare time. He aspires to a 500km: his longest task so far is a 400km polygon... in the Blanik. Below: a few seconds before finishing, a Glasflügel 304cz competing in the Czech Nationals in May 2001 *(all photos by Jan Beranek)*

Above: during the Czech Junior Championships in August 2001, photographer Jan Beranek was with six or so other gliders all at the same level, just above ridge-top height

In-flight reflections

Jan in his favourite Blanik near his club at Jihlava, where the 1998 Club Class Europeans was held. It will be the venue for the second Women's World Championships, in 2003

When the Tairi Pet roars

In the fourth part of his series on mountain soaring, Gavin Wills explains why New Zealand's massive wave systems are at their strongest in summer

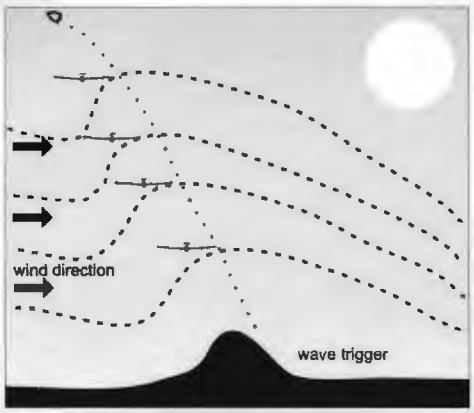


Figure one: Tilted wave. Surprised pilots can find they are soaring upwind of the wave trigger!

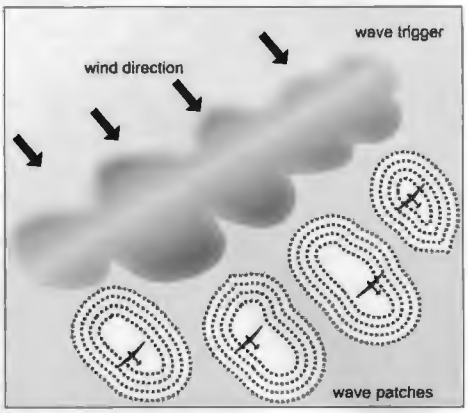


Figure two: En echelon wave. The lift is still parallel to the trigger, but is found in patches

MIDDLEMARCH is a small rural town south of Omarama, New Zealand. Step out of the pub there on a hot, summer's nor'west afternoon and you may hear a distant roar reverberating around the valley. If you do, look up and you'll see a giant lenticular cloud stacked to the stratosphere. It's called the Tairi Pet. When the Pet is pumping you can often hear her. It's the sound of power, one of the most powerful atmospheric waves on earth.

Experienced mountain wave pilots may recognise something odd here. The Pet is pumping on a summer's afternoon during the full heat of the day. In most parts of the world soarable wave occurs in winter or, if it does appear in summer, it does so in the cool of the morning or the evening. While winter wave is common in New Zealand, the strongest wave conditions occur in the height of a summer's day. Why this is so is an interesting question.

The Tairi Pet has yielded climb rates of over 30kts and the wave probably extends to over 70,000ft into the upper atmosphere. But The Pet is only one of a dozen huge waves named by local soaring pilots. When atmospheric conditions are ideal, wave systems, containing hundreds of lenticulars, stretch over 1,500km along the length of both islands. Conditions that are in fact so common that our Maori name is Aoteoroa – the Land of the Long White Cloud.

Some of the world's longest, highest and fastest soaring flights have been flown amongst the wave systems of Aoteoroa and the potential remains for more records to fall. Climbs rates of over 5,000ft per minute have been experienced, ground speeds of 400km/h have been achieved and 2,000km-long flights made – with longer flights planned. And yet – almost invariably – Aoteoroa's wave conditions are best on a warm summer's day.

Consider the atmospheric conditions required for good waves to form. These include a stable laminar airflow with increasingly-strong winds aloft blowing perpendicularly across mountain triggers, and a strong wind-shear/temperature inversion separating the stable flow from the unstable air below. The wave train is triggered by the mountain range and the waves propagate downwind in the stable laminar flow. The unstable air below is shoved aside by the waving air to allow the wave's amplitude to reach its maximum.

The relative instability of this low-level airmass largely controls the wave's size, shape and steepness. The more unstable the lower airmass becomes without breaking through the inversion, the bigger the wave gets for a given wind speed. This lower airmass, sandwiched as it is between the waving laminar flow and the ground, becomes most unstable during the heat of a summer's day.

The problem in most wave environments is that summer temperatures also destabilise the laminar flow and break it up long before it reaches its potential mountain trigger.

However, the geography of New Zealand has been well organised for glider pilots; the Southern Alps rise straight out of the sea and lie directly across the windy Roaring Forties. Together these fortuitous circumstances enable an endless supply of stable laminar air to blow across the mountains all year round. In summer, however, the dry country on the mountains' leeward flanks gets hot and produces the highly unstable lower airmass necessary for the most dramatic of wave oscillations. This is when the Tairi Pet begins to roar.

Waves come in many shapes and styles. Watch water waves standing downstream of submerged river boulders. Notice the shape of the waves in three dimensions and how they relate to the shape of the boulder and its orientation to the flow. See how wave trains below different boulders interfere with each other and change their wave shapes. Notice how the wavelength increases when the river floods and how some waves break and form a turbulent flow. But remember the scale of things. Atmospheric waves are huge.

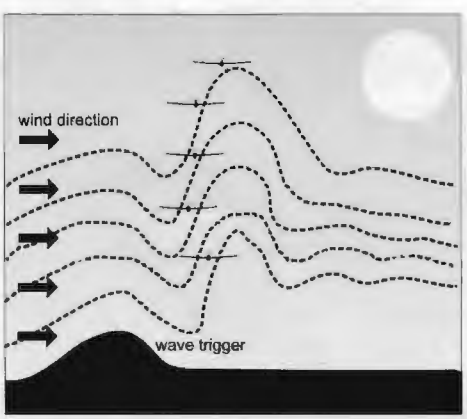


Figure three: single primary waves may be found when the inversion is weak or non-existent

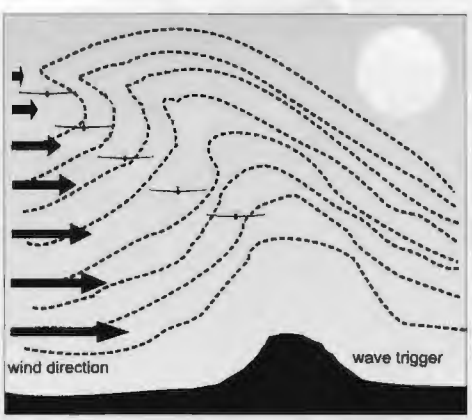


Figure four: Breaking waves can cause mayhem in the cockpit and alarm in the hapless pilot

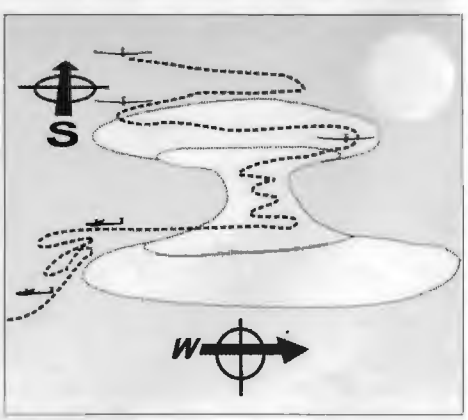


Figure five: The witch's hat, showing a glider's soaring route as the wind changes direction with height

All diagrams enhanced by Jon Hall, HRA

While a kayak surfs on a standing river wave that is two or three times taller than he, a soaring pilot plays in a much larger ocean. Atmospheric waves are many thousands of times taller than the pilot's glider. Thus on any one day we surf only a few different waves and wave shapes spread around in a very large playground.

Wave shapes tend to be fairly constant for a given day but can vary a lot from day to day. Atmospheric wave shapes seem to be controlled by:

1. the shape and complexity of their mountain triggers
2. the wind's strength and angle to the mountain ranges
3. the characteristics of the atmosphere itself (including changes in temperature, density, stability and moisture content)
4. variations of wind direction and/or speed with altitude.

Lenticular clouds may clearly define wave shapes. But as waves are often blue or only partially defined by cloud our knowledge of wave forms is limited by the clouds we observe: some may remain undiscovered.

The following notes describe a few interesting wave shapes (*see diagrams, left*):

Tilted waves: The vertical axis of waves may tilt forward so that the soaring glider can rather surprisingly arrive upwind of the wave trigger or over the next lenticular.

En echelon waves: A kind of interference wave pattern that forms when the flow is very oblique to a mountain trigger. The best lift is still parallel to the trigger but in patches as the waves go in and out of phase.

Single primary wave: These may occur when there is little or no inversion evident.

Breaking waves: Atmospheric waves may break when the winds aloft are decreasing. In light winds these are not uncommon. Occasionally a very powerful wave on a strong day will topple and crash causing mayhem in the cockpit and terrifying the pilot. There have been isolated reports of wave-surfing gliders being dumped several thousand feet without warning.

The witch's hat: Radical changes of wind direction aloft may cause interfering wave trains to vertically merge and create interesting shapes. The enterprising pilot may climb first from one direction and then find himself working at 90° higher up the wave.

Wave shapes are as varied as the air above us. Atmospheric wave surfers still have much to learn, new boundaries to push and new waves to explore.

If you want the maximum bang for your wave bucks as well as a unique experience, try New Zealand on a windy Southern summer's day!

For details of Gavin's mountain soaring school, see www.GlideOmarama.com

Gliding and UK airspace

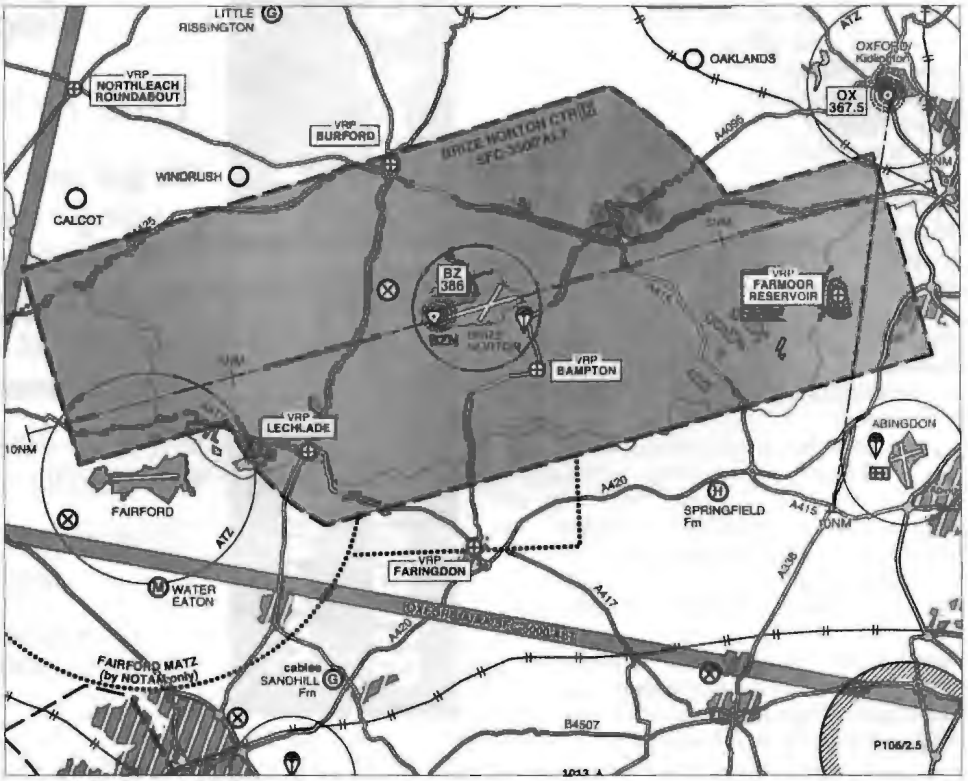
Carr Withall, chairman of the BGA Airspace Committee, reports on 2001 and reminds us of what we should all know before taking to the skies

OVERALL, 2001 was again a quiet year with no changes to controlled airspace that had any impact on gliding. After an increase in the number of airproxes very close to gliding clubs and other low-level incursions, below winch launching height, the Maps and Charts Department at the CAA has agreed to a new symbol for gliding activity on aviation maps. I believe this will be helpful to GA pilots. All new maps will have an excellent colour flyer attached to the map giving a full explanation of the change with a warning to beware of cables.

Remember to take a really good look all around the circuit before giving the all clear for launching.

All gliding clubs are being issued with MOR (Mandatory Occurrence Report) forms so that we can report any low-level incursions of gliding sites.

The AIS website is now very user friendly and can give up-to-date information on Royal Flights, TNWs etc before setting tasks: *www.ais.org.uk*



Changes to the Brize zone in Southern England; see the paragraph headed "Airspace changes" on p45 for details

ICAO Airspace classification

In November 1991 the UK adopted a new system of airspace classification developed by ICAO, the International Civil Airspace Organisation. The status of a piece of airspace is denoted by a letter shown on all aeronautical charts, which determines the rules applying to it. For example, in the UK airways are all Class A, but in other countries they may be Class E. To fly within controlled airspace, gliders will often require legal exemptions; the availability and nature of these will vary from country to country.

Class A Controlled Airspace

Cotswold CTA Daventry CTA; London CTR; London TMA; Manchester TMA; Worthing CTA; All airways (except where they pass through a TMA/CTA /CTR of lower status).

NO airways can be crossed by gliders. Exceptionally, gliders may cross sections of Class A airspace by virtue of a Letter of Agreement (LOA) which will have very detailed procedures to be followed. These LOAs will be specific to a club operation. Camphill has an agreement for crossing airway B1. There is also an agreement for crossing airways B2 and B226 in Scotland, which applies nationally. However, both these agreements require pilots to have read the detailed procedures and signed the BGA form which MUST be given to the CFI before undertaking a crossing flight.

Class B Controlled Airspace

The entire airspace over the UK above FL245, comprising the Upper Airspace CTA and the Hebrides Upper Control Area (UTA) is Class B Airspace. Gliders are no longer allowed to fly in this airspace without restriction. Specified areas have been agreed that can be activated by clubs using the procedure for glider operations in Class B airspace. The requirement for notice of activation of these areas has been reduced to two hours.

Class C Controlled Airspace

No UK airspace falls in this category, though some may be so redesignated in future.

Class D Controlled Airspace

Formerly Special Rules Airspace. All Class D airspace requires an ATC clearance to enter and transit. Pilots will also be flying in VMC conditions. Any pilot wishing to enter must:

1. Contact the ATC unit and pass details of aircraft's position, level and proposed track.
2. Obtain entry clearance.
3. Listen out on the frequency whilst in that airspace.
4. Comply with ATC instructions.

This applies to gliders in all Class D areas: **Aberdeen CTR/CTA; Belfast CTR; Belfast City CTR/CTA; Birmingham CTR/CTA; Bournemouth CTR; Bristol CTR/CTA; Brize Norton CTR; Cardiff CTR/CTA; East Midlands CTR/CTA; Edinburgh CTR; Glasgow CTR; Leeds/Bradford CTR/CTA; Liverpool CTR; Lyneham CTR/CTA; London Gatwick CTR/CTA; London Stansted CTR/CTA; London City CTR; London Luton CTR/CTA; Manchester CTR/CTA; Newcastle CTR/CTA; Scottish TMA Solent CTA; Southampton CTR/CTA; Teesside CTR/CTA.**

There is a form to complete after flying through Class D airspace. All clubs do have copies. Completing this form will give the BGA and the CAA statistics on how many gliders have been granted clearances to continue their flights and identify any ATC units that may be unhelpful. There is NO restriction to asking any ATC unit in Class D for clearance to fly through their area. Most are only "busy" for short periods, usually early morning and late afternoon. Much of the traffic is transiting light aircraft or flying school traffic. The code of conduct for glider flights through Class D airspace is still relevant as it sets out good airmanship practice.

Most pilots who ask for clearances obtain them from helpful controllers but a few have been refused clearances. With more education and visits from pilots to their local ATC unit, clearances should become the norm.

Code of conduct

With the ever-increasing size of Class D areas the need to fly through them on cross-country flights will become greater. Pilots can ask for a clearance to fly through ANY Class D airspace. The code set out below is

a guide to good airmanship practice.
1. Glider pilots should plan to route their flights through Class D airspace when it is clear that there are advantages from so doing, such as better weather and shorter track distance.
2. Flights should try to spend the minimum time in Class D airspace. Pilots should avoid circling on or close to the runway extended centre lines, since this may well interfere with departing or arriving traffic.
3. Keep the controller informed if, for any reason, that is, massive sink, you have to change your planned course.
4. Good lookout is vital at all times, and glider pilots should be prepared to initiate avoiding action notwithstanding their right of way priority. Gliders are not always visible on radar.
5. Competition tasks should NOT be set through Class D airspace. Where a task leg has to be set close to Class D airspace the ATC unit should be informed. When possible control point(s) should be established, to help ensure that gliders remain outside the airspace.

Class E Airspace

The Belfast TMA and parts of the Scottish TMA are notified as Class E and this permits all aircraft (including gliders) to fly in this area without ATC clearance subject to maintaining VMC.

Class F Airspace

An Advisory Route (ADR) is a route used by airline type traffic but without the full protection of an airway. Although depicted only as a centreline on UK aeronautical charts it is nominally 10nm wide. Gliders may cross Class F airspace without restriction but caution should be exercised.

Class G Airspace

This is the term given to the "open" FIR (Flight Information Region), which is the uncontrolled airspace not subject to any of the foregoing classifications. Within Class G airspace there are various non-ICAO types of airspace which are described below.
Within Classes F and G aircraft are separated on a purely see-and-be-seen concept. A flight information service is provided by civil and military ATC units, if requested. Most small light aircraft talk to whoever will listen as they fly around the country.

Visual Meteorological Conditions

VMC conditions for Class D, E and in the open FIR below FL100 are: that an aircraft shall remain 1,000ft vertically, and 1,500m horizontally from cloud in a flight visibility of 5km. Below 3,000ft AMSL an aircraft shall remain clear of cloud in a flight visibility of 5km and in sight of the ground. Additionally, when flying in the Open FIR below 3,000ft and below 140kts, flight is permitted in flight visibilities of 1,500m.

Local agreements

A number of local agreements exist which modify the effects of some of the airspace listed above. Letters of Agreement (LOA) between a gliding club and a nearby airport can make airspace either more or less restrictive than described above, depending on circumstances. These arrangements are too numerous to list in full. Copies of LOAs should be available from your club.

Aerodrome Traffic Zone (ATZ)

A glider pilot wishing to enter an ATZ must first call the airfield on the notified radio frequency. An ATZ is only active during the notified hours of operation of the airfield. A few ATZs may only be active at weekends and Bank Holidays. Many military airfields are notified as permanently active though in reality this is not the case. Nonetheless, the ATZs must be regarded as active at all times. At an airfield with an Air Traffic Control (ATC) unit, that unit is able to give or refuse permission for any aircraft to enter the ATZ and to give clearances to take off or land.

At an airfield with an Aerodrome Flight Information Service (AFIS) or Air/Ground (A/G) service, that unit is able only to pass information, from which a pilot may judge whether or not it is safe to enter the ATZ or to take off or land, that is, the unit cannot issue clearances or withhold permission.

The following categories of airfield are protected by an ATZ: Government aerodromes and licensed aerodromes with one of the above types of service.

The ATZ comprises the airspace extending from ground level to 2,000ft above the level of the aerodrome and within a radius of 2 or 2.5nm of the centre of the aerodrome, depending on the length of the main runway.

At airfields without ATZs, including most gliding sites, regardless of how busy they are, an itinerant aircraft may legally penetrate the airspace near and over the airfield, provided the pilot conforms to the traffic pattern or keeps clear of the circuit airspace, and observes the normal rules of good airmanship to avoid conflict with other aircraft.

For landing at airfields with or without ATZs, it should be noted that many are listed in the UK Air Pilot as "PPR", "PPR to non-radio aircraft" or even "not available to non-radio aircraft". PPR (Prior Permission Required) means that landing permission must be obtained in advance of the flight, for example, by telephone. All military airfields are effectively PPR and will not permit landings by civil aircraft except where they have been pre-arranged, or in an emergency.

Military Aerodrome Traffic Zones

The rules applicable to the penetration of a MATZ are not mandatory for civil aircraft and the same applies to the Lakenheath Military Control Zone. However, radio contact is advised and inside every MATZ there is an ATZ, the rules of which must be observed. A standard MATZ comprises the airspace within a 5nm radius of the centre of the airfield extending from the surface to 3,000ft above airfield elevation. In addition, projecting stubs 5nm long and 4nm wide extending from 1,000ft to 3,000ft above airfield elevation are aligned with the approach ➢

➢ to the main runway at one or both ends. Some MATZ may lack stubs or form part of a combined MATZ (CMATZ).

Prohibited and Restricted Areas

A Prohibited Area (P-prefix) is prohibited to all aircraft, whereas a Restricted Area (R-prefix) permits limited access by aircraft under defined circumstances, for example, landing at a nearby airfield. These areas include atomic energy establishments, security areas in Northern Ireland and sensitive military installations. Most Restricted Areas should be considered as prohibited to gliders but the following are exceptions: the Restricted Airspace established around high-security prisons is applicable only to helicopters and R105 at Highgrove House, Gloucestershire, applies only to helicopters and microlights. R313 at Scampton exists for the purpose of protecting the Red Arrows' display training. The area is a circle of 5nm radius extending to 9,500ft amsl and active only during Scampton's normal operating hours, which are weekdays and as notified by NOTAM. During these times, a glider may enter the area by permission of ATC Waddington.

Temporary Restricted Airspace

Major air displays such as Farnborough or the International Air Tattoo (IAT) display at Fairford are often protected by temporary Restricted Airspace. **This year the IAT will be back at RAF Fairford on the 20/21 July, 2002.** Local gliding clubs usually negotiate limited access routes to and from their sites to enable non-radio gliders to continue operating but a glider equipped with suitable radio may fly in the area if it contacts the ATC unit designated by the NOTAM as the controlling authority.
Other types of temporary Restricted Airspace are effectively closed to gliders. They are established to protect Red Arrow' displays throughout the country, plus major flypast formations, over events of political significance and over the sites of major disasters. The duration and extent of the restriction can be quite short and will be published by NOTAM.

Purple Airspace

Purple Airspace is established from time to time on a temporary basis to protect Royal Flights in fixed-wing aircraft. Full details are only available by using the Freephone service 0500 354802 or from AIS (military), tel 01895 426153. Clubs should telephone daily in order to obtain this information. Gliders are not permitted to fly within Purple Airspace, even by contacting ATC. Royal Flight NOTAMs covering royal helicopter flights have ceased. These are not protected by Purple Airspace but all pilots are required to look out for and keep well clear of the royal helicopter.

Royal Flight NOTAMs

Postal distribution of NOTAMs has ceased. Information on Royal Flights and temporary Restricted Airspace is obtainable on the Freephone service (0500 354802) or from AIS (military) at West Drayton, tel 01895 426153. The National Air Traffic Services web site at *www.als.org.uk* also has this information.

Danger Areas

The UK is covered with Danger Areas of many types, shapes and sizes. They are active part-time, permanently or when notified by NOTAM. Full details will be found in the *UK Air Pilot, RAC Section.* The chart of UK Airspace Restrictions is also useful. The *UK Air Pilot* lists only the type of activity most likely to be encountered, but in practice various hazards may be encountered manoeuvring outside the confines of the Danger Area, especially if it is a Weapons Range Danger Area.

Many Danger Areas contain areas over which flight is prohibited at times within the period of activity of the Danger Area by reason of bye-laws made under the Military Lands Act 1892 and associated legislation. It is also worth noting that the *UK Air Pilot* does not list Danger Areas with upper limits 500ft or less above the local surface, to which prohibiting bye-laws may also apply.

With these exceptions, flight through a Danger Area is not prohibited, but may be foolhardy.

For certain Danger Areas, a Danger Area Crossing Service, most notably for Salisbury Plain, is available – call Salisbury Plain Control on 122.75Mhz. A Danger Area Activity Service is available in other cases:

this should be viewed as a means of establishing the state of activity of a Danger Area at a particular time, not as a clearance to cross it. A convenient summary of these two services and the ATC units to contact is printed at the foot of the 1: 500000 series CAA charts.

Particular care should be taken to avoid Weston on the Green (D129), which is used extensively for military paratroops training. Brize Radar on 134.3 will confirm activity status.

Parachuting

There are many sites around the country and a few operate every day and are extremely busy. The list of parachute sites and the appropriate contact ATSU/AC for transit information is on the maps. See Parachuting drop zone procedure, S&G, February-March 2000, p16. The airspace is contained in a circle radius 1.5 or 2nm from the centre of the drop zone up to a maximum of FL150. You will NOT see a free-fall parachutist in time to take avoiding action.

High-Intensity Radio Transmission Areas

These contain powerful radio emissions, which may cause interference with glider radios, electric variometers, electronic barographs and loggers. In particular, Fylingdales is so powerful that prolonged exposure may be injurious to health.

Areas of Intense Aerial Activity

An AIAA is airspace that is not otherwise protected but where the activity of civil and/or military flying is exceptionally high or within which aircraft regularly participate in unusual manoeuvres. Gliders may penetrate these areas but in view of the hazards, a sharp lookout is essential.

Military Low Flying System

Low flying by high performance military aircraft takes place in most parts of the UK up to 2,000ft AGL, with the greatest concentration between 250ft and 500ft. A chart is available denoting the system (*UK Air Pilot, RAC Section*). Most gliding sites are notified to the MoD, which affords them the status of a Military Avoidance Zone, usually with a radius of 1.5nm.

Radar Advisory Service Area

A RASA is airspace in which a pilot may, if he/she so chooses, avail him/herself of the services of a radar unit. There is no requirement to do so, and a glider pilot should not assume that other aircraft are being separated from him, nor even that the radar unit is aware of the glider's presence.

The Airprox system

An Airprox may be filed by a pilot who considers his flight to have been endangered by the proximity of another aircraft. All Airproxes are investigated by the United Kingdom Airprox Board, whose deliberations are confidential so as to preserve anonymity. The purpose of a UKAB investigation is to determine what lessons can be learned, not to take punitive action.

Prompt reporting is vital if the other aircraft is to be traced. If in radio contact with an ATC unit report to them at once, or if not possible, telephone straight after landing. Call AIS (MIL) at LATCC West Drayton on 01895 426153, who will start tracing action at once and inform the Airprox Board. Follow this up with a written report on form CA1094 to the UKAB within seven days. Always use GMT (UTC is the same) in reports. Every club has been sent this form.

UKAB can be contacted in working hours on 01895 815125 or fax on 01895 815124. Their address is, The Director, UKAB, Hillingdon House, Uxbridge, UB10 0RU.

Use of radio

A glider pilot possessing a radio operator's licence (R/T Licence) is entitled to use all the available aeronautical frequencies of a 760-channel radio. This permits seeking access to the following types of airspace that may be otherwise closed to gliders: the new Class B airspace areas, any Class D airspace and Aerodrome Traffic zones, some types of permanent and temporary Restricted Airspace and some Danger Areas. Radio cannot be used to request entry clearance into Class A airspace (except by special arrangement) or into Purple Airspace.

All clubs have a copy of where and with whom one can take the R/T licence test. The licence will be valid for 10 years.

NOTAMs

The NOTAM system has changed over the last few years. Essential flight planning information is obtainable from several sources. *UK Air pilot AIRAC Supplements* are the formal method of notifying permanent changes to airspace but can only be obtained as part of a subscription to the entire *Air Pilot*. The *Air Pilot* is now available on CD and updated every month.

By far the best way to obtain all the up-to-date information is from the AIS website at *www.ais.org.uk* This site, containing all information on UK warnings and Royal flights, is updated daily. Temporary Navigation Warnings (TNWs) are published twice weekly, giving notice of airspace warnings such as air displays, military exercises etc, and outline details of Royal Flights and Temporary Restricted Airspace. All the above are available from CAA Printing and Publishing Services (01242 235151).

Airspace changes

RAF Brize Norton have been granted a small increase to their zone to protect their traffic during procedural let downs and when aircraft are in the circuit. (See map on page 42) However, they have agreed to release, at weekends and Bank Holidays, a significant area at the south-west and north-east portion of their zone. Clubs can contact Brize ATC and request the use of these areas for the day. Pilots must call Brize on 119.00 before flying in the areas but they DO NOT have to have an R/T licence. Last summer this agreement was notified to all clubs likely to make use of these areas. The RAF controllers are always very helpful. This change will be on the new editions of the 1/2-million maps.

Future airspace concerns

As reported in the last S&G, (*Defending freedoms to fly*, December 2001-January 2002, p20) the whole future design of airspace is high on a European agenda. Most of the European Air Sports associations are recognising this threat and a two-day meeting was held in Amsterdam to agree actions for a united approach both at national and European level.
Bristol has a proposal for increasing their Class D airspace and meetings have been held at Bristol and Nympsfield. Although this has a long way to go before any changes occur the ATC manager has already agreed to very flexible use of the proposed airspace.

Maps

As mentioned on page 42, the new aviation maps will have a new symbol for gliding sites. Thanks are due to John Gentleman and his staff at the CAA for their work.

Airspace infringements

If due to the difficulty of trying to stay airborne one drifts into controlled airspace then PLEASE call the ATC unit to apologise, giving your good reason for the intrusion. They DO NOT CARE if you do not have an R/T licence but they DO CARE if the airspace that is in their control is infringed. With the requirement to obtain an R/T licence, to fly within Class D airspace, pilots should become more confident to talk to other airfields that they may be flying close by. A brief courtesy call is welcomed by most controllers and will reinforce the position that we are "professional" pilots.

If a pilot is lost there is a service to call any time.

It is the **VHF AUTO TRIANGULATION SERVICE** on 121.5, the distress frequency. This service can very quickly find an aircraft as long as it is about 2-3,000ft and anywhere south and east of Manchester to the South Coast. If at all concerned that you may be lost in controlled airspace then give them a call. They are there to help and can locate you almost instantly on 121.5.

References: the information in this article is only a brief synopsis of the airspace rules as they affect glider pilots and is believed to be accurate at the time of writing. In case of doubt authoritative references should be consulted. These are: *Air Navigation Order 1989; Rules of the Air Regulations 1991; UK Air Pilot, RAC section. BGA Laws and Rules*, 13th edition, July 2001, reflects the current legislation.
Abbreviations: CTA = Control Area, CTR = Control Zone, TMA = Terminal Manoeuvring Area (the lower limit of a CTA or TMA is an altitude or flight level above the surface, whereas a CTR extends to ground level).

Master of the mountains

Leading French pilot Jacques Noel is interviewed by BGA Vice President Peter Hearne in our occasional series about eminent glider pilots

*Above, from left: Peter Hearne, Jacques Noel and Mike Bird (who – after five days' intensive flying from Gap in superb surroundings – remarked: "This would be a wonderful place for a holiday if it wasn't for all this b****y gliding!")*

YOU ARE known, respected, admired, even loved, around the world as *the* mountain flying instructor in France, *says Peter Hearne.* How did it all start?

JN: I think you flatter me much too much. But I do adopt a policy of teaching and encouraging my pupils how to master the particular flying and decision-making techniques themselves rather than simply showing them and expecting them to imitate me. As to how it started, I came back to France after 11 years in Morocco where I grew up. When I was 16 in 1970 my father paid for what you would call a trial lesson in a Rallye 150CV near Rennes, where we lived in Brittany. I was feeling very nostalgic for Morocco but my flight in the front seat with the far horizon, the freedom from the ground and the new dimension of the air made a deep impression on me.

PH: What then?

JN: I could not afford to try power flying but gliding in France was then very cheap. I started learning to fly on a side-by-side two-seater M-200 at Rennes in 1971. My instructor was only one year older than me and, *most importantly*, taught me soaring and not gliding. After three months of flying at weekends when the weather was good enough I went solo. One month later I had completed my Silver and after three months at the end of the flying season I had 180hrs.

PH: Some going! Many of us don't achieve that in a lifetime. What was your next ambition?

JN: Well, next season, 1972 I did my 300km in a triangle flying a K-6E – an aircraft with which I developed an instinctive rapport – and put a further 170hrs experience in my logbook. After that, again all in our wonderful K-6E, I won a regional competition in 1973 and in 1974 I managed to fly a 625km dog-leg as well as coming 4th in another regional against glass-fibre Standard Class gliders.

PH: Were you a professional pilot then?

JN: No. I had graduated from agricultural college as an agricultural technologist and I had to earn my living at that for a number of years. In fact, I missed the classic thermal year of 1976 and it was not until 1977 when I started various ground jobs in airport operations that I came back into aviation, later attending the St Auban instructor rating course in 1980.

PH: So that was the start of your instructing career?

JN: Yes .I was offered a job instructing in what you would call cadet or juniors training at Cholet, south-east of Nantes. This led on to flying at Vaumeilh (Sisteron) for a couple of months and then to Buno Bonnevaux which is the big club 30 miles or so south-west of Paris (the French Lasham), where I became CFI in 1982. Buno is a wonderful place with great élan. It is very cross-country orientated with ambitious club tasks seven days a week in the season. Guernsey has been used successfully as a turning point on at least one occasion. At many clubs the members are pushing the CFI to allow them to go cross-country. At Buno it is the opposite and I sometimes had pilots begging me to be allowed to stay local!

PH: So what led you to the Alps?
JN: Each year Buno organised a safari to Vaumeilh and after a while I got married to a wonderful lady, who was also a keen glider pilot (and who is now in charge of the Met Bureau at St Auban) and we settled in the South. In the mountains, not only do you regularly experience and use all the phenomena that you meet in flat country but they are all much stronger. It is normal to encounter thermal, wave, slope and convergence conditions, all during the same flight as you progress along your track. And usually you are in a minimum climb rate of 4-5kt. The other major attraction is the proximity of the ground, which gives you the impression, and indeed actuality, of flying in three-dimensional conditions rather than the two dimensions of flat country.
The timelessness and beauty of the mountains, the range of different meteorological conditions and the fascination of the scenery are always with you. I fly 500hrs a year (8,000hrs mountain flying so far) and I am never, ever bored. There is the fantastic range of geology such as the shape of the faces, which have been sculpted by the wind over tens of thousands of years, and of course give a clear indication of a good updraft location. And there is a wonderful population of soaring birds such as the many eagles, kites and other raptors, which have increased noticeably in recent years due to protection measures. Nowadays they do not usually see man as an enemy and sometimes I can even fly in formation with them.
PH: For the last ten years you have been running a specialised one-on-one mountain flying training course. What inspired this?
JN: Roger Biaggi, who is one of the French gliding greats, had felt for a long time that there was a shortcoming in the then standard method of instruction. The standard French approach seemed to concentrate more on training you to do well in good conditions as opposed to flying safely in poor or deteriorating ones. I agreed with him that it is not too difficult to succeed when everything is going up, but if you can't stay in the air when the thermals start to disappear you may be in a very dangerous position. Consequently much of what we teach is how to stay in the air and get back home safely even if you seem to have fallen out of the sparkling conditions above the tops of the crests. That is much more useful and only marginally more difficult than the 300km dash on a 14,000ft cloudbase day, which everybody chases after.
PH: What class of pilots is your course aimed at?
JN: Any pilot, even a very experienced one, coming to the mountains for the first time will take some time, maybe several annual visits, before he can acquire the knowledge to fly safely and well in the mountains. Without training, expanding one's knowledge is time-consuming. We aim to get first time pilots knowledgeable about the best flying techniques and the safe ways to exploit them on the various routes through the mountains

'The most critical factor is stress management when you are down below the crests'

PH: You keep stressing safety. Is mountain flying dangerous, then?
JN: No: it is not dangerous if you treat it with the respect that the mountains demand! For a start, you must realise that mistakes in the mountains can have serious consequences so that your situational awareness in terms of relative location to outlanding fields, gliding range and overall flight management must form a continuous mental check pattern as you are flying. You also have to be aware, at all times, of critical items such as airspeed margins when flying near the face of the slope and – at the other end of the range – the need to stay within the rough air envelope when in strong conditions. On the other hand, the mountains will usually help you a lot. The ground is breathing and it has life. Unlike over the flat country, the assessment of ground formations is usually a much better way to determine thermal sources than looking at clouds, particularly when you are near or below the mountain level. On 99.95 per cent of occasions there is some form of ascending air that you can use to stay airborne. This is one of the essential skills we teach. If you can "park" successfully, which you should be able to do almost anywhere, then you can stay airborne till local conditions throw off another thermal so that you can continue the flight or come home safely. But though the flying skills to park are simple, the most critical factor is stress management when you are down below the crests, halfway down the slope. This requires a certain mental attitude and experience, which we try to demonstrate to pupils, to ensure that they do not become panicky if faced with this situation and consequently make some critical and unnecessary wrong decisions.
PH: Jacques, there is obviously a book in all of this, which I know you hope to write one day, so I will conclude by asking you about what you feel about the state of gliding generally, which is a matter that concerns all of us in the different gliding countries.
JN: I believe one of the main problems which affects France, and I believe also the UK, is that we do not give enough attention to advancing our pilots to higher skill levels after the early solo stages. I think we should look much more closely at a pilot's rate of progression to Silver and Gold badges and measure this on a yearly basis for every club. I think you will find that the most successful clubs spend time and effort on a planned progression and advanced training and it is those methods which we should develop to keep the world's gliding movements healthy and expanding.

Jacques can be reached at tel/fax 00 33 4 92 64 28 63, 9 rue lavoisier, 04600 St Auban, France. His advanced training courses for individuals and/or clubs are currently operated at both Gap and La Motte, some 15km north of Sisteron

Accidents and instructors

Mike Cohler, CFI of York GC, explains why he disagrees with Graham Morris' findings about instructor safety and currency, published in the last issue

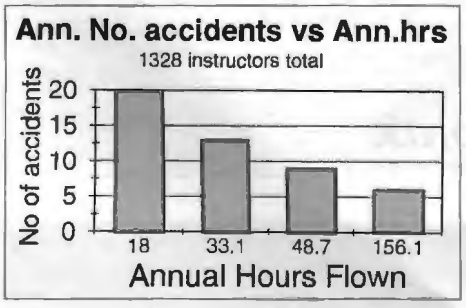
THIS ARTICLE is written in response to the article in the last *S&G* (*Safety and instructor currency*, February-March 2002, p45) about instructor safety. As a mathematician and physicist I felt that it was important to represent information in such a way as to draw sensible conclusions but felt this is not the case with the original article.

In the table below I have taken the information from Figure 4 of the article referred to above, and plotted the author's graph below as well as two further graphs to illustrate the salient points that can be drawn from the data although more useful conclusions could be obtained with more complete information not available from the article directly.

Instructors	Annual hours	No of Accidents	Accidents /instructor	Accidents/ instr/hour
654	18.0	20	0.030581	0.001699
355	33.1	13	0.03662	0.001108
243	48.7	9	0.037037	0.000761
76	156.1	6	0.078947	0.000506

Above is the original data as well as two further columns containing the number of accidents per instructor, as well as the number per instructor per hour of flying. These are crucial in a proper interpretation of the information.

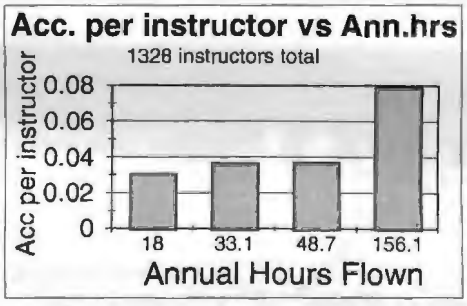
Let us draw the original graph first:



In the graph above there is no real information since the number of accidents occurring to a group of instructors would automatically be proportional to the number of instructors in the group.In other words, this overall *falling trend would be expected even if all instructors carried the same risk*, since the numbers of instructors in each category are 654, 355, 243 and 76 as we go from left to right.

What do we mean by the term *risk*? Risk is certainly not the absolute number of accidents, and it is important to be clear what risk is. It is the *chance* or *probability* of an event happening under specified conditions. Usually represented as a probability for one event, it will also tell us the total number of events if we multiply the risk for each event happening by the number of opportunities for the event to happen. Here the *event* is an average instructor having an accident. We have determined the *average* risk of an instructor having an accident per year each row of the fourth column of the table above. Hence the *expected* number ofaccidents for that group of instructors is the product of this risk and the number of instructors. Correspondingly the accident *risk* is the number of accidents divided by the number of instructors, which is how we arrive at the numbers in the fourth column. Therefore the numbers make logical sense and we can now plot *the risk against the number of hours flown* in each group.

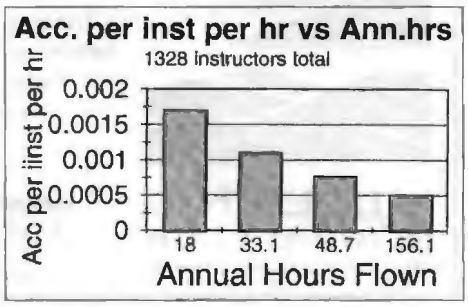
From the graph below it is clear that the risk of any one instructor having an accident goes up if he/she does more hours in the year. But we would expect that, since the more a pilot flies the more opportunities will present themselves for an accident to happen!



But one does not know if all instructors in the high accident group carry an equal risk or if there is a subset rogue group of say 100 of these 1,328 instructors who were carrying very high risks, leading to the 20 accidents in this year when the data was obtained! We need more information. We do not know what the variation of risk is between different instructors. These graphs only tell us the overall picture.

Let's plot a different quantity – accidents per person per flying hour (*see graph at the top of the next column*). This is still a risk but it is a different risk from that above.

One would naively expect this to fall with hours flown, so again there are no surprises. Despite this reduced chance of an accident per hour of flight, more hours would still lead to more accidents overall if the skill level of all instructors is roughly the same. To test whether or not these differences are significant (that is, are all instructors carrying the same risk or not) it is necessary to perform a proper correlation analysis using



the raw data (which is not available from the overall data here). You must use a statistical analysis package. (not merely plotting data) Only if there are significant differences can one then seek to find the reasons.

For the last graph we have the number of accidents per instructor per hour flown. There seems to be a reduced risk for high-hours pilots. However the risks are very low (one in a 1,000 or so) and again it is necessary to conduct significance tests to see if this is a real effect. In other words one would expect that an average pilot would have an accident for every 1,000 hours or so that he/she flew in a glider. This is a different risk to that plotted in the middle graph. But despite this reduction in risk per hour, the average high-hours pilot will have more accidents than the average low-hours pilot in any one-year period. This can be seen from the middle graph.

Conclusions

The conclusions from this data without conducting a proper mathematical statistics analysis are unreliable. However, the data appears to show that more flight hours will lead to more accidents in total, and this would be expected logically, even if there were no differences in the skill level of different instructors.

There are many factors that lead to accidents, such as weather, difficulty level of the exercises being conducted at the time, and the competence of the pilots concerned, as well as other flight difficulties which may have led to the specific situation for any particular accident. This cannot be analysed by looking at an overview from this kind of statistical information, even if a full mathematical analysis can be done. One needs to investigate the details of every accident individually.

However, more information and a more complete analysis of all the accidents concerned including other factors (such as whether the chain of events may have been broken, or if the flight should have taken place at all) would yield valuable insight, and offer possible training advantages from which other instructors (and indeed other solo pilots) could learn.

Certainly it would appear from this data that if the hours minima for instructors were

to be raised with no other action taken then each instructor would be exposed to an increased total likelihood of an accident, and the chances are that the high accident group would be moved to those with more hours without affecting the total number of accidents occurring overall per year.

However, it must be realised that if the annual risk per instructor increases with increased hours minima, as seems to be the case from the data shown, then one would expect the total number of accidents per year to increase. This is logical in that if skills levels remain the same then more flying will give more opportunities for an accident to happen.

The way to reduce the overall number of accidents is to improve training and testing of pilots. One can explore whether hours increases result in a larger number of accidents per year in a crude way by looking at the figures for those years when the instructor minima were increased, to see if this prediction corresponds with what happened. Of course if there are statistical glitches then one has to analyse whether the changes are significant and again we are back to a full probability analysis!

Overall, the only sensible way to reduce the overall total number of accidents is to improve training, and testing of individual instructors (and solo pilots) to ensure that those whose flying is more risky are retrained, or not renewed. But there are economic and practical limits as to how far this can be taken.

The balance of evidence is that increasing hours minima alone will not reduce the total number of accidents occurring per year. Putting additional burdens on all instructors for no apparent benefit is unfair policy, although there is *likely to be a sensible lower limit on hours below which there would be an increase in the accident rate.* The hours minima which are currently in force are adequately above the level where real problems due to rusty pilots would have an effect.

After all, if a poor pilot does more instructing then more poor instructing will be done, and this will not add to safety! You need to improve the level of ability, rather then just fly more.

Individual renewal testing of each instructor is fair but the frequency of re-test must be chosen so as not to make the renewal process too Draconian without clear benefit. A re-test period of two to three years would not seem unreasonable in the present circumstances.

Mike Cohler
CFI, York Gliding Centre/BI Coach

Bob Pettifer, the chairman of the BGA instructors' committee, adds: we are very pleased that, as I asked in the last issue, the article on instructors and safety has sparked a useful debate. I can only reiterate what I said then: anything that adds to our understanding of how to reduce accidents and leads to improvements in the real world is more than welcome

Across the Channel

Geoffrey Stephenson of London GC, who died recently, was the first pilot to soar the English Channel. His account of the flight is reprinted from *The Sailplane & Glider*, May 1939, in recognition of a great achievement. See page 60 of this *S&G* for more tributes

ON SATURDAY, April 22nd, we arrived late at Dunstable, due to having made an unsuccessful attempt to get towed off from Heston. At the surface the wind was 28 m.p.h. gusting to 40. The direction was about 300° (N.W. by W.) at 4,000 ft.

I was launched at 2.55 p.m., reached the hill level with the top and hardly ceased climbing once all the way to cloud base at 4,000 ft. This shows what sort of day it was. The clouds were smooth inside and appeared slightly lighter looking upwards than downwards. This probably helped, for I managed to fly blind to Hatfield Aerodrome.

I now made for Abridge, and just before Epping Forest the lift became scarce. I passed over Abridge and Stapleford and reached the Thames at Stanford-le-Hope. Thinking of Greig with the trailer, I hesitated a long time before crossing, but a thermal over the water decided the issue.

The Medway was crossed at its widest part at 3,000 ft., and I decided that with luck Canterbury Aerodrome was within range. We proceeded cautiously along the London road and reached the town of Canterbury with 2,000 ft. This was encouraging, and I decided to have a shot for Hawkinge. This meant aiming south-west in order to allow for drift in the weak thermals.

The aerodrome was reached at 1,000 ft. and then the big surprise came. I flew slap into a newly formed thermal at 5 ft. per second, worked it up to 10 ft. per second, and immediately thought of the Channel. The lift increased to 15 and even 20 ft. per second. I checked up the direction of Cape Gris-Nez and entered a large cloud at 4,500 ft. At 6,000 ft., and probably still climbing, I let the speed fluctuate a bit, so decided that to come out was a bird in the hand. We emerged on the south side of the cloud just of the coast. There were a few ships below, but none ahead.

South-east of the cloud I had left, and adjoining it, was a rather broken cloud which I made for. It was very little use, and ahead of it was a 10 ft. per second sink. Ahead again was blue sky and I wondered if it was all sink; but, at 50 m.p.h. we were very quickly clear of it, and the sink was normal. I had forgotten to allow for drift, so a slightly curved course was followed.

Five miles of the French coast the sink was reduced slightly and I set the speed at about 35 m.p.h. The coast was crossed at about a mile east of Cape Gris-Nez. The height was 2,600 ft.

The sink was still a little below normal, and, forgetting about St Inglevert, I went down-wind looking for somewhere from which I could be towed back home. There was no field large enough, and as height was running out I chose a small field at the village Le Wast, 10 miles east of Boulogne. The landing was very gusty, but it worked out all right at 5.35 p.m.

I cannot speak the language, which was a snag, but everybody was very helpful and seemed to display intelligence in handling the GULL. I found the gliding certificate worked as a passport. If you want to know anything about wangling trailers and sailplanes through the customs, ask Ann Edmonds who, with Brian Powell, came over. Greig, who spent the afternoon driving the trailer north of the Thames, was responsible for a lot of the donkey work. I wish to express my gratitude to all those who were so helpful.

Reprinted from The Sailplane & Glider, *May 1939, p89, which tells us that previous Channel attempts had been made by P Michelson, PA Wills, and C Nicholson. Ann Edmonds is, of course, now Ann Welch*

Surrey & Hampshire

the white planes picture co.

AT THE Surrey and Hampshire GC we aim to offer our members the best opportunity in the country to fly club-owned single-seat gliders.

With a fleet of 11 and a membership of around 160, we have something for everyone, from the newly-solo to the cross-country and competition pilot.

Surrey & Hants (as it is known) is the largest affiliated club operating at Lasham; Lasham Gliding Society – broadly speaking – owns and operates the infrastructure, it also operates the two-seater fleet and runs training (and a lot more besides!); we are "the single-seat club at Lasham".

This structure means that we can focus on running the single-seaters, and, also, that pre-solo members at Lasham (and private owners at the other end of the scale) don't pay to support gliders that they never fly.

However, many private owners do choose to take up our restricted membership category, to keep their hand in on a variety of types.

Our club can trace its history back to pre-war days and has operated continuously since 1946, when it re-started at Kenley, then Redhill, and in 1958 it was one of the clubs that formed Lasham as it is today.

In the last few years we have been on an upward trend; the fleet has been re-structured, membership has increased and in 2001 we flew the most hours in any year of our history.

Activity has been boosted over the last few years by the introduction of an "unlimited soaring" membership, which gives as much soaring as you can get in the year for a single up-front payment.

There are two levels of membership in S&H. Group 1 members can start on K-8s, moving on through Grob 102s, and progressing to ASW 19s – we have two each of each of those types.

Stepping up to Group 2 gives you access to a DG-300, three Discuses, and our Ventus at the top of the fleet.

There is a daily ballot for gliders at 8.00am. When you get a glider in the ballot, you can fly cross-country if you wish (and if you have the qualifications!), or try for your five hours – there is no "bring it back after an hour" rule. But when you've had a soaring flight, you do have to give it to someone else!

The objective is to make the whole gliding experience available to the club pilot, while maximising use of the fleet.

We also hire out gliders to members: for competitions, expeditions or to fly in Lasham's advanced courses and task weeks.

The entry for the Lasham Regionals usually contains most of the top half of the fleet – this year we have had to ballot for gliders for this popular competition – and we have a policy of encouraging and subsidising participation in the Junior Nationals.

In 2001 we sent four gliders (and pilots!) to Aston Down. Similarly, we offer advantageous subscription and soaring rates to young pilots progressing in Lasham's Cadet scheme, and this year for the first time we will be welcoming members of the Surrey University club to single-seat flying.

The characteristics of the Lasham site are well known; mainly thermal lift, of course, with occasional ridge soaring on the South Downs in a northerly (usually involving an aerotow back from Parham).

The S&H fleet flies thousands of cross-country kilometres each season, despite being recorded as '0' in the *S&G* listing in the last issue – our kilometres are bundled in with Lasham in the reporting – and many Diamond flights have been recorded.

We are looking forward to setting more records in 2002, with plans for development of the fleet already under discussion; come and see us!

Graham Prophet

Above: a Surrey & Hants Discus, one of three it owns
Below: the runway at Lasham, the S&H base. It has been refurbished recently at a cost to ATC Lasham, the on-site airline maintenance company, of £500,000

the white planes picture co.

At a glance

Membership (excludes Lasham membership): Group 1, £105. Group 2, £220

Launch type and cost:
Winch, £8.20; Aerotow to 2,000ft, £21.30

Club fleet:
2xK-8, 3xGrob 102, 2xASW 19, DG-300, 3xDiscus, Ventus

Private gliders: n/a

Type of lift: Predominantly thermal

Operating days:
every day Lasham is operating (ie, every flyable day except Christmas Day)

Contact:
Lasham Gliding Society office: 01256 384900
www.lasham.org.uk/members/surrey/surrey.html

Club news

*Evelyn Mands took this picture of (from left) Roger Lashly, Charly Devine and Wolf Rossmann at **Angus GC**, who decided to take advantage of what they describe as "summery" weather to launch the T-21 at New Year...*

Andreas (Isle of Man)

THE tug finally returned from its foot-and-mouth-enforced absence just before Christmas so the weather has, naturally, been unflyable since! As we now have an alternative launch method again, the winch is receiving a much-needed engine overhaul and the redundant Wild-winch has been stripped right down and will be re-built as a piano wire winch with a huge diesel engine. (Don't ask how Brian came by two old vandalised double-deck buses for free!) Last autumn our star junior, Gareth Claydon, converted to the K-8 and immediately started to look like a Bronze candidate. Following last year's excellent expedition to the UK (thanks, Denbigh) another is planned. The "Kipper Shippers" are heading for Bowland Forest this year. A Swallow arrived on site late last year but it hasn't done anything for the weather!

Brian Goodspeed

Angus (Drumshade)

TOWARDS the end of the year our hangar was finally completed again (after a collapsed roof under the weight of snow almost a year ago and long delays with insurance and contractors) and we could start keeping some of the gliders in there again. At last, no more rigging and de-rigging every weekend. We are still waiting for the electrics to be re-installed, but this should happen soon. So we are now fully operational again. The New Year started with some of the members deciding to take advantage of the "summery" weather in Scotland and took out the T-21 dressed in Bermuda shorts and T-shirts. Although temperatures stayed below freezing, and it took some effort to get the winch positioned in the snowy field, the first launch was taken by Charly Devine and Wolf Rossmann just before midday, with Roger Lashly driving the winch. The view of the snow-covered Angus and Grampian hills was spectacular and although the thermals eluded us, we had some enjoyable flights to celebrate the New Year. I have revamped and updated our website and there are many pictures from New Year's Day on the new site, which is at *www.AngusGlidingClub.ukf.net* Unfortunately, the weather since then has been very poor at the weekends and no more flying was possible for last six weeks. Roll on spring and better weather.

Wolf Rossmann

*Mervyn Pocock, the president of **Bath, Wilts & North Dorset GC**, with Mike Edwards. They collected the club's new Puchacz from Poland*

Aquila (Hinton in the Hedges)

AQUILA is gearing up for the soaring season, with two instructors on the duty rota for any given day. This means we can focus on cross-country training in our newly refurbished K-21, whilst continuing with basic training in our two K-13s. The level of trial lessons over November and December 2001 broke all previous records at Aquila, so we are entering the new season with great enthusiasm! We are keen to provide both members and visitors with more opportunities for cross-country flying, and are actively looking to buy a glass-fibre single-seater to fill the gap between our K-8 and ASW 19. Check *www.aquilagliding.co.uk* for details. We will continue to run our popular Learn to Fly package (£325 for 25 aerotows and six months' membership). Group flying evenings and trial lessons will also continue. Aquila will host a regional task week from July 27-August 4. We would welcome all local clubs to participate in this event – after all we have a score to settle with bad old foot-and-mouth!

Hugh Gascoyne

Bannerdown (RAF Keevil)

BEFORE the deluges the New Year brought us two very acceptable weekends with wave to about 8,000ft. After that it was a matter of getting as many club gliders into the workshops as possible for repairs and annuals. At the AGM the deputy chairman praised the club for achieving more launches than Bicester. He thanked those who were at the core of club improvements, especially Oscar Constable and Robert Brain, and Sue Constable and Pete, who have set up scrumptious catering on the bus. It was sad though that the same faces were always to the fore (not just for food!).The CFI said that, though there were no major injuries, it was necessary to maintain continual vigilance of pilots in relation to their ability and experience. The following awards were made: Hog of the year – Keith McPhee; CFI's Cup – Al Stacey; Bannerdown Cup for overall merit – jointly to Simon Foster and Rick Fretwell; Bannerdown Bowl for most progress – Charlie Hocking; Coleme Cup for best comp results – Jon Arnold; Keevil Trophy for best flight – Simon Foster.

Derek Findlay

Bath, Wilts & North Dorset (The Park)

IN December we had a succession of fine, cold weekends which gave many members the chance to fly our new Puchacz. Since then the weather has been uniformly wet and no flying has taken place in January. The time, however, has not been wasted: each Saturday there have been lectures given by the duty instructors on various aspects of gliding. These have been very popular and a means of retaining some enthusiasm in the depths of winter. The rain and frost have made resurfacing our approach road imperative; this work will take place in March supervised by our indispensable airfield manager, Dick Yerburgh.

Joy Lynch

Bidford (Bidford)

AFTER a very good end to 2001 with regards to flying weather, so far 2002 has brought rain and wind (not just from the puffing of the pilots who are missing out on their flying!), and we have only managed to fly one day. However, we have been running a Radio Licence course, during which the attendees have so far passed all – just the practical to go, but we are hopeful that all will pass (as they are all such intelligent beings). The club dinner and dance passed without embarrassment (we will try to do better next year!). We look forward to a better flying season this year, with the Derek Piggott weekend (April), BGA Soaring Course (May), Turbo Comp (June) and Task Week (July). Here's hoping!

Lynne Taylor

Black Mountains (Talgarth)

THE last few months of 2001 gave some unexpectedly good flying with lots of ridge and good wave to over 10,000ft, so we ended the year in reasonable financial shape and look forward to a great foot-and-mouth free 2002. The new hangar has been a fantastic benefit to all and is now full, although we can usually manage to

Please send your entries to *helen@sandg.dircon.co.uk* or Helen Evans, 7 Ollney Road, Minchinhampton, Stroud, Glos GL6 9BX to arrive by **April 16** for the June-July 2002 issue. **Please note the new postal address for *S&G* editorial.** Thank you

Club news

squeeze in the odd visiting glider given a bit of warning. Our email is blackmountainsglidingclub@hotmail.com Looking at the last *S&G*, we saw the flying stats and have now calculated our own, which make interesting reading: average club two-seater flight duration: 43 mins; average club single-seater duration: 1 hour 23 mins; average flight duration of all club gliders: 1 hour 17 mins. Circuit bashing... forget it! We always look forward to seeing visiting pilots and expeditions at Talgarth and can assure you of a warm welcome (and even a centrally-heated clubhouse soon, it is rumoured!) and super flying. You can view the comprehensive notes for visiting pilots on our website at *http://fly.to/talgarth*
Robbie Robertson

Booker (Booker)

BY the time this is published our CFI should be back from New Zealand and we should be about to depart on our first overseas club expedition for many years. This is to Jaca towards the western end of the Spanish Pyrenees. We hope to be taking our Duo Discus, a Pegase and a Discus, together with several private owners, led by Jed Edyvean, our DCFI. Training has continued at Booker and despite the recent wet weather we have at least a couple of first solos with Mike Andrews and Peter Cross. We welcome our tuggies for this season, Jason Fobler and Matt Hawes. We have survived our rent review on the airfield without catastrophic increases in overheads, and the committee are conducting a thorough review of our overheads. Our traditionally-free, highly-competitive regionals will be held at the end of August, and entry information should be on the website, *www.bookergliding.co.uk/*
Roger Neal

Borders (Milfield)

JANUARY 12 saw two more Gold heights, for Brian Brown in his DG and Mike Crews in his Vega. Blue skies on the ground and gentle south-westerly breezes turned into very rough aerotows with rotor over the site. Brian had a cable break at 1,200ft due to the rough conditions, but his patience in the rough rotor paid off as he eventually hit smooth air at 1,800ft and climbed to 14,000ft. The club continues to attract new members and is reviewing its five-year plan with projects such as field improvements, new tugs and changes to our glider fleet on the agenda. Robin Johnson, having stepped down as CFI, is now taking on the role of tug pilot examiner for our northern region.
Bob Cassidy

Bowland Forest (Chipping)

WE achieved several good flying days during the period of hard frost, but unfortunately, the rain and high winds have kept us on the ground recently. Several budding Bronze pilots are keenly attending a course of Saturday evening lectures given by Bob Pettifer, in preparation for the Bronze exam and tasks later in the year. Our clubhouse has become clean, cosy and tidy thanks to the efforts of Ian Pendlebury and his team of volunteers. Our Super Falke with its big engine has been test flown, and we would like to extend our thanks and appreciation to Jim Hammerton and the CAA for all their help in this achievement. We now have a new secretary, Reg Woolier (e-mail: *regwoolier@btinternet.com*).
Eileen Littler

Bristol & Gloucestershire (Nympsfield)

OUR Supacat winch returned with more V8 grunt and a new Pawnee has been bought. People asleep in the clubhouse escaped unhurt in a fire in January, but some club chutes had to be replaced. As a thank-you, the fire brigade is being offered use of club facilities for a charity event. A cup is to be presented in memory of Malcolm Gay each year to a member for services to the club. A no-smoking ban has been extended to the bar. Drawings of wildlife done for our magazine by Daphne Malfiggiani are being turned into postcards for sale. You

*Ken Mahon (left) and Pete Bray with goods rescued from **Nympsfield's** clubhouse fire. The plastic in the background covers the damaged roof (Bernard Smyth)*

can still book for the Rolex Regionals (from July 27). Members were saddened to hear of the death of Brian Mumford, who joined in the Lulsgate days, cycling each weekend from Devizes. His major contribution was in the 1960s and 1970s as on-site engineer, and his famous winch is rumoured to be still in use.
Bernard Smyth

Buckminster (Saltby)

WITH the recent wet and windy weather, flying seems to be becoming an increasingly opportunistic pastime. That said the last few months have been anything but quiet. A few club members and visitors have been able to take advantage of the rare flyable days (mainly mid-week). January saw the inaugural meeting of the History Group, with the clubhouse packed with locals (and a handful of members). It will concentrate initially on the history of Saltby Heath since the building of the airfield. The coming months should see the history group start to "take off" and we hope a few more gliders! There are a number of events organised for the next two months: April 8-12 is Nottingham Trent University GC's winch week; May 4-6 will be an open weekend; May 6-10 a BGA Soaring Course; and May 30-June 2 we will be hosting the National Glider Aerobatic Championships.
Paul Rodwell

Burn (Burn)

THE winter high winds have been giving us regular 2,000ft winch launches for single- and two-seaters alike. The Panto went down a treat ("Oh yes it did") – all misdemeanours being recounted. Much work is going on in the winch shed as winches are being fettled and our number three Tost is being improved! Now we have an LPG cylinder on site for winch fuel, other prospective uses are being debated. The suggestion of winter thermals on tap has been turned down as no volunteer could be found to light the burner. The end of our lease is about two years away and as yet we have no reasonable offer from our landlord.
John Stirk

Cairngorm (Feshiebridge)

TREMENDOUS flying weather and superb thermal days have resulted in several attempts at 300km and 500km from Feshie. Some of our members decamped to Australia where they experienced lots of rain, snow and 100mph winds. (It's my first time writing for Club News and I may have got this the wrong way round!) Congratulations to Nick Norman who has won the BGA Rex Pilcher trophy for the first 500km of 2001. We are very proud! We are having a Mayfest from May 6-17 and our Octoberfest is Sept 30-October 27. As always, visitors are most welcome. See *www.gliding.org*
Ruth Binks

Clevelands (Dishforth)

DESPITE somewhat limited resources (a number of our regular club members were detached to various parts of the globe), the Christmas wave camp was successful. There was a minor delay to our Christmas Day flying activities, as the tug pilot/duty instructor was attending the morning service at the village church! You have to understand that the vicar, Rev Ted, holds a PPL, and we were pleased to have him join us for a trial lesson on the 27th. Amazingly, a gap opened up in the otherwise leaden sky as he got airborne, proving the sun does indeed shine on the righteous! During the wave week, Pete Stratten gave us a well-received safety presentation. Although there were no major claims, there was gentle wave to 10,000ft, some pleasant flying days and a good time was had by all. We held our AGM on February 2. Prizes were awarded to Jim Donald (aspirants' trophy), James Prosser (cross-country trophy) and John Cook (CFI's trophy). Hog of the Year went to Dave Campbell, and the c**k-up trophy went to Peter Cowling. Bouquets were awarded to Andi Causer and Joan Wilson for their unfailing dedication to keeping us all well fed. Webmaster Robin Sinton has designed a new-look website at *www.dishforthairfield.freeserve.co.uk*
Polly Whitehead

Cornish (Perranporth)

THE club has been through a period of turmoil recently, brought about primarily by a potential financial crisis. Our tug us nearing the time for an engine replacement, with no funds available. Membership has been falling, and little has been done to turn this trend around. Revenue has not kept up with costs. A new committee has been appointed, all committed to taking the club forward: new ideas, personal talents exploited, and above all enthusiasm for our future. Yes, we still need new members, preferably young ones. To encourage this, we charge just £24 pa for junior membership, of which the BGA takes £21! We are challenging this. Small clubs need all the help they can get, and surely some of that help should come from the BGA? As for flying, what was that? The weather has been diabolical, many members have not flown for nearly three months! I sincerely hope my next entry will be less depressing.
Dean Penny

Cotswold (Aston Down)

THE weather was unusually co-operative during December and early January, allowing winter training flights to continue. We enjoyed Boxing Day flying under blue skies. Review of our annual results at the AGM showed that we were largely unaffected by the foot-and-mouth outbreak with launches down by only 91 compared with last year, so our finances remain healthy. Chris Swann takes over as treasurer, following Ken Lloyd, whom we thank for all his hard work. The club dinner-dance was a great success. Trophies were awarded to Robin Birch (best pre-Silver), Stan Przeleski (best over-50s), Tony Parker (height gain), Gary Fryer (best flight), Mark Parker (best competition performance), and Brian Birlison (best junior). Politeness stops me naming the recipient of the white stick award. On a more serious note, our safety review by the BGA was successfully completed with only minor changes required in our procedures. All we need is a superb soaring season!
Frank Birlison

Cranwell (RAF Cranwell)

AS we approach the end of February it has been the Charge of the Flight Brigade yet again as stalwart members have raced to use any break in what has been the worst winter weather period for some years. Maintenance has dominated the club's weekend activities though we have seen the first flight of Barry Brigg's restored Weihe, which previously flew in 1995, and Kevin Knipps managed to go solo on what was an otherwise dull and very cold day. Ged McKnight has reached out to future glider pilots, having been asked to

produce engaging features for both the *Young Scientist* and *Sci-Tech* magazines. We now look forward to our AGM and even more so to some good flying weather.
Paul Skiera

Dartmoor Gliding Society (Brentor)

THE run of easterlies at the end of the year brought us several days of the unpredictable Dartmoor wave. Most of it was of only moderate strength giving no great height but extended flights on short narrow beats. On three days the sky suggested that Trevor Taylor's height record of 11,750ft from the site might be broken. Alas on two of those days we were in such severe rotor that flying had to be cancelled. On the third day John Bolt took the club Zugvogel to 10,000ft but an unfortunate combination of circumstances prevented any other solo pilot enjoying the day. Character building – we told each other. Since then weather and site conditions have allowed almost no flying. Characters are now even stronger. Last year's statistics indicate how severely our income has been reduced. We have applied to the council for rate relief for loss due to foot-and-mouth and to our chaplain for loss due to rain. We were sad to hear of the sudden death of our recent member, Geoff King. He loved gliding and claimed to get as much excitement from the K-7 as he had from his Spitfire in North Africa. He will be remembered with affection.
Phil Brett

Denbigh (Denbigh)

OUR new east-west cable retrieve track the full length of the field will no doubt be used as a runway in the winter, saving all of us time and effort in having to wash our gliders after use. We will now be able to fly even if the ground is waterlogged. The launchpoint area at the eastern part of the field has also been improved. Our thanks to Rod Witter for his help in achieving these. We also hope to have a tug on site in the near future. There were some excellent ridge and wave flying conditions during the depths of the winter and flights to 10,000ft have been achieved. Recently, the wave has been working up to 20,000ft. Congratulations to John Jones on his first solo and to Malcolm Austin, who re-soloed. A party of Army Cadets enjoyed a day of flying at the club and we look forward to seeing them regularly. We are expecting visits from Cosford and East Sussex. We are open seven days a week and visitors will receive a warm welcome in our clubhouse. Why not pop in for a cup of tea or – better still – a flight along our ridge?
Brian Allen

Derbyshire & Lancashire (Camphill)

AT Camphill we are settling into enjoying the better weather having seen another excellent winter's flying with wave regularly contactable. The weather was great up to New Year but has been a little damp since. However, the field is coping remarkably well with all the water, helped by the new low-pressure flotation tyres on the cable tractor. Congratulations to John Tumbull on going solo. We'll also be flying seven days a week from April 15. The club is into the third year of our very popular members' courses, with demand still outstripping supply. The role of members' course co-ordinator has been taken on by Eric Bynon. A workshop has taken place where the new committee worked all of the information from our membership survey into a five-year plan. Membership continues to expand with Jonathan Thorpe's very popular "Give Gliding a Go" scheme. June 22 sees the start of our week-long Vintage Rally. This grows in popularity each year. Last year's was great fun and this year looks likely to have a record number of aircraft. Ian Dunkley (our very own vintage pilot) is running this again this year.
Diane Reid

Devon & Somerset (North Hill)

THE sun is heading for the northern hemisphere, we have a new K-21 on order, the tug is back after a very lengthy and expensive cure for major corrosion problems and... positive thinking, June will see the best Competition Enterprise ever! Gliders are being fettled and more pilots than ever seem to be heading for Spain, virtually guaranteeing the rest of us some superb flying. Roll on summer!
Phil Morrison

Dukeries (Gamston)

WINTER weather has been a problem. Flying in cold and snow is not a problem but persistent strong blustery 90° crosswinds certainly take some coping with and have limited our activity over February. Eternally optimistic souls that we are, we realise that the soaring season is about to begin. We very often have had our first half-hour flight of the year by the middle of February. We are hopeful that our planning application for aerotows will be granted, giving us the chance to get into the wave next winter. Congratulations to Craig Hobson on gaining his Assistant Rating.
Mike Terry

Essex (North Weald and Ridgewell)

WITH all the recent wet weather we are lucky to be the only club with two airfields, so we have been able to keep flying on our Tarmac surfaces at North Weald in between the storms. We have been especially pleased with the outcome of our Appeal against Planning Enforcement Notices served on our Ridgewell site as reported in the February-March 2002 issue of *S&G* (p12). However, the point on which we were

Kevin Knipps flanked by mentors Al Docherty (left) and Brian Hutchinson following his solo at ***Cranwell***

unsuccessful has resulted in the take-off and landing areas of the site being restricted and visiting pilots are advised to be aware of this. Our recently refurbished clubroom and kitchen has seen more activity not least during two very interesting and informative evening presentations. One was by Blue Eagles Army Air Corps pilot Major Colin Dunscombe, on the history, training and future plans of the Blue Eagles Helicopter Display Team, and one was by our own Technical Officer Ian Barnes on the care and maintenance of gliders. Our sincere thanks to them both. Several members have passed the written paper for their radio exam and we wish them all success in the practical. I was severely taken to task by Peter Berridge's Oly 463 for calling her a K-6ε in my last report. I think she has accepted my apologies on the promise that I give her a superb winch launch straight into a thermal when she returns to Ridgewell. She might even take Peter with her!
Peter Perry

Essex & Suffolk (Wormingford)

LIKE most of you, we have endured a warm but very wet winter. Being a predominantly grass field site this has sometimes led to problems with retrieve and keeping wheel boxes cleared. Consequently this has slowed launch rates up but to my knowledge has never led to the suspension of operations. So the stalwarts who turn up come rain or shine have managed to stay flying but purely short circuits to stay in check. We are all eagerly awaiting the first soaring of 2002 and are all predicting a terrific season (I reckon that the overriding personality trait one has to have to be a glider pilot is optimism). Let's hope we're right. Good soaring to you all.
Steve Jones

Four Counties (Syerston)

THINGS have been quite steady at Four Counties recently. The weather hasn't been too unkind and we have managed to fly most weekends. We should have taken delivery of our new Skylaunch winch by the time this goes to print with Trev Gorely and his helpers having spent many hours preparing the site for the installation of an LPG tank. Work is now complete on the university K-13, which has been newly painted. Congratulations to Phil Hutchison, who completed a 500km in Australia although it wasn't the easiest of days (or so he says!). We welcome back Pete Dixon, who has been absent for the past few months due to weekend work commitments. We are pleased to see him flying with us again.
Sue Armstrong

Herefordshire (Shobdon)

NOT a particularly eventful winter although the Christmas break did provide some good flying around the snow-capped hills of Herefordshire. Our chairman, John Bastin, managed to sneak away when nobody was looking and climb to 15,000ft, finally returning earthwards only due to the cold and impending darkness. At the recent aviation quiz night, hosted by resident bar steward Alex King, the gliding club team came a creditable second, keeping teams representing other forms of aviation firmly in their place. In any case, the winning team were suspiciously the most academic, abstemious, grey-bearded bunch of PPLs that I have ever met, and I'm sure that aircraft in the picture round was really a Westland Widgeon! Thanks to tugmaster John Warbey and the new aero club maintenance facility, the tug has emerged from its annual check in record time, allowing us to invite London GC for the traditional wave week in March, followed this year by the Booker Brigade in early April. Even the club website has now been updated with plenty of new photographs showing both routine airfield activities, and not so routine ones (for some) such as field landings. In fact, the only thing missing as we move into the new season is a fresh brace of *ab initios* around the place. Anybody know where you can get that sort of thing these days?
Mike Hayes

Imperial College (Lasham)

OUR 72nd annual dinner was held in February and was well attended by both current and ex-students. Congratulations to Hemraj, who was awarded the Irving Pot (for fastest student cross-country) for achieving 92km/h during the Lasham Regionals. February also saw our annual Scrubbin' Day, where we washed trailers and cars to raise money for Imperial College RAG. We raised £127 for this year's chosen charity, The Shooting Star Trust (children's hospice providers). Many thanks to all those students who helped and to Duncan Ashley for organising both events. The next event in icGC's calendar will be our traditional Easter course at Lasham, when hopefully a week of intensive flying (weather permitting!) will see all our members progressing well.
Katie Sykes

Kent (Challock)

OUR AGM saw the return of Grahame Underwood and Tim Gardiner as chairman and treasurer respectively and the election of Peter Charatan as secretary. Gerry Puttick also joins the committee. As part of the club's ➢

Club news

rolling five-year plan, we have two new K-21s on order, the first of which is due to arrive in the autumn. A full social diary is planned throughout the year and an open weekend is scheduled for the May Bank Holiday from May 4-6 inclusive. If anyone with a two-seat glider wishes to join us for this event, and help with trial lessons, we would be pleased to hear from you. Reasonable expenses will be covered. You will need to contact Alan Garside on 01622 858106.
Caroline Whitbread

Kestrel (RAF Odiham)

DESPITE a substantial reduction in launches last year due to poor weather and foot-and-mouth, all our instructors were able to complete renewal requirements and stay current. Our post-Christmas party was well attended with thanks due to Sylvia Scott for organising it. We welcome Ian Pattingale back to the committee as MT member. Amaury d'Otreppe has completed the 3,000-hour check on our K-21. Mark Morley, in his first comp, achieved a creditable 4th in the Inter-services Sport Class. Our Bessonneau tent hangar is once again under attack from the winter winds but has so far survived with thanks due to Rubb Buildings Ltd of Gateshead for their continued support in supplying new panels.
Simon Boyden

Lakes (Walney Island)

DUE to circumstances beyond our control I've not much to tell you all, except: "Quack, quack!" They are the only things flying at our club at the moment. It has been C of A time again and we have been able to put our new workshop to good use; it's surprising what you can do with a second-hand 40ft container and a bit of wood. It takes even the biggest of the club's gliders easily so the work and inspections can be done in the dry. Thanks to all who have put in the work to make it so. I think Lyn and John have the right idea at this time of the year: we only hope that when they come back from Oz they bring some of their summer with them.
Peter Seddon

Lasham Gliding Society (Lasham)

AN expedition to Jaca in the Pyrenees is well oversubscribed. An R/T training course and examination is being organised by Mark Davenport. Bookings for our aerobatic courses are filling fast. The winter lectures have been a great success thanks to Bruce Nicholson, with talks on helicopters, accident investigation, glider design developments, hurricane investigation, and a four-engine flame-out in a 747. Chris Starkey won the L. du Garde Peach Trophy for the Weekend Ladder, and was not the winner as mistakenly stated in the February-March *S&G*. We regret the departure of Maddy Ray after eight years as office manager and accounts supervisor. We thank her for all her work on behalf of Lasham, and are pleased she will still be flying with us. We welcome Susan Doyle as our new accounts supervisor.
Tony Segal

Lincolnshire (Strubby)

THE club enjoyed a great Christmas party with live music and a buffet admirably organised by Ken and Jenny Allen. Trophies were awarded to Dave Ruttle, Steve Crozier, John Hornby, Dave Laidlaw, Alan and Margaret Childs, Ron Naylor and Pam Duckenfield. Congratulations to Gerry Bloor on his Bronze. Ken Allen, Dave Laidlaw and Jim McLaren have bought the M-100 and previous owners Phil Pickering and Derek Woodforth have bought an immaculate Astir from Germany. A tug is being refurbished on site.
Dick Skerry

Mendip (Halesland)

THURSDAY is getting to be our most active flying day. Arriving at 7.30am on the last day of January was not enough to take pole position on the flying list even

***Mendip's** John Winchester (left) and Mat Vallins went solo within a fortnight of each other. Mat, 16, cycles up Cheddar Gorge to reach the club (Keith Simmons)*

though the forecast was rain and gales. Nevertheless, almost two hours of flying was managed before conditions called a halt. Eighteen months ago, John Winchester was most upset when he read Derek Piggott's *Beginning Gliding* because it sort of suggests that 50 is a bit old to start gliding. Our John was already past retiring age, but ignoring or perhaps being spurred on by the great man's writing he did his first solo on New Year's Day. Two weeks earlier Mat Vallins, our youngest member at 16, got the Christmas present he most wanted when he too flew solo for the first time. Mat must be one of the fittest members in the club. Each visit entails cycling **UP** Cheddar Gorge.
Keith Simmons

Midland (The Long Mynd)

THE Mynd in winter is a fine place if you live close enough to spot the slots, drop the job and leap in the car. There have been some good bungy days, enjoyed in December by Shrewsbury School and Oxford University. Echoes of the times when true Blues would drift off downwind to hunt ball and Henley across a thatch-dotted countryside (Sorry, Oxbridge). Congratulations to Warwick Guck on going solo. At the VGC National Rally Mark Wakem had a rare birthday party for his Slingsby Sky, Blue Sky, 50 years after Geoffrey Stephenson flew her to second place in the Nationals. Weatherjack spoke at the club in February 16. We are hoping to enter five young pilots (rare animals now) for the Junior Nationals at Hus Bos in September, inspired and led by Andy Holmes. Some architect members have been dreaming about building upwards, driven by the new commercialism. Where will it end? A turbo Pilatus and five-mile-high air experiences ... by moonlight?
Roland Bailey

Needwood Forest (Cross Hayes)

WITH the advent of better weather it is good to note that the new cable retrieve winch means that we can operate on days when previously the softness of the ground would have prevented us. The committee is progressing several initiatives to help individuals realise their goals and ambitions, one is targeted at pre-solo and pre-Bronze pilots is a flying week just for them. A calendar of all flying weeks and other events can be found on www.gogliding.co.uk The annual dinner and presentation of awards is being arranged and the AGM will be on May 21.
Andy Chapman

Nene Valley (Upwood)

TO consolidate site improvements we did not to fly at the weekends during January. However, we managed to fly on three Thursdays. Great progress has been made on painting the hangar and the windsock is re-located to the north-east corner of the clubhouse. It should be easier to spot. The size and security of the compound has been increased to accommodate the ever-increasing number of private gliders and our ex-RAF caravan has been repainted. Early February saw our annual dinner, award ceremony and disco. Its organisation was a credit to the social committee. It was well supported by members and guests. With the announcement of a new task trophy for this season several members could be seen drawing lines on the charts (in their heads). We have a full programme of social and flying events planned. There are already sounds and smells of painting, polishing and greasing wafting in the air as members fettle their aircraft and trailers in anticipation of the season.
John Hatfield

Newark & Notts (Winthorpe)

OUR shutdown period is now over, and the majority of our fleet is flying again. Thanks to all those involved in the mass rub down of the K-13 fuselage! Our club flying weeks are set for June 1-9 and August 24-Sept 1. Visiting pilots are very welcome. The SF-27 syndicate would like to thank the club for allowing them to build a scale version of the Forth Bridge in the hangar. We are all looking forward to a great season. It has to be better than last year?
Chris Dring

Norfolk (Tibenham)

AN excellent Christmas party was enlivened by our in-house troupe of Thespians worthy of the Old Vic itself – well, the old bit, anyway. The New Year's flying began well enough until curtailed by a succession of January gales. Thus earthbound many sat for hours in front of a roaring wood fire, sustained by Rachael's first-class if cholesterolly-challenging food, moaning and mardling (Norfolk word, translation on request). But there is much to anticipate as the days perceptibly lengthen: the arrival of an Astir, the refurbishment of our tugs, our hosting of the Vintage Rally and, in August, the British Open Class Nationals, for which we hope to provide extra runway facilities. In March the club will mount a display in the brand new multi-million pound Norwich Library (the old one was razed to the ground several years ago) Forum, a superb display area. This library houses also the American Air Force memorial Library, which has been completely restored.
Geoffrey Haworth

Oxford (RAF Weston on the Green)

THANKS to the sterling efforts of Neil Turner, Dave Weekes and a cast of thousands, we now have our own version of a Skylaunch winch, albeit on a bad hair day. When the old hydraulic system cried enough, the team just lifted up the seat and slipped an in automatic gearbox. Trial launches got through 53 weak links, but now as all pilots have had "signal, don't pull" tattooed on the inside of their eyelids, we're getting smooth, high launches every time. And congratulations also to Claudia Büngen, one of our EU members, for winning the Ted Lysakowski Memorial Trust cross-country course, which was lucky because she's probably the only club member who could pronounce it properly. Work on the K-13 fuselage continues with recovering imminent – as soon as all who've been helping with the doping can be got down off the ceiling – with rollout planned to coincide with the late soaring season.
Steve McCurdy

Oxford University (RAF Bicester)

BETWEEN December 3-7 the first of several joint training weeks, to be held at both sites for Oxford and Cambridge Universities (Gransden Lodge), took place at Bicester. With the weather steadily improving, the week was extremely successful. Whilst Cambridge got the better of us on the pool table, winning the inter-varsity competition, Oxford saw four first solos during the week – congratulations to Daniel White, Harry Blanchard, David Niemann and Mark Szymkowicz.

There were also numerous type conversions during the week. Joint activities for our university clubs are proving to be excellent fun as well as extremely beneficial in terms of flying progress, and it is hoped the trend will long continue.
David Morgan

Peterborough & Spalding (Crowland)

A GROUP of hardy club pilots enjoyed a cold but bright New Year's Day flying during which only the wooden flew as all the glass was unable to be freed of ice. January and half of February gave only one further weekend of flying weather: like everyone else we have suffered from gales and rain soaked runways. Kev Fear returned from Oz after three weeks of flying down under with the GSA. Pete Goulding and Reg Glenn managed the last outlanding of the year not too far away from home. We said hello and goodbye to Neville Robinson, who visited us briefly from the Las Vegas Soaring Center at Jean Airfield with a promise to return in the summer. We are all waiting for the soaring weather to return.
Pete Goulding

Portsmouth Naval (Lee-on-Solent)

ANDY Hepburn was finally persuaded to stop turning his glider upside down and went soaring instead. Half an hour later a Bronze was his. James Haberson from Southampton University soled and Richard Parker converted to the K-8. Our Christmas dinner-dance, held at the end of January, of course, was a great success. The new workshop has had its first customer as the K-13s are prepared for their coming punishment.
Pete Smith

Scottish Gliding Centre (Portmoak)

BY the time you read this, the Portmoak clubhouse will have a new roof. This is because the felt from the previous one was blown away in high winds in January. The weather for January was pretty foul, but at least we have got the C of As for the gliders done. Thanks to Chris Robinson for organising this. We had more pleasant weather during New Year, when a number of the juniors pilots visited, and completed filming the smoking video, including some magnificent footage on Bishop Hill. Congratulations to Kevin Hook for winning the Slingsby trophy (second highest qualifying score in the weekend national ladder), to Steve Robinson for getting his Silver height and duration, and to Bob Adamson, Ian Armstrong, Dave Allan, Scott Kennedy and Jim Mattocks for all finishing Bronze. Congratulations also to visitors Mike Fox and John Tanner for recording the last landout of the year, 10 minutes after take off in a club K-21.
Neil Irving

Shalbourne Soaring Society (Rivar Hill)

THE prizes for 2001's achievements were presented at our annual dinner on March 12. They included the Dave Maleham Memorial Cup to Peter Ballard (most notable progress) and the Get a Bloody Move On! Trophy to Dave Draper because he did, successfully, in the regionals. Peter Mortimer scooped Club Member of the Year award for running the Roundout Café over many years. John Day earned the John Dabil Trophy for instructor of the year; Martin Jones, the Bernie Tubbs Cup for retired member of the year; and Alan Brind and Alan Pettitt Steve's Triangle/The Norsk Data Challenge for the Wood Class in task week. Hugh Harwood, now sadly no longer with us, was awarded the overall Task Week Trophy *(see obituary, p61)*. Carol Pike won the You Landed Where? award and Alan Marpole the Golden Spigot award for very dubious reasons. Last, but not least, The Vanish Award for sartorial elegance was "unawarded" to a very smart Richard Dann! We have a new Board, headed by new Chairman, Keith Lovesy. Our thanks to all those who worked so hard on the previous Board. Plans are afoot for new courses and evening flying in addition to our usual club activities. Publicity officer Colin Baines has produced a wonderful CD-ROM designed to enthuse gliding converts. He is looking for sponsorship to take it forward... any offers?
Wendy Coome

David Spillane

*Adam Fillsell of **Sackville** (in the K-2 by his mother Katherine), soloed on his 16th birthday, New Year's Day. "We're very proud of him," says David Spillane*

Shenington (Shenington)

OUR third K-13 is online and being kept busy whilst our first K-13 undergoes maintenance. We have just installed a fantastic new clubhouse kitchen, courtesy of this year's barbecue profits and the hard work of many of our members. We had a visit from the BGA in January that was much appreciated by members, who subjected our visitors to the usual grilling reserved for the committee! We are still operating mid-week on the good days over winter, so check with the office if you plan to join us; otherwise we welcome visitors at the weekends. Our intensive course season starts in March – call or email for details or a brochure. We welcome visits from other clubs, too – this is excellent thermal country. For our news, see *www.gliding-club.co.uk*
Tess Whiting

Shropshire Soaring Group (Sleap)

WE have had a very quiet couple of months; weather at weekends has been generally abysmal. On New Year's Day we rigged, only for the Chipmunk to suffer another mag drop. We are keeping our fingers crossed that the problem is now fixed. There have been a few more wave flights but again no great gains of height and one day the few who did launch made a hasty recovery as bad weather swept in. Ric Prestwich, one of our keener members, will be out of action for a while. We all wish him well and a speedy recovery. It looks as if we shall have to rig his glider for him for a few weeks. Jim Lynchehaun is also out of commission but will still run our website (*www.welshwave.co.uk*). We look forward to Jim's return. Awards include the Bill Mack memorial trophy to Alastair Gilson and the chairman's tankards to Arthur Jones and Frank Humphreys.
Keith Field

South London (Kenley)

WE started 2002 in style, or at least in a T-21 at –4° on New Year's day... now it can only get better! Although last year's weather wasn't particularly kind, the law of averages says this one must be better. Lots to look forward to this season, starting with our annual award ceremony on March 16 – always a good night out. Another trip to Jaca, in the Pyrenees, is arranged for Easter, so we may see you there! Plenty of other events are planned, and as always for news of what and when – watch this space!
Alan Seear

Southdown (Parham)

AFTER many months of uncertainty about our landlord's intentions and the boundaries of the new South Downs National Park, negotiations for the renewal of our lease are almost complete. Flying has been severely limited by the weather and the longed-for brisk northerlies that make our ridge work have failed to materialise. Guy Westgate has solved this problem by soaring the Brighton cliffs, to the amazement of the inhabitants. The same southerly winds produced three days of wave. The club has purchased a new engine for our Fordson and a 12000 Groundsmajor Roller Mower. This produces a lawn-like surface to our airfield, and does nothing to dispel the rumour that the club plans to host major Bowls events in the coming year.
David Rhys-Jones

Staffordshire (Seighford)

THE spell of good weather prior to the Christmas period allowed us to surpass our revised launch targets for 2001. Unfortunately, January has seen a period of real winter weather, which has kept the number of flyable days to a minimum. Even after a period of rather wet weather, however, there is a remarkable improvement in the drainage of the airfield when compared to this time last year - thanks to Ian Digger Davies and all his apprentices for their efforts. The weekend *ab initio* course members possess intensifying enthusiasm ahead of the start of the soaring season (either for flying, painting, or trench digging!). We hope to have six new Basic Instructors and three new Assistant Instructors for the summer season – the tug has proved invaluable in providing the longer flights needed for both instructor and *ab initio* training. Thanks to the efforts of Alice Oultram, over 70 members enjoyed a superb annual dinner and presentation evening. Geoff Oultram was made an Honorary Life Member for his distinguished endeavours, while Colin Ratcliffe was presented with a loyalty award for his outstanding contributions to the club, both on the ground and in the air.
Paul (Barney) Crump

Stratford On Avon (Snitterfield)

A PROGRAMME of lectures on meteorology, theory of flight, Air Law and navigation, arranged by Peter Fanshawe and instructors, is running through to May on mid-week evenings. We have managed to keep flying most weeks with our well-proven single cable system using the south peritrack for the Land Rover towing to avoid damaging the field landing area. Using additional land at the south-west corner has certainly helped this operation, giving us 100 acres to plan the most effective layout on any day. We welcome the lads/lassies from Birmingham University, who show tremendous spirit and keenness by arriving early, setting us all a fine example and volunteering for many jobs. Truly an inspiration to all! Congratulations to Mark Laver from BUGC on his recent solo and to Steve Farmer who resoloed 13 years since flying motorgliders at Cosford, and previously, over 20 years since flying real gliders. It proves they do come back to the sport eventually! Our seven-day operation starts in May to mid-September with our usual mix of trial lesson. evenings and courses. Details on *www.gbutler.demon.co.uk/soagc/*
Harry Williams

Surrey & Hants (Lasham)

WHAT happened to those crisp January days when it's a joy to go flying, to take in the view in the bright winter sunshine? As this is being written, the furthest most of the fleet has moved in a month is to and from C of As. Preparations are in hand for the season, including an upgrade to provide more gliders with loggers, and sending the barographs to well-earned retirement. This exercise has shown that two of our EW model B loggers, serial numbers 9815B0535 and 9815B0538 have gone walkabout. Who's got them? There will be no recriminations for an immediate confession.... We know we'll need them – the year is going to be superb!
Graham Prophet

Club news

The Soaring Centre (Hus Bos)

THE new clubhouse extension was christened on the occasion of the 2002 annual dinner, which was well attended. Congratulations to everyone who received prizes for their gliding achievements last year. Well done to Anne Stotter for completing all three Diamonds. We say a fond farewell to the old clubhouse, which is finally being pulled down. With our new motorglider and SLMG PPL instructor on site, we are doing lots of field landing checks. We are also able to offer motorglider checks to visitors. There have been several successful trips to the Long Mynd, with lots of good flying. Visitors are, as always, very welcome at Hus Bos – individuals and expeditions. The new clubhouse has extensive briefing facilities so there is plenty of room.
Siohban Hindley

Trent Valley (Kirton in Lindsey)

COLIN Metcalfe climbed to Gold height at Portmoak, landed, got a barograph and did it again. On the home front gales are keeping the hangar doors firmly closed. Steve Wilkinson, with the help of Simon Grant, has recovered the K-8 and mains electricity is being installed. The cross-country pilots are poised like coiled springs awaiting the season's first thermals and a gauntlet (metaphorically speaking – it is actually a toy pig) has been thrown in the direction of Buckminster GC. Watch this space for future developments.
John Kitchen

From left: Laurence McKelvie, Hilary and Bob Rodwell and Alan McKillen at the Rodwells' farewell to ***Ulster GC***

Ulster (Bellarena)

THE large number of current and former members who came to pay tribute to Bob Rodwell on his leaving Northern Ireland to return to the mainland is testimony to his genuine contribution to the UGC over some three decades. At an event in the House of Sport in Belfast Bob was awarded honorary life membership of the club. Laurence McKelvie club chairman also presented him with a hand-carved model of his beloved Jantar seen against Benevenagh ridge, which had been painstakingly undertaken by Alan McKillen; Hilary was presented with an engraved cut-glass bowl. We understand that Bob has already earmarked four gliding clubs in close proximity to his new home in Gloucestershire. You have been warned! Seriously, though, we wish Bob and Hilary all the very best for the future in their new home. The cost of club launches has increased marginally from March 1 but still offers excellent value at £15 for a 2,000ft aerotow with the second and subsequent launches on the same day charged at only £12. In the midst of some horrible weather, Moraig and Mervyn Saunders from Lasham, who were making a preliminary sortie to our site in advance of a group visit, were rewarded with a two-hour wave flight to 4,000ft.
Seamus Doran

Welland (Lyveden)

AT a games evening held in February Alan Bushnell proved the value of a misspent youth when he claimed the men's title. Carol Heywood scooped the ladies' prize, while husband Peter claimed most of the raffle prizes. The club has a new K-13. Cross-country workshops take place in March. Our Open Weekend will be June 22-23, with club flying week running from July 27.
Jane Cooper

Wolds (Pocklington)

MOST members have made good use of the BGA Duo Discus, despite miserable weather. The venerable Alan McWhirter, well known across the gliding community, is standing down as CFI because of other commitments. His selfless contribution is outweighed only by his enthusiasm. Jon Smith takes over and we are confident that the club remains in good hands. Thanks to members who worked on hangar doors and clubhouse during the winter, in preparation for the season. The Standard Class Nationals is here from June 22, and the International Two-Seater Competition from August 18. We are very proud and believe we offer the best mix of professionalism, competitive spirit, and – fun! This means the organisation will be, according to our poetic Chair Martin Fryer: "Well-run fun in the sun is what we want done." Our potential for hosting a literary festival this year is consequently much lower.
Ged McCann

Wrekin (RAF Cosford)

ON the RAFGSA expedition to Australia in November 2001 Dave Lutton completed his Bronze, Chalky White his Silver, and Dennis Maddocks and Ian Shackleton 300km distance. Dave Loraine is welcomed back from Saudi and has settled in the area. A corner of the hangar has been made into an MT workshop with a roof and sides. The chaps who keep us flying by mending the MT others break are now at least warmer whilst they are working! We said goodbye to CFI Trevor Barnes in January and expect to see him back around July.
Sheila Russon

York Gliding Centre (Rufforth)

THE BGA aircraft were well utilised during the early part of the year, and gave pilots useful practice ahead of the arrival of the Faulkes Flying Foundation DG-505 last month. The new two-seat high performance glider will give many young potential pilots the opportunity to get started in gliding in the north of England. The club car park has now been tarred, and this will allow both members and visitors an exceptional non-muddy start to each gliding day, and now complements the previously tarred access road. Despite awful weather in the first two months of the year we hope to do lots of cross-country flying this season. We now have over two dozen members on our fixed price to solo scheme, which continues to prove very successful. We recently saw the departure of our airfield administrator, Brian Mennell, due to ill-health. Several members have stepped in to help out in the office.
Mike Cohler

Yorkshire (Sutton Bank)

EVEN though the thermals are not quite there yet we have had some great flights over the past couple of months in our winter wave; the westerly/south-westerly winds are ideal for us to make good use of it. Several people have been up to Gold and Diamond heights over the winter, including Joe Westwood, who gained his Gold height in October in our club Discus. Our summer courses were well received last year and several people who came to us on courses decided to join and continue flying with us; David Everett is one of these and our congratulations to him on going solo on November 24. We will be running our courses again this year and more information is available from the club office. Visiting pilots (with or without your own aircraft) are more than welcome at any time of the year.
Marian Stanley

Obituaries

Truly one

Ted Hull, Roger Barrett and Ann Welch share their memories of Geoffrey Huson Stephenson (1911-2002), twice national champion in the 1950s and the first pilot to soar the English Channel

ON April 23, 1939 a blue sailplane launched from London GC's airfield at Dunstable Downs. Its pilot was Geoffrey Stephenson, who flew in a brisk north-westerly across Hertfordshire, Essex, the Thames estuary, Kent – and over the English Channel to Le Wast in France. His 127-mile flight *(see page 53 of this issue)* took just 2 hours 40 minutes. The remarkable achievement – in a glider with a max L/D of 24:1 – hit national newspapers as a major first.

Joining London GC in 1935, Geoffrey *(seen opposite)* soon showed exceptional skill. In 1937 he achieved his international Silver C badge, only the 15th to be awarded in Britain. Later he gained his Gold C, the 14th in this country. He was also a very accomplished aerobatic pilot. In 1952 he flew for Britain in the world championships in Spain, finishing in 11th place (the winner was team-mate Philip Wills) and in 1956 in France, where he finished 6th. He was twice British champion, in 1953 and 1959. Geoffrey also contributed greatly to gliding by inventing two instruments (later marketed by others) to aid soaring flight: the capsule-type total energy compensator and the electric audio vario.

Geoffrey was educated at Ealing Grammar School and joined EMI in 1930, qualifying as an electrical engineer. His first job was designing test equipment for valves for use in radio and television. Before the Second World War he was part of a team that worked towards the development of radar.

After the war he continued in this field and was project engineer for the mortar-locating radar code name Green Archer. For this work he was awarded the MBE in 1962. He continued to be the dominant figure in EMI weapon-locating radar for two decades of Green Archer and

Michael Benson – Lakes, Yorkshire

MICHAEL Benson, who died just after Christmas from a heart attack, took up gliding when on National Service in the RAF, and was among the first members of the RAFGSA. He started farming on his return to civilian life, joining the Lakes GC. On his return to Yorkshire, Michael transferred to Sutton Bank and soon established himself as a reliable and effective member. He served as a director, as well as tug pilot.

A careful and intelligent pilot, he was a syndicate partner in a Skylark 3, then Skylark 4 and finally a Kestrel. He was a natural choice as steward at many northern regional competitions. Michael, who represented Bayer Agricultural Chemicals in Yorkshire for many years, was also a long-standing member of the Yorkshire and Humberside Sports Council.

Ill health obliged him to retire from flying some years ago, but he maintained his interest through flight simulator computer programmes. In later years Michael was the chairman of the Skelton branch of the Vale of York Conservative Association. He was a big man in every sense of the word, with many interests. His modest charm and good sense will be much missed by his wide circle of friends. To his wife, Nina and their family we extend our deepest sympathy in their loss.
JC Riddell

of the Greats of British gliding

Cymbeline development – systems still in use.

Geoffrey was quiet and unassuming, yet was very approachable when his vast experience was tapped by other glider pilots for advice or help. His flying was most ably supported by his wife Beryl, who was ever ready to hitch a trailer on to their car and drive many hours to retrieve him from distant outlandings.

Geoffrey died at his Ickenham home on January 29, 2002. He leaves behind his devoted wife Beryl, whom he married in 1948, and stepsons Carr and Peter. **Ted Hull**

GEOFFREY was a particularly nice person – as well as being a very clever one, says **Roger Barrett**. About the time he retired – in the 1970s – Geoffrey and I became syndicate partners. Many times I can remember Geoffrey and Beryl driving up to Dunstable on days when it was *my* turn to fly. At the launchpoint, whilst Beryl was energetically wiping every dead fly off my wings, Geoffrey was there – always ready to help with advice about the flight.

Geoffrey was an exceedingly good glider pilot; it was no fluke that he was twice a National Champion. He had a natural curiosity and an analytical approach to everything in life. But he was a very shy person, so you had to know him quite well before you could get him to come out, rather tentatively, with an opinion.

Geoffrey was highly regarded by other pilots. We worked together at a number of nationals: Geoffrey was task-setter and, as you would expect, totally reliable. He spent a lot of time in preparation – including photographing possible TPs all over England. And when it came to what really mattered to the contestants, the tasks he set were usually spot on – allowing them to break national records on several occasions.

We had another common interest in pictures (I take photographs and he painted watercolours). It was obvious that he delighted, in his modest way, in discovering that he had the talent to produce pictures that his friends appreciated.

It was no surprise to me, knowing Geoffrey's scientific background, that his style was more Constable than Monet. He and Beryl spent many happy times caravanning in Suffolk, on the lookout for suitable locations, and Geoffrey has left a gallery-full of watercolours that show the joy he found in conjuring the essence of those landscapes on to his paper. A physical reminder of a remarkable man – who we are all going to miss.

GEOFFREY was one of my heroes when I was learning to fly gliders at Dunstable in 1937, says **Ann Welch**. He and his friend Donald Greig both flew new and exciting cross-country flights in the glider they shared when they were not careering cross-country on Donald's motorbike at up to 100mph! Then one day in April 1939, when I was gliding near Reigate, Donald arrived with a trailer saying that Geoffrey had made the first ever soaring flight across the Channel, but that he had no passport. What a wonderful chance, because I did have a passport. So I had the great privilege of collecting Geoffrey and the blue Gull from Calais and was the first to hear the story of this remarkable flight. I was so lucky because Geoffrey was someone who usually spoke little of his achievements, but his quiet and friendly manner made him more friends than he realised. He was truly one of the Greats of British gliding.

Hugh Harwood – Lasham, Shalbourne

I AM SAD to report the death of Hugh Harwood (1937-2002) in January after a short illness.

His many friends at Shalbourne will greatly miss his dry sense of humour and his infectious enthusiasm for the sport.

Hugh's gliding career spanned many years; previously at Lasham, he joined Shalbourne in the early 1990s and we knew and loved him as a pilot simultaneously bold and cautious. He insisted on careful flying, but when it was safe, would push on – usually with great success but invariably with great fun.

Hugh was a generous person with the welfare of others very much at heart, and one of his skills was firing up new pilots with a taste of gliding's possibilities. Many will remember him as their inspiration, often through the ab initio weeks he ran.

He lived life to the full; in addition to gliding he somehow fitted in sailing, golf and jazz around his work as an architect. An accomplished artist and member of the Guild of Aviation Artists, he managed to find time to bring up a family, too.

Our sympathy goes to Berenice and the family. We will miss him badly, but you can't stay sad for long, thinking of Hugh.

Liz Sparrow

Dave Sillett – Norfolk GC

IT IS with great sadness that I report the death of Dave Sillett (1934-2002), who lost his fight with bone cancer in January. Dave started gliding in 1964 whilst serving with the RAF, flying at Bicester, where he soloed the same year. Between 1966 and 1969 he was a member of the Crusader GC (Cyprus) where he obtained his Silver and became a lifetime honorary member for his services to the club. There always seemed to be an upturned fuselage in the driveway being repaired.

In the early 1970s he became an instructor and inspector, flying with Albatross GC (Devon), St.Mawgan and Anglia (Wattisham) and gaining Gold height.

Due to overseas postings he had to give up gliding and retired from the RAF in 1981. He took it up again in 1998, joined the Norfolk GC and bought a DG-300 as the family glider. Because of his illness he could not lift anything heavy so he would supervise the rigging whilst wife, son and grandchildren did the donkey work, but he did use his skills as a craftsman to make rigging aids the envy of many to ease the burden.

Dave was a kind man and would do anything for anybody. He was just as happy flying with his sons in a low performance two-seater as he was in the DG.

He is sorely missed.

Phil Sillett

David Tanner – Portsmouth Naval

IT IS WITH great sadness that we report that our tugmaster, Squadron Leader David Tanner DFC (1929-2002), has passed away.

Dave joined the RAF in 1949 where he learnt to fly on Tiger Moths and Harvards before moving on to fly just about every early jet there was.

He saw active service during the Suez crisis and in Aden, for which he was awarded the DFC. During this time he also found time to display a Spitfire – on his sixth flight on type.

Dave joined PNGC in the early 1990s, first flying gliders and then shortly after our Chipmunk tug, having been one of the first to fly the type in 1952.

He was equally at home flying without an engine, soaring after everyone had landed and making glides long after others' computers had told them to return – he always made it.

His RAF days were not forgotten, though, as he frequently demonstrated with "under the radar" circuits, much to the duty instructor's anguish.

Dave excelled at many other things: boxing during his youth and, latterly, sailing. He will remembered as a great pilot and our friend and will be greatly missed.

He is survived by his wife, Val, and three daughters.

Pete Smith

Accident/incident summaries

by Dave Wright

Ref	AIRCRAFT Type	BGA No	Damage	Time	DATE Place	PILOT(S) Age	Injury	P1 Hours
116	ASW 20L	–	None	Aug-01	Incident Rpt	49	None	4029

The pilot disconnected the elevator as he filled the tail ballast tank "as it was easier" that way. After a visual, but not positive control check he flew it normally, if somewhat nose heavy, for over four hours then landed. After taking off on an aerotow he found it uncontrollable and landed ahead in a field. He'd flown 283km with no down elevator!

117	DG-505	JSX	Minor	18-Aug-01	Weston on the Green	33	None None	207 0

The instructor took control from P2 at 600ft and set up his circuit, aiming to fly the approach at 60kts. With three-quarter airbrake and wet wings he started to round out but the glider stalled in the wind gradient and landed heavily as P1 forgot to close the brakes and pulled back on the stick. A higher speed should have been used.

118	LS8a	R5	Write off	26-Aug-01 1135	Syerston	30	Fatal	–

This FATAL ACCIDENT occurred after a very steep climbing attitude early on the winch launch resulted in a stall and spin. After successfully recovering from this the pilot decided he could not land ahead. He tried to turn at too low a speed and spun again. This time there was insufficient height to recover and the glider struck the runway.

119	Vega 17L	2578	Minor	04-Aug-01	Near Lyveden	45	None	316

Returning from a cross-country flight the final glide was made in light rain and the pilot thought he might not make the airfield. After initially pressing on he decided to land in a small upsloping field with no livestock. The glider ballooned and the pilot was unable to stop before hitting the far fence at low speed.

120	Skylark 2B	733	None	29-Jul-01 1520	Lyveden	49	Serious	45

At about 200ft after a shallow climb the pilot pulled off the winch launch. He levelled the glider and opened the airbrakes to land ahead. Full airbrake, combined with a low airspeed resulted in a moderately heavy landing. While the glider was undamaged, it was not fitted with Dynafoam cushions and the pilot suffered back injuries.

121	Std Cirrus	4334	Minor	31-Aug-01 1600	Dunstable	61	Minor	–

In gusting and rainy conditions associated with thunderstorm clouds the pilot made a heavy landing which injured his back and damaged the glider's undercarriage, airbrake controls, instrument panel and fin.

122	K-21	–	None	Aug-01	Incident Report	39 26	None None	3100 0

During a training aerotow the instructor allowed the pupil to get out of position behind the tug. A late take-over resulted in a bow developing and the weak link broke. The rope struck the fuselage before wrapping itself around the wing. P1 released the rope and it fell clear. Subsequent inspection showed minor gel scuff marks.

123	K-8	1530	Minor	22-Aug-01 1530	Aston Down	62	None	2.4

The early solo pilot found that the winch launch speed did not increase as expected so released at about 20ft. He lowered the nose steeply and just before landing the glider was seen to balloon back into the air. The was followed by a number of oscillations and impacts which damaged the skid mounts but not the pilot as a Dynafoam cushion was used.

124	Open Cirrus	4773	Minor	28-Jul-01 1736	Burton Latimer	45	None	83

During a Silver distance flight the lift died so the pilot chose a large grass field. During the ground run he saw a standpipe directly ahead and had to lower a wing to turn to one side. The glider groundlooped, damaging the aileron. The pipe stood about 18 inches above the grass in the middle of the field.

125	Duo Discus	4455	Minor	21-Aug-01 1511	Grafton Regis	64	None	1731

While on a competition cross-country flight the glider had to make a field landing. In turbulent conditions, the glider landed heavily on the rough surface and the undercarriage collapsed.

126	K-7	–	None	Sep-01	Incident Rpt	67	None	15

At about 300ft on the winch launch the airbrakes were seen to open and not close. The pilot pulled off at about 500ft and flew a continuously turning circuit to a safe landing. It appears that the airbrakes were sucked open during the launch and the brake stop had moved around the tube and jammed the brakes open.

127	SZD Junior	–	None	Sep-01	Incident Rpt	–	None	50

During his third flight on type the pilot went to re-trim the glider when the trim knob broke off and fouled the airbrake control rod. He checked the airbrakes would still operate and on first attempt could not lock them in so tried again and was successful. After landing, the bolt that holds the elevator trim spring was found to have failed.

128	Discus B	4123	Minor	10-Aug-01 1345	S Wheatley Oxford	64	None	120

During a Silver distance attempt the pilot had to make a field landing. He chose a suitable stubble field but failed to lower the undercarriage. The fuselage sustained minor damage from stones embedded in the soil.

129	Blanik L23	3633	Minor	09-Sep-01 1452	Cross Hayes	45 16	None None	379 0

After a good first flight the pupil took a second flight on the blustery day. After he flew the final approach at 60kts with full airbrake, he failed to round-out at all and P1 did not take over in time to prevent a very heavy landing on the mainwheel and tail.

130	Mistral C	4796	Minor	20-Jul-01 1523	Wormingford	55	None	27.5

The glider was launched with the tail dolly attached. A nearby club member noticed this and shouted "stop" but by the time the winch driver had reacted the glider was at 50-100ft. The pilot failed to react in time to prevent the aircraft stalling and was able to regain just enough airspeed to raise the nose before a very heavy impact.

131	Falke motorglider	G-BTWD	Minor	28-Aug-01 1145	Rufforth	48	Minor	–

The pilot was practising touch-and-gos and was making his third landing when the motorglider ballooned at touchdown. He closed the spoilers, which caused the aircraft to climb and then re-opened them during the descent which resulted in a heavy landing and propeller strike.

➢

Our smart

HAVE YOU noticed how safety articles are usually either Rants-from-Pulpit or *Howidunnits*? Or should that be *Howidunnit-wrong*? The biggest problem is often that you're either preaching to the converted, or the Whodunnit sees it coming a long way before the last chapter. But it's rarely that simple.

Let's take the simple discussion of lookout. We look out, right? I'll bet not a single reader disagrees so far. We all know how vital it is. And NONE of us wants to be involved in a mid-air collision, or even to baulk a fellow pilot, however unintentionally.

One of the problems is that the brain isn't interested in what isn't there. It wants to look at something interesting. Like proofreading articles, it's too easy to return it with no comments other than: "well written". But how many proofreaders sit back and think. Think: "What's missing?"

When we read the Howidunnit-wrongs, we switch into that mode. "Smart" mode. We enjoy the hunt, the search for clues. And we marvel at how the hero in the story missed them (because his attention was elsewhere). Yet accidents continue to happen. So, why? Either:
– accidents happen to the people who never read articles like this (OK, you readers out there, come up with suggestions as to how we can reach the people who didn't read this article),
– the accident is as a result of human factors not being considered in the design or operation,
– we miss clues when we aren't in "smart" mode.

It certainly seems that if you actively read safety articles, and attend safety briefings you are less likely to be involved in an accident: perhaps because you are safety-minded, and your brain is alert. The alternative – of the brain not being in smart mode – might occur if the pilot was under high workload, or if the threat was not obvious. This includes things appearing where you don't expect to see them, or something appearing where you expect to see it (but, in fact, it's not the thing you expected to see – that being somewhere else and becoming a threat), or not noticing things at all – because you were looking – but not seeing. These seem to have been common factors in almost all the mid-air collisions. See the results of the conspicuity trials written up in S&G (*Flashes don't show up well in flight tests*, December 2000-January 2001, p60) for more about looking but not seeing.

So how do we cope with trying to put the brain into "smart mode"? In fact, there are many examples:
– Daily Inspections – rig, THEN inspect.
– Independent DIs – get someone else, explicitly in smart mode, to check for you.
– Cockpit checks – including eventualities – smart mode for launch failures.
– Airbrakes – closed and locked? The hooker-on can't always tell, but the pilot can.
– All clear, above and behind? – an explicit check that it's clear to launch.
– Pilots' "scans" - looking outside for other factors. Not just for the guy you CAN see, but the one you haven't (yet).

weapons?

– Pre-landing "checks" - not so much a fixed checklist as putting the brain in gear for landing.
– Check flights – when the instructor sets up a scenario to see how P2 notices – and then copes
– Commercial pilots who spend a lot of time in simulators, coping with a variety of scenarios.

You can add more. And probably will when you read the next "How I got it wrong" article. The list is not exhaustive. Most of these have a common thread – the answer is usually "Yes". If it ought to be "No" then we should make sure it is. (We've often heard the student pilot, used to K-13s, getting into a flapped glass glider and checking "Flaps: not fitted..." automatically, like he's done all his gliding life so far. GA pilots have the same problems with undercarriages.)

It might be interesting to see the effects of training on simulators – or computer games – where situations can be staged in a controlled environment. Perhaps this is a way forward to train our brains to stay in a high state of alertness, and notice. Computer specialists – can you put your thinking caps on?

In the meantime, we need to learn: a good pilot uses his smartness often; he doesn't let his attention wander to other things during this mode. The rest of us need to work on using our senses to fly, and not get distracted. Regaining and maintaining that smartness is one of the most important aspects in taking regular check-rides with instructors – for example, annual, after lay-offs and so on.

It's easier said than done. So what should we do? Why do pilots get distracted? Heads down in the cockpit? Should we ban gadgets and gizmos – like vario dials and displays on GPS that cause people to look inside the cockpit, leaving just the audio feedback? Only allow approved panel and cockpits layouts? Why do people look and not see? Attempts to raise conspicuity are on-going... Regulate circuit practices more onerously? Thermalling? The solutions appear neither obvious nor simple. Answers on a postcard please...

As they say: Aviate, Navigate, Communicate. Happy aviating!

Jonathan Mills, Chairman, Safety Committee

Can our RSOs help you?

IF you're a club chairman, CFI or safety officer, and wonder whether you've overlooked something in your club operations, the BGA's Regional Safety Officers (RSOs) may be able to help. Bringing a fresh set of eyes and brains to help you review your procedures may assist you in improving your black spots or identifying blind spots. We're trying to visit clubs every 2-3 years, but if you'd appreciate a visit, call Colin at the BGA office and we'll arrange a mutually-convenient time and date. All BGA RSOs have been in safety- or instructor-related posts in their own clubs – and if working in the safety arena like this interests you, please get in touch – there are some RSOs who are stretched a little so some extra hands will be welcomed.

Accident/incident summaries (cont.)

AIRCRAFT Ref	Type	BGA No	Damage	Time	DATE Place	PILOT(S) Age	Injury	P1 Hours
132	K-6CR	3318	Substantial	05-Aug-01 1305	Benbradagh	22	None	103

On a cross-country flight the lift failed and, after attempting to ridge soar , the pilot decided to land in a field he had chosen earlier. On the approach he realised it was short and he might hit the far fence so, immediately after touchdown, he put a wing down to groundloop. Still travelling at speed, the glider spun around, breaking the fuselage.

133	Bergfalke 4	2547	Minor	02-Aug-01 1236	Burn	63 72	None None	408 420

Because a K-13 had just landed the pilot decided to land short rather than over-fly and use the long runway ahead. He "aimed into the undershoot area, intending to round out and land" at the start of the runway but, while rounding out with full airbrake he caught some tall weeds in the undershoot which groundlooped the glider.

134	LS8	4195	Minor	10-Aug-01	Wellingboro'	61	None	538

While on a cross-country flight the weather deteriorated and so the pilot decided to land in a suitable field. During the otherwise normal landing there was a bang as the undercarriage retracted. It appears that the undercarriage had not been completely locked in the down position. A modification is being made to ensure a positive lock.

136	Puchacz & K-8	3510	Minor & Subst	25-Aug-01 1245	Saltby	52 14	None None	514 0

The instructor chose to land short, and to the left of a glider waiting to launch. This was positioned to the right of the runway which had a fence along the left edge. He had made a similar approach on his previous flight and had swung to the right but had stopped short. However, on this flight the glider ran on and swung into the parked glider.

137	Duo Discus	–	None	Jan-01 –	Incident Rpt	– –	None None	2139 710

When P1 initiated a sideslip approach to lose height the canopy opened and so P1 instructed P2 to hold the canopy down while he concentrated on landing normally. Both pilots were confident that the canopy had been positively locked and concluded that one of them must have caught it at some stage. The canopy security design may need reviewing.

138	SZD Junior	4042	Minor	09-Sep-01 1300	Hus Bos	47	None	47

The pilot made his approach at 55-60kts with full airbrake. During the final approach he had to use a considerable amount of rudder to counter the strong crosswind. At round out the rudder was centralised and the stick pulled back to level the glider. The glider dropped onto the ground from about 3ft, which damaged the fuselage.

139	SZD Puchacz	–	Minor	Sep-01	Incident Rpt	53 –	None None	– –

The instructor arranged for a low-height winch power failure demonstration which was carried out safely. However, the winch driver prematurely retrieved the cable and the parachute caught the stationary glider's wing. The glider was swung around and the wing damaged.

140	Mini Nimbus B		None	Sep-01	Incident Rpt	61	None	168

After a local flight the pilot returned to the airfield. Because of the imminent departure of a Sea Vixen, he was anxious to land quickly and decided to use a grass area to keep the runway clear. Concentrating on ensuring the area was clear he forgot to lower the wheel. Fortunately, the smooth landing on the grass caused no damage.

141	Sport Vega	2615	Minor	16-Sep-01 1720	Walney	–	None	320

After soaring a low local ridge the pilot joined the circuit. While turning on to finals, unlike his two previous flights, he encountered sink and did not have enough height to clear bushes on the airfield perimeter. The glider swung around, damaging the wing and fuselage on the mature blackberry bushes.

142	Falke motorglider	G-BTUA	Substantial	17-Aug-01 1148 –	Shenington	66 –	None None	109 –

While taxying the motorglider along a runway prior to taking off, the pilot was concentrating on keeping a good lookout for gliders in the circuit. While doing this he failed to notice how close the motorglider was to a fence post and hit it, causing substantial damage to the wing.

143	K-13	–	None	Jul-01	Incident Rpt	49 –	None None	546 0

While recovering from a demonstration of a steep stall the nose of the glider pitched down more rapidly than the instructor expected and bunted past the vertical. The negative g pushed him back and up in his seat and he lost hold of the stick. The glider pitched further and started to climb in an inverted loop before P1 recovered and rolled level.

144	Primary	–	Substantial	23-Sep-01 1130	Nympsfield	34	None	258

The primary glider was being flown in "extended ground hops" across the airfield behind a car. On his second hop the pilot released at about 50-70ft and lowered the nose to maintain speed. As he got near the ground he moved the stick back but the glider hit the ground before he expected, breaking the skid and king post.

XXX	Cirrus & PA25 tug		Write-off	14-Sep-01	Aston Down	– –	Fatal Fatal	– –

This FATAL MID-AIR COLLISION occurred between a tug/glider combination and a second glider. The tug and second glider pilots were both killed. This accident is under investigation by AAIB.

BGA Year 2002 Reports

001	ASW 27B	4678	Substantial	04-Oct-01 1415	Denbigh	64	None	1210

The experienced pilot was winch launching with about a 10kt crosswind from the left. As the launch commenced the right wing dropped and, unnoticed by the pilot, touched the ground. He moved the stick to pick up the wing but, after a further 100yds, the glider left the ground and rotated around the right wing tip, causing substantial damage.

002	Bocian	2734	Minor	09-Oct-01 1532	Feshiebridge	45 30	None None	800 150

During an instructor training flight P2, in the back seat, asked to box the slipstream of the tug during the aerotow. He vigorously moved out to the left as the tug pilot, who was unaware of their intention, turned left. The resulting bow in the rope was accentuated by P2 lowering the nose. P1 took over but the rings damaged the canopy.

003	DG-600	3554	Minor	03-Oct-01 1100	Aboyne	56	None	231

After an approach in moderately turbulent conditions the pilot made a normal touchdown. Witnesses saw the left wing drop slightly and catch on the ground at the side of the narrow tarmac landing strip. The glider slewed to the left, causing damage to the rear fuselage frames and the tailplane.

BGA Badges

	Pilot	Club *(place of flight)*	Date
DIAMOND BADGE			
611	Richard Smith	Bristol & Glos *(Minden)*	05/09/01
612	Paul Marriott	Southdown *(Aboyne)*	06/10/01
613	Bernard Barry	*(Omarama)*	04/12/01
Diamond distance			
1-867	Colin Smithers	Cambridge	28/07/01
Diamond goal			
2-2804	David Dyer	Cambridge *(Tocumwal)*	07/01/01
2-2805	Stuart Naylor	Aquila *(Darling Downs)*	12/12/01
2-2806	Dennis Maddocks	Wrekin *(Darling Downs)*	13/12/01
Diamond height			
3-1561	John Pursey	Dev & Som *(Denbigh)*	02/10/01
3-1562	Martin Parsons	Vectis *(Aboyne)*	01/10/01
3-1563	Don Mallison	*(Omarama)*	30/10/01
3-1564	John Williams	Wyvern *(Omarama)*	14/12/01
3-1565	Bernard Barry	*(Omarama)*	04/12/01
GOLD BADGE			
2207	Andrew Hyslop	Chilterns *(France)*	16/05/01
2208	Justin Warwick	Surrey&Hants *(Feshie)*	09/10/01
2209	Michael Pettican	Aquila *(Aboyne)*	26/10/01
2210	Dennis Maddocks	Wrekin *(Darling Downs)*	13/12/01
2211	Neal Clements	Midland *(Ontur)*	03/06/01
Gold height			
Andrew Hyslop		Chilterns *(France)*	16/05/01
Paul Crump		Staffs *(Millfield)*	12/10/01
Justin Warwick		Surrey&Hants *(Feshie)*	09/10/01
Michael Pettican		Aquila *(Aboyne)*	26/10/01
John Williams		Wyvern *(Omarama)*	14/12/01
Neal Clements		Midland *(Ontur)*	03/06/01
Gold distance			
James Ewence		Aquila *(Lasham)*	01/08/01
Stuart Naylor		Aquila *(Darling Downs)*	12/12/01
Dennis Maddocks		Wrekin *(Darling Downs)*	13/12/01
SILVER BADGE			
10987	David Hallsworth	Deeside	09/08/01
10988	Ian MacArthur	Midland	04/09/01
10989	Richard Waugh	Portsmouth Naval	21/08/01

Classifieds

Please send the text of your advert, and your payment, to Debbie Carr at the BGA office (not to the editor).

Please remember that, if you are emailing text, your advert may not appear unless we have received payment by the deadline

The deadline for classifieds to be included in the June-July 2002 issue of *S&G* is **May 6**, after which any adverts received will be published in the following issue.

Text: 80p/word, minimum twenty words (£16).

Black and white photographs: £6 extra
Box number: £3 extra. All prices include VAT.

FOR SALE

SCHLEICHER ASW20L (15/16.6M) at Cambridge GC, Gransden Lodge (7day operational) – fully equipped outfit. Offers to Malcolm Farrell 01279 437963 m.r.farrell@virgin.net

ASW 24wl with Cobra or Komet trailer £27,500. Excellent condition with all factory extras and modifications. Proven winner. Tel: 07905 240551 Sarah.Steinberg@care4free.net

LS6c 17.6m – £27,250 ono – completely refinished – "as new" condition – Hull only – serviceable lift top trailer or Aluminium box trailer available – 01858 575613 abo35@dial.pipex.com

LS 6c • 18 For sale. Built 1991, Low hours and launches. Full competition Panel. Excellent condition.Contact 01256381540, 07831709585 or Email thebickerage@cs.com.

PHOEBUS B 37:1 GRP . Built 1969 600lb/1000hr Wings re finished Inst/radio Metal trailer. Excellent condition, 12 month BGA CoA. Too many gliders. £4500 ovno Tel: Hearne 01622 812385.

ASW 20FLP fully refurbished and repainted. Mod 11 and tailwheel mod incorporated,. Wing tip extensions and winglets included Full panel includes Horizon, new LNAV with Garmin connection, 720 ch radio, new ASI, Winter vario. Parachute. Trailer overhauled and repainted with new fittings for tail and tips. Tow out gear. New 12 month C of A. Price £22,000 ovno. Ring 01423 340452 or 01423 340491.

M200 with trailer, recent CofA, ideal two seater for family/club flying. Must sell - offers to John Shaw 01637 830692 or Gordon Hunter 01726 842798 Email: hunter@gorran.fsworld.co.uk

PIK20d Perfect with trailer, instruments, parachute, tow out gear, CofA until Spring 2003. View Lasham/Shalbourne area. Sales price £11 000 Tel: 01252 615442

LIBELLE 201B for sale. Aluminium trailer, towout gear,parachute, GPS, EW logger, oxygen, all in excellent condition. Based Dunstable. £10,000. Tel: Mark Dalton on 01582 623117 (eve) or 07768 010505 (day)

VEGA 15/17M One owner since new. Good condition. Metal trailer, tow-out gear, basic instruments, GPS, parachute. Bargain at £10 950. Tel: Mike 01451 850840 (M) 0777 0658438

ASW27 full panel, C3 computer, Garmin 90 GPS, tow-out gear. Cobra trailer, New CofA. Complete outfit £44 000 or 1/3 share available. Based Dunstable Tel: 01582 841813 Email: tel.mag@virgin.net

IS28 B2 17M Superb aerobatic (a) class training glider. Well maintained, always hangared. 800 hrs from new. Excellent instruments front & rear. Flow Tech Air Data ADC; rear cockpit repeater, tow tech, varios plus PZL varios, A/Horizon, Excelero Meter and TM6 radio. Immaculate trailer. New CofA. £10 500 ono. Tel: 01933 678585 Email: pete@crowhurstskyfsnet.co.uk

RADIO 57mm panel mount Filser ATR57UL. Bought new 2001. Digital display. Easy to use. £500 o.n.o. Jon Gatfield 01628 483237

FREE TO A GOOD HOME. The mortal remains of a failed Motor Tutor project. Basically all of the wooden components of a Slingsby T31. Fuselage has bulkhead fitted, one wing has storage damage. Other Tutor components are available. New owner collects from Dorset. Tel: 01446 794312

MOTORGLIDER Romanian IS28 with Retract U/C, VP Prop, new Magneto, spares, manuals, covers, offer. Based Kemble. Tel: Cheltenham 01242 672494

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