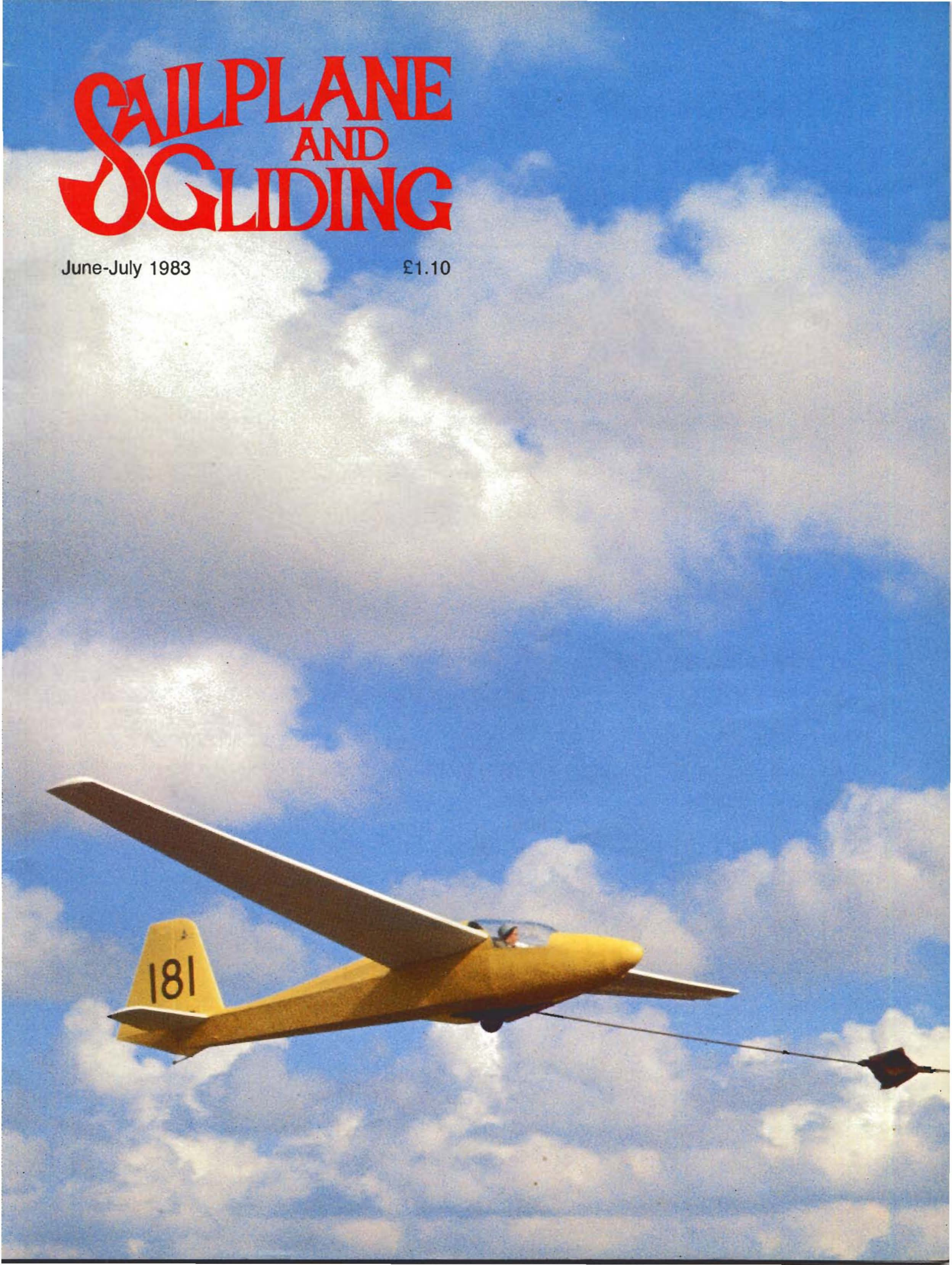
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CONTENTS

104 **A Standard Class 1000km Triangle** A. Pybus
106 **A Day of Days in New Zealand** Trish Watson
107 **A Waikerie Gold C** T. J. Wilkinson
108 **A Thermalling Turn Indicator** C. D. Norman
110 **Tail Feathers** Platypus
112 **Site Security** W. G. Scull
113 **What is a Gel Coat?** D. Jones
115 **A Cautionary Tale of Woe** M. Durham
116 **The Microprocessor and Gliding** W. Dittel
118 **Sailplane News**
120 **BGA Conference and Exhibition**
122 **Getting to Know the BGA Executive**
124 **BGA and General News**
125 **From the Secretary's Desk** B. Rolfe
Gliding Certificates
126 **BGA Accident Summary** A. W. Doughty
127 **International Gliding Commission Meeting (CIVV)** T. S. Zealley
128 **Your Letters** P. N. Janes, I. Mailer, I. H. Shattock, Alison Campbell, D. B. James, J. L. Thomas, E. J. Sheldrake, I. H. Shattock, Caroline Kear, R. Gannon, C. J. Chapman
130 **Club News**
135 **Service News**
138 **50 Years Ago — First British Thermal Flights** A. E. Slater
139 **The Lighter Side** J. Heishman
140 **Overseas News** A. E. Slater, M. Bacon

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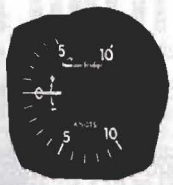
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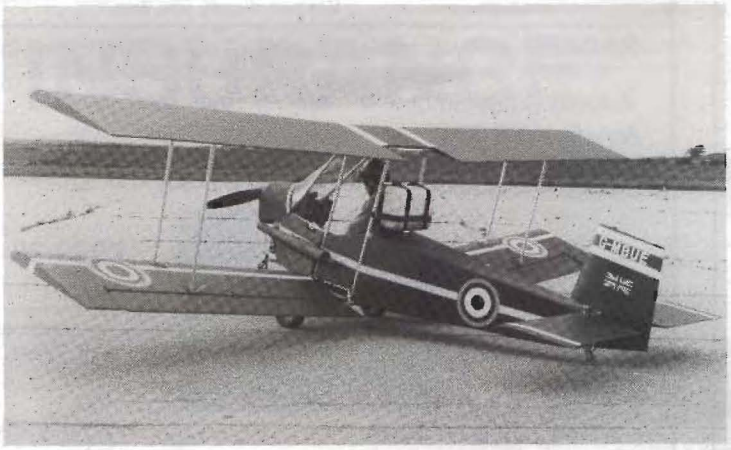
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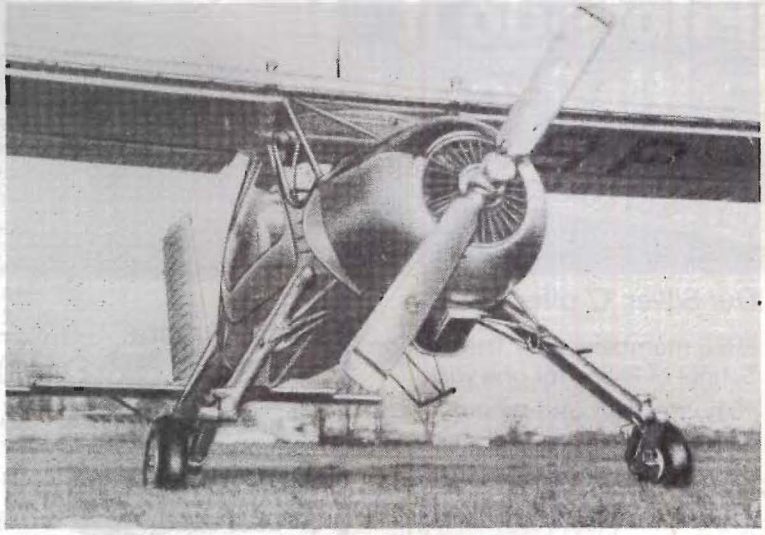
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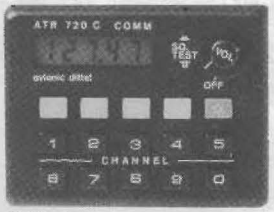
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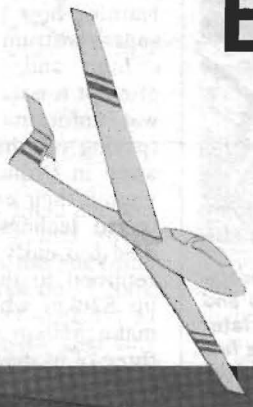
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S&G GOES DOWN UNDER – *at least with our first four articles in this issue*

A Standard Class 1000km Triangle

ANDY PYBUS

I suppose every cross-country pilot worth his salt aspires to flying a 1000km. Certainly, when I left a depression-laden England bound for Australia in the winter of 1979, it had occurred to me that such a flight might be possible, although commonsense told me to relegate the thought to my "pipe-dreams" department.

Once I had settled into my new environment, I was quick to find out from local glider pilots that Narromine — a small farming community in the wheat-belt of central New South Wales — possessed a soaring centre which was probably the best in Eastern Australia and when I took delivery of a Std Jantar some time later it was natural to base it there.

The decision turned out a happy one and within a few days of arriving at the Soaring Centre I had clocked up my first 500km triangle in the sort of conditions that most English pilots wouldn't even confess to dreaming about. For the next two seasons I plugged away at my distance flying and in all clocked up some 30 000km of cross-country soaring.

Full to the brim

I learned how to cope with Australian conditions — the fierce dry heat of some of the booming blue days, the difficulties of navigation in some of the remote areas and the threat of dehydration. I was also able to put into practice for the first time the principles of speed flying when thermal strengths, cloudbase and wing-loading were all high. (I never once had a day in the UK where a wing-loading approaching 50kg/m² was appropriate, whereas on the booming days here you fill up to the brim and throw in some extra lead if you're feeling really mean!)

In December 1980, a local pilot, Paul Mander, flew his ASW-20 around a 1000km triangle and in doing so became the first person to achieve the distance in a 15m glider. This really planted the seeds of my idea for a Standard Class 1000km triangle and when my LS-4 arrived the following year the process of germination began.



Andy, an anaesthetist at a Sydney hospital, started gliding at Booker in 1974 and by the time he left England five years later had logged about 200hrs and flown a few 300km triangles in his Libelle. Apart from the obvious reasons for wanting to fly a 1000km triangle, Andy had a bet on with "Shep" Sheppard at Booker.

"When I told him I was off to Australia, he remarked that it would be easy to do a 500km triangle there and this was a rather sneaky way of getting my Diamonds. My riposte was that I would therefore have to do it twice in one day to compensate for the improved conditions!" he recalls.

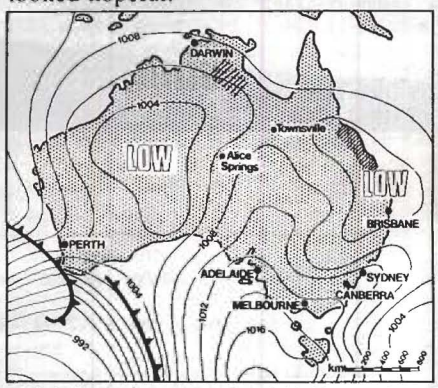
Andy says his two greatest gliding mentors are John Rowe and Arnie Hartley, neither of whom ever admit a task is impossible and as a result fly indecently large triangles. They all share an ambition to fly a really big Standard Class triangle and given the right day suspect a 1250km might be possible.

Two other local pilots, — John Rowe (CFI) and Arnie Hartley (LS-4 pusher) were also keen to take on the task and we spent the next winter drawing unreasonably large triangles on maps of Australia. In theory at least, 1000km was possible. All we had to do was fly at 100km/h for ten consecutive hours and this simple calculation became a source of inexplicable encouragement to us. The changes in FAI rules permitted us to concoct a 1031km triangle — Combara Silo, Hillston airfield, Cootamundra airfield — with Narromine being situated partway down one leg. (See Fig 1.)

This triangle had several advantages over Paul's, the most important being that it was almost all over good outlandable country which was well known to all three of us. Also during that winter I upgraded my panel by adding the Mark 4 Nav computer to my Cambridge vario system and then spent the next spring learning how to make the most of this superb instrument.

John and Arnie made their first attempt towards the end of November. I was unfortunately "confined to work" (paying off the nav computer!) 400km away in Sydney and needless to say I viewed their endeavours with somewhat mixed feelings! In the event, the day died too early and Arnie cut short and returned to the airfield having clocked up 820km while John soldiered on to make 860km and a field landing. All three of us made a similar attempt about a week later, and again we each scored around the 850km mark, "Pybus *aux vaches*", John and Arnie getting back. (On the same day, Peter Sheard claimed a new UK record by completing an 835km triangle in one of the Soaring Centre's LS-4s.)

The synoptic picture on December 11 looked hopeful.



I left Sydney on the 0630hrs Fokker for Dubbo, where I met Arnie in a Cherokee which got us into Narromine at about 0900. By then the place was a hive of activity as John had assured all and sundry that today was "the" day. We quickly ballasted the aircraft, (John in an LS-3) and went through that mad rush of declarations, barographs, maps and sandwiches which are a prerequisite of any long task day. (I managed to forget the sandwiches.)

John launched first, and I followed a

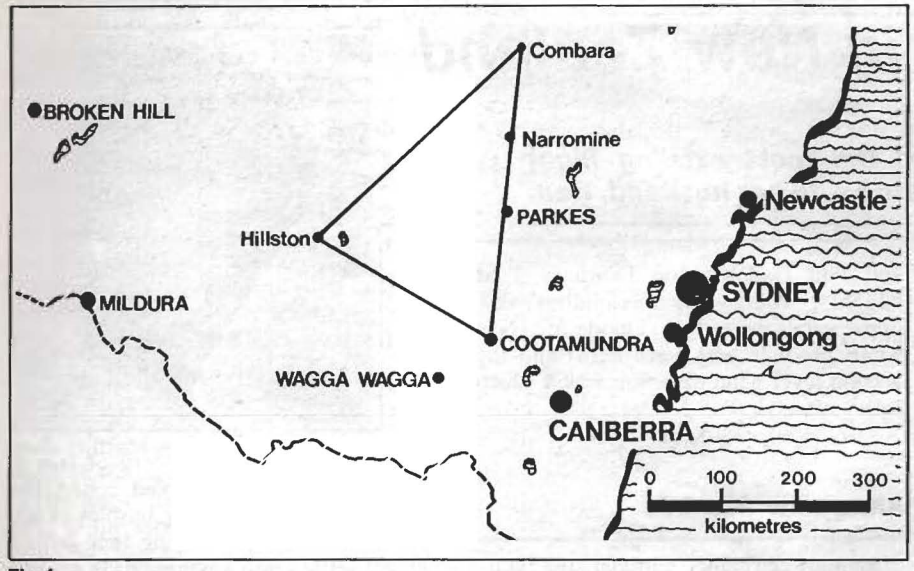


Fig 1.

few minutes later at 1030. I had decided to take a high tow and pulled off at 4500ft and dived through the start line at 1044hrs. Ten kilometres out I took my first thermal of the day — 2.5kt to 3500ft, while to the north the first cu's were forming. Some 60km out we contacted these clouds and found 4-5kt to 5000ft. The run into Combara went uneventfully although at this stage there appeared to be some danger of overdevelopment. John and I covered the 120km in 68min and reached the TP more or less simultaneously. Meanwhile, Arnie and David Jansen (Nimbus 2) were still 60km behind us having made a later start.

The conditions were now steadily improving, and 80km down the second leg I took an 8.1kt climb to 9200ft which proved to be my best rate of climb and height achieved on the day. The clouds were well spaced, with almost all of the good looking ones giving 6-7kt on the averager and we moved steadily southwards working a height band of 4-8000ft with a 5kt ring setting. I met up with John 50km out of Hillston and we cruised around the second TP together at 1513.

By now we had covered the first 500km in under 4½hrs and although the cloudbase was not rising, conditions ahead looked very good. Around this time we picked up reports from other aircraft in the remaining task area which confirmed this impression and for the first time the task looked achievable.

The third leg also went quite easily, although the easterly component of the wind slowed us up somewhat. Unfortunately by the time we were within sight of Cootamundra it became obvious that conditions were deteriorating. Large blue holes were appearing on the track home and an outlanding seemed inevitable. Behind us Arnie had decided to abandon the task and make a run for Narromine, while David was slowly catching us in the big Nimbus. Once again John and I turned more or less together, but by this time he had picked up 2000ft on me. It was now 1745 and we had 270km to go into a dying sky.

I wound my ring back 2kt, dropped 90kg of ballast and cruised off tentatively into the blue hole between Cootamundra and Grenfell. Surprisingly we both found some quite reasonable blue thermals and were able to tip toe north. At Black Spring Mountain John marked a 2kt climb for me and I crept in beneath him dropping the remnants of my ballast. Far to the north we could see cu-nims over the ranges but they seemed impossibly distant. Grawlin plains (150km out) found us down to 1500ft but "hanging on in" in 1.4kt achieved. I could now see that the decaying cu-nims were over Parkes and a rapid calculation with my computer informed me I would require 6500ft to reach the cloud at a reasonable altitude.

Twenty hard working minutes got me the required height and I continued on at 65kt, consoling myself with the thought that at least Parkes Airfield and an easy retrieve were now in my grasp. Meanwhile John had reached the town a few minutes ahead of me and found unexpectedly good lift under the decaying thundercloud. I entered the lift at 1700ft and found a solid core of 4.5kt in which I climbed steadily (and gratefully) to cloudbase at 8000ft. It was now 1945hrs and I was just over 100km from home with darkness 45min away. I had given up the thought of getting back to Narromine, but realised I could now make this airstrip at Peak Hill.

However, as I neared cloudbase it became apparent that a ragged street had formed on track. Needing no second invitation, I set off along it and in fact was to lose no height in the next 25km. At 85km out I was elated to find myself actually above my glide path for a 1kt glide back home, but John, who was by now some 20km in front, depressed me by reporting rain and heavy sink under the glowering clouds ahead. I altered direction to take me a little to the west of track and still finding myself flying in zero sink, cruised on into the growing darkness at 60kt. Abeam Peak Hill (56km out), the Cambridge told me that I was 1400ft above my glide path and although I was being gently rained upon, my glide angle did not appear to suffer. John, in the LS-3 with its more critical aerofoil, was not so lucky and finding himself at 2000ft some 25km out elected to make a safe field landing rather than try a marginal final glide in near darkness. David, having only his third flight in an Open Class glider, decided to play safe and land at Forbes having clocked up 880km.

Lost in the gloom

In the meantime, I nervously monitored my progress on the Cambridge. My check points all tallied and even though I remained a steady 1400ft above my Max glide path, I simply couldn't believe that I might complete the task. Narromine was by now lost in the gloom, but I could quite easily pick up the reassuring pulse of the airfield beacon. Ten kilometres out I still had 2400ft in hand and for the first time I felt I could be a little extravagant and began to burn-off my excess height. I crossed the finish line at 1000ft having covered the 1031km in 9hrs 47min. Needless to say I broadcast a jubilant "Charlie Quebec November finishing" and then proceeded in my state of excited exhaustion to line up for an approach onto the downwind runway. A discreet suggestion from the ground that "perhaps an into wind landing would be more appropriate" was gratefully received, and I finally touched down at 2033 just as the sun dipped below the horizon.

Footnote: At the time of writing, Arnie still hasn't quite made it, although he has twice travelled over 950km. David Jansen successfully completed the same triangle in the Nimbus a week later.

A Day of Days in New Zealand



TRISH WATSON tells of the most exciting flight of her life which she shared with her husband, Ben.

Those who don't want to risk turning green with envy and those who are bored with accounts of superlative gliding in far flung places, read no further.

I feel compelled to tell anyone who'll listen all about the most exciting flight I've ever had, and it was enhanced by having shared it with Ben. Believe it or not, in 23 years of marriage and gliding partnership we have never flown together in a glider before January of this year! But there we were at Masterton in New Zealand's North Island sitting in a K-13, thanks to the efforts and kindness of Malcolm Stuart and his gliding chums who had all dropped their work to assist us, it being a weekday. Ben was in the front seat doing the take-off, I was in the back having kittens! (It was all those warnings of the dreaded rotor and the fact that my harness wouldn't stay tight that had twitched me up besides which I know I am an awful back seat driver.) Would our marriage survive this?

But actually all went smoothly and we enjoyed a couple of hours in weak wave. But this is not the flight that I must tell you about — that happened a week later in the Mt Cook area of South Island.

Then we took-off at Glentanner airstrip in a Blanik owned by Gavin Wills and Phil Galloway on February 2 at 1245hrs. There was a cloudless sky, upper winds westerly and moderate (NW winds produce best wave here) and the ground level wind direction was S (deep valley effect).

Always the river bed

Manpower being minimal the starboard wingtip had to be picked off the ground using aileron and rudder and I nearly made a nonsense of that, but all became well and we were towed to a position just north of the Mt Cook Line's airport. If we failed to find lift — Phil assured us that we would put down at Birch Hill — a disused strip just a kilometre away. (We had previously reconnoitred it for cricket stumps and blown over markers.) Or, as a last resort, a safe landing could be made on the broad river beds as the actual water channels were widely spaced unless in spate. One might then be plucked off by his powerful tug had one chosen a suitable piece of shingle. Phew!

Tension mounted as we endeavoured to reach Rotten Tommy, a mountain in a side valley with a reputation as a thermal source and an amusing story of how it got its name. We fumbled round the bluff through encouraging burbles of lift, but it was some nail-biting time before we got settled into anything wide enough to circle in, and we had almost burnt our boats.



Ben took these dramatic photographs of Mt Cook while Trish did the flying

No doubt the Wills of this world and the next would have shot up the cliff with the wingtip a yard from the granite . . . we were too scared to attempt it as jagged ridges jutted out and the spectre of our dependants back in England filled the cockpit. So we did careful 360°s and eventually gained the summit with relief, but got no higher whatever we tried, returning to the head of the valley and back.

Perhaps the next ridge would serve us better. At least it was nearer to our goal, Mt Cook. So we sallied forth, found no lift at all and had to scuttle back to Rotten Tommy's midriff and struggle up again!

We next set off on the direct line to Mt Wakefield of the Cook range itself. This meant crossing the Murchison valley, a distance of some 8km, and we didn't have much hope of getting over the col with the height we had set off with.

Suddenly our gentle glider became a wildly bucking horse. Crash, bang, straps cut into shoulders, wings flick all over the place. Rotor!

"You take over please," I pleaded with Ben. He forged on indomitably and we sneaked over the ridge having gained about as much height as we had lost. Wonders never cease.

Wicked Wakefield's lift was plain horrible. We were flung up, flung down. We grew tired of the battle. Then Phil's voice came over the radio. "Sit-rep?" he asked.

"We're in the Hooker valley on Wakefield and it's very rough and we're not gaining height" I said.

"Press on towards Cook. Good luck!"

We were aghast as the terrain ahead looked most inhospitable and safety lay behind us. But we obeyed Phil and got tossed like jetsam but also supported as we edged up to the foot of Mt Cook itself. Gradually the violence eased and then we were in smooth lift such as dreams are made of — 700ft/min, 800, 900 . . . up and up. The massive rock face slipped quietly down beside us.

"I'll fly her, you photograph," I shouted with excitement. Ben sucked his teeth in fright as I tacked across the face much closer than he liked.

The ice cliffs and snow fields which cling to the upper crags are fantastically beautiful close to. It was all pure joy and extremely thrilling. Our goal was almost achieved.

As we passed the Middle Peak a small cloud formed upwind of the Cook peak. Climbing now at only 1kt we looked down and saw to our discomfort a Cessna winging its way rapidly up towards us.

"Cessna south of Mt Cook peak from glider, do you read?" No reply. The plane came close enough to see its markings.

"Papa Oscar Yankee Kilo we are in a glider 500ft above you."

"I see you glider. What a grand day. Have fun. Out". Off he went with his tourist passengers to view the spectacular Fox and Franz Joseph glaciers whose feet unbelievably melt in sub tropical forests with fern trees.

A tour to lose height

The altimeter now read 13 800ft asl. We made a triumphant 360° turn right over the peak and having no oxygen set off to lose some height on a circular tour of the Cook massif.

Time enough now to suck an orange and to enjoy the magnificent views: west of the Great Divide we saw valleys filled with cloud above which rose sunlit peaks; the long tongue of the Tasman glacier winding down the Murchison valley; the wrinkly tummy glaciers on Cook's north side; the milky aquamarine of glacier fed Lake Pukaki and the brilliant emerald ponds on the melting end of the silt covered Tasman glacier.

As we completed our circuit we came upon the wave whose rotor had abused us earlier. We were lifted in a dignified manner this time and rose to salute Mt Cook once more. Then we headed for home *via* Mt Sefton and its Footstool, with those stupendous ice falls which are so eye catching from the Hermitage tourist centre below. Great chunks of ice rumble down periodically, and here were we above it all!



Names on the map made us feel amongst friends. "Sybil and Katie's" peaks; Alex's Knob(!). But "Annette" was not so friendly. She gave us tremendous sink as we approached her. Thousands of feet wound rapidly off the clock. Did we have to settle for a Birch Hill landing after all?

We zoomed out over the valley and the sink reduced. But now we were back in frightful turbulence — 5000ft — we thought we could make it back to Glentanner. The lake had now blown into white horses. We saw an aircraft taking-off in the opposite direction to that we used five hours earlier. Couldn't see the windsock dammit. We were sinking fast again, all hell let loose.

"Phil, help us please!"

"I'm returning to Glentanner and will sus. Wait ten minutes."

But could we? Only 2000ft above site in awful turbulence. Then WHAM into fantastic lift right over the hangar. Ten minutes later we were back at 10 000ft! Ridiculous! What a Day of Days.

Footnote. *After a month in New Zealand, Trish and Ben spent another month in Australia where they both flew 500km triangles in LS-4s on the same day, February 27, from Narromine, New South Wales, to claim Diamond goals. Their TPs were Titchborne and Coonamble.*

A Waikerie Gold C

Tim Wilkinson of Yielden, Beds, was planning a trip to Australia with his wife when he discovered the coach would go past the entrance to Waikerie GC.

So on November 29, after a check flight, he was launched in an Astir CS (Waikerie have an impressive fleet) and found "good rates of climb everywhere. I went out to the west and saw the Adelaide hills at a good height, Adelaide itself and the ocean beyond with the sun on it — it all seemed a fairy tale."

The next day was the big one with 42° C expected and thermals in excess of 17 000ft. Tim flew Gold C distance and height, being able to see the TPs all the way round, but although a Diamond height was possible he didn't have oxygen.

A little cirrus came in the next day which Tim spent flying an ASW-19B, finding the conditions ideal for improving centring and scraping. There was still a problem with the cirrus on his last day but he declared a 500km and didn't land out until on his way back from the 230km TP.

He opted for an aerotow retrieve which, at £100, was expensive, but Tim said that he learnt more about cross-country flying that day than ever before.

"I had four days of the best gliding I could ever dream about," Tim added. "Everybody was most helpful and friendly, the facilities were excellent, the aircraft well instrumented and there was no red tape to stop you being checked out and flying away."

A THERMALLING TURN INDICATOR

COLIN NORMAN, a lecturer in mechanical engineering at Queensland Institute of Technology, sent us the enclosed article (which we reprint by kind permission of *Australian Gliding*) shortly before he flew 1043km in a Mosquito with the help of his invention. He took-off from Darling Downs Soaring Club's McCaffrey field, site of the 1982 15 Metre and Open Class Nationals near Jondaryan, Queensland, and Toowoomba, headed south to Edgeroi silo, north to Roma aerodrome in Western Queensland and landed back after 10hrs. During the flight Colin found the indicator worked really well for structured thermals. He used about 60 thermals and estimated that if only half were turned the wrong way (equal probability) he would have lost about 20min which would most probably have caused him to land out. An international patent has been applied for and Colin is manufacturing the instrument in small quantities, but is interested in a licensing/royalty agreement with an established company. Any inquiries may be sent to him at the Dept of Mechanical Engineering, Queensland Institute of Technology, George Street, Brisbane 4000, Queensland, Australia. As Colin is the first pilot to complete a 1000km from Darling Downs Soaring Club, he qualifies for the $1000 donated by Lindsay Richards, DDSC founding member.

Have you too been sure a thermal is on one side, turned and fallen into sink? This article is about the development and use of a panel-mounted audio-visual indicator that helps to overcome this problem and also has other uses.

From the outset, I want to make it clear this article is not a trick one designed to get you interested only to find out it is entertaining rubbish. Rather it is a report of the results of about eight years of patient investigation research and development.

Soon after starting to fly sailplanes I began to appreciate that one could see the glider being moved sideways as a thermal was approached, by the movement of the top of the cockpit against the horizon. A correction the other way often helped to locate the thermal.

When one wing tends to lift or extra force is felt on the ailerons and a correction is made toward the lifting wing, then the duration for which one could stay in lift was extended and/or a thermal could be located (as aptly described in Helmut Reichmann's book, **Flying Cross-country**).

It seemed to me these methods were good but they were not sensitive enough and that sailplanes should be able to fly, especially inter-thermal, in the way that Ibises and other such birds fly, *ie* not in a straight line but with a weaving pattern that will take the sailplane into any thermals in minimum time and with a minimum number of centring turns. This path would take advantage of any general lifting air encountered.

Horizontal guide

To put the above discussion in a more concise way, the MacCready ring allows the pilot to vary speed according to sink and lift essentially in the vertical plane, but an instrument was required that would allow the pilot to sensitively guide the sailplane movements in the horizontal plane. It is very important to note



here that a good lookout (as always) is important for flying safety purposes.

To pursue the above ideas experimentally, I reasoned that on approaching one side of a thermal, the wing on the thermal side should bend more than the other wing, even if only for a short time. To investigate this, strain gauges were first cemented to the wing spar stubs of a glider.

Strain gauges are devices about fingernail size and consist of a very fine wire or foil. When the wire is strained, for example by bending, the resistance of the wire changes and this then gives a very sensitive means of finding out if one wing bends more than another.

My experiments have indicated that one wing does bend momentarily (impulsively) more than another, as above. This is apparently due to the rotational mass moment of inertia of the aircraft initially resisting rotational acceleration and also due to an effect similar to the fins of a ship's stablilizer (horizontal fins outside the hull of the ship), *ie* the wing not in the thermal tends to momentarily stabilize the aircraft against the uplift of the wing on the thermal side.

A sensitive digital voltmeter was first used in an attempt to analyse the in-flight strain gauge signals and enough significance was found to continue. Experiments were continued with a portable strain gauge meter and significant readings again obtained but the instrument was not sensitive enough.

It would seem that a difficulty with this approach is that the strain gauges are applied to the surface of the wing spar stubs and this surface may consist of glass-fibre (or other) rovings that have a protective as well as a structural function, with the result that the strain recorded is apparently not always directly related to wing bending. (This infers, of course, that the strain gauge should be set in the material at manufacture.)

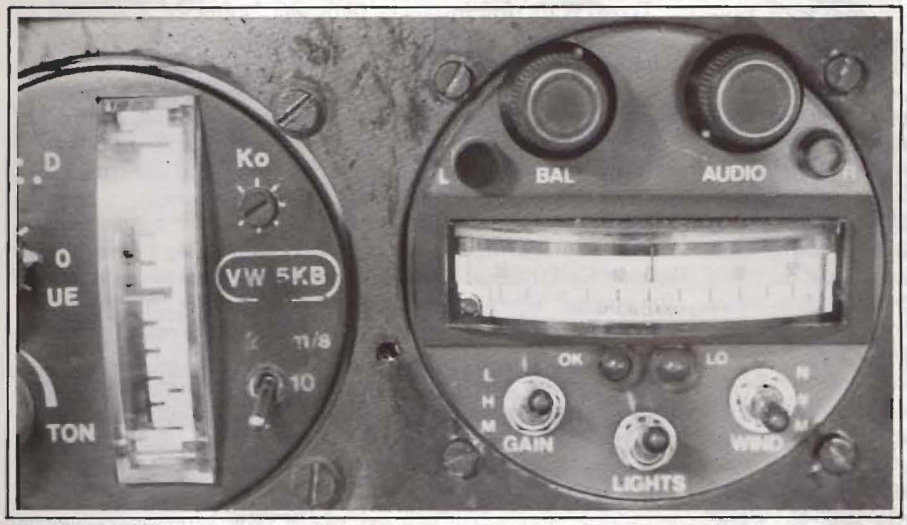
Another practical difficulty with this approach is that since the wings are removable from the fuselage and the strain gauges are attached to the wings, a tedious system of electrical pin type connectors must be coupled for rigging and uncoupled for de-rigging.

Deflection measured

For the above reasons, experiments were then begun into the measurement of the deflection of the wing stubs. This was first attempted using a mechanical dial gauge type indicator but this was found to be impractical for frictional and inertia reasons. A moving armature instrument was next tried with moderate success, but this was discontinued at that time because of bulkiness, weight and temperature problems.

A strain gauge type sensor was then devised and this is being used with good results in a Mosquito 15 Metre (Racing) Class sailplane. This sensor is connected by a cable to an instrument mounted in a standard 3.125in diameter cutout in the instrument panel. The sensor is easily disconnected from its cable and the wing stubs on which it is mounted, thus allowing ease of rigging and de-rigging.

The strain gauge signal causes a horizontally-moving needle pointer in an "edgewise" meter in the panel-mounted turn indicator to move to the left if the thermal is on the left or to move to the



The photograph shows the instrument installed next to a normal variometer.

right if on the right. An audio-visual warning system is fitted so that pilots can keep their attention directed outside the cockpit for safety reasons.

The audio consists of a distinctive two tone "beeper" that only sounds when the needle on the meter reaches a value chosen by the pilot. The visual warning consists of lights of different colours, one on either end of the meter scale and one light shows when the audio sounds.

The method of using the instrument is as follows: If the needle of the turn indicator remains central and the variometer reading is increasing the pilot does not turn but flies straight ahead in lift. If the needle moves left and the variometer is increasing the pilot turns left into a thermal or just veers left. Similarly if the needle moves right with the variometer increasing, the pilot turns or veers right.

This explanation is an illustration of the principle discussed earlier in that the turn indicator guides the pilot generally in the horizontal plane and the variometer in the vertical plane.

Although the meter needle is referred to above for explanation purposes, for safety in flying the turn indicator has been designed so the pilots can turn on audio signals alone, *eg* a low frequency tone for turning left and a higher frequency tone to turn right.

Good results obtained

Flight tests with the above instrument have shown good results. However, thermals and/or streaming or streeting must be reasonably well formed and on entering the thermal minimal rudder and aileron movement must be used so that wing bending will not be basically altered until the turn indicator gives the final direction of turn. (Additions to the instrument to eliminate this effect are incorporated in the patent application but add to the cost and complexity).

The turn indicator consisting of sensor and panel-mounted instrument uses normal 12 volt (nominal) battery supply and its current consumption is of the order of milliamps as against the amps required by a radio. However it is recommended that a 7-ampere hour (gel or other) battery be used for long (*eg* 5hr) flights when a radio is used also, and the relatively new 10-ampere hour battery for longer flights.

Why have a turn indicator anyway? The first reason is that it can be used for instructing student pilots to turn into a thermal. The left or right indication of a thermal is practically instantaneous and the student can from the start begin to learn how wing lifting and control column sideforce signs agree with turn indicator movements.

A second reason is time saving, the most sought after commodity for cross-country and competition flying. (George Moffat in his book **Winning on the Wind** makes this general point very well in his excellent chapter *Low Loss Flying*.)

Assume that we have turned the wrong way, *ie* we turn away from the thermal instead of into it, and instead of 600ft/min lift we turn into 600ft/min sink for 20sec of a turn. We lose 200ft by the wrong turn as against gaining 200ft for the correct turn. The difference is thus 400ft which represent (400/600) x 60sec, *ie* 40sec.

If 20 thermals are used in a flight and only half of these are initially turned wrongly, then the total time loss from this cause would be 10 x 40 = 400sec. This is 6min 40sec, a considerable time loss in competition and also badge or record flying. Thus the turn indicator, in reasonably formed thermals, will allow the number of wrong turns to be reduced, thus saving time.

A third reason is that the present method of assessing which way to turn into a thermal by means of the feel of the sailplane or ailerons as against using a sensitive turn indicator as above, may be likened to using the old Cosim red and green ball variometer as against the modern electronic variometers.

Experiments so far seem to indicate that frequently sideways movement or personal feel of the sidethrust do not always indicate the correct way to turn.

Other benefits

The turn indicator is also of some assistance in moving the aircraft toward streaming/streeting and in staying in it a little longer for additional time saving.

For use when thermalling alone, the turn indicator can also be used to a limited extent for moving a thermalling turn to be more concentric with the core. Also it would seem logical that when using an artificial horizon or turn and bank to fly in cloud, the turn indicator would help in locating the thermal core. Cloud flying is not legal in Australia but it is in some countries.

I have flown overseas and one of the difficulties in cloud flying, even with an artificial horizon and audio variometer, is correcting toward the core at the right moment.

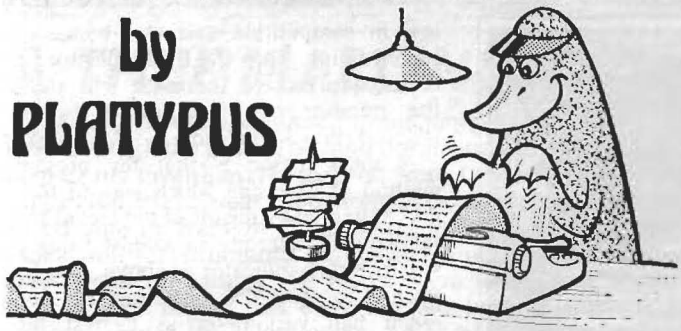
If one is thermalling in visual conditions below cloud then the instruments do not have to be watched closely and also the shape and the density of the cloud can be used as a guide to position and correct the thermalling turn. In the cloud, however, attention must be centred on watching the instruments and the guide of cloud shape and density is lost.

In these conditions, each time the pilot makes a turn, the turn indicator can give audio-visual indication of the side and general direction where a reasonably well formed thermal core lies and allow the sailplane to be moved more quickly and easily into a circling turn concentric with the core.

The instrument has been used so far on 15 metre sailplanes, but it is anticipated that it will be even more effective on the larger span of the Open Class sailplanes because of the increased air area swept by the larger span wings.

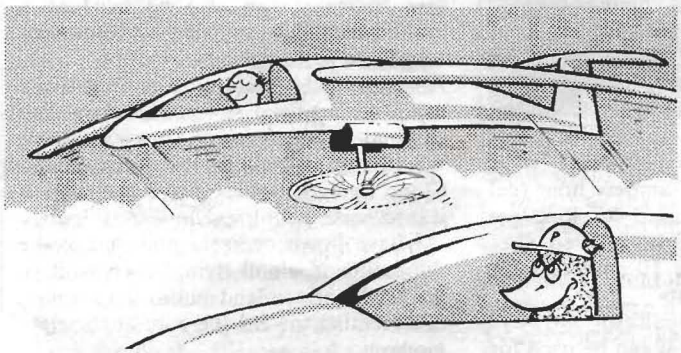
I prefer to fly with the turn indicator rather than without it. It seems to make flying easier and more pleasurable.

TAIL FEATHERS
by PLATYPUS



HOW DO THE PUNDITS REALLY DO IT?

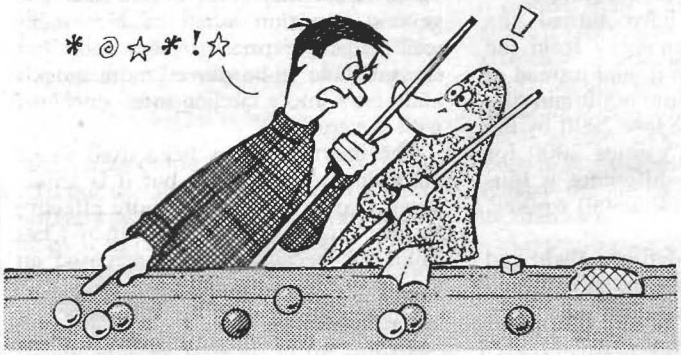
Having followed Britain's best pilots (and occasionally some of France's and Germany's) across thousands of miles of sky and having almost invariably been left floundering I have toyed with all sorts of theories as to why. One belief that I have clung to for years is that these people have a superior *strategic* sense which tells them whether to depart in the morning or in the afternoon, whether to go up the east side or the west side of the Pennines, and which tells them that 50 miles ahead it is really going to brew up beautifully.



Climb faster than the rest of us

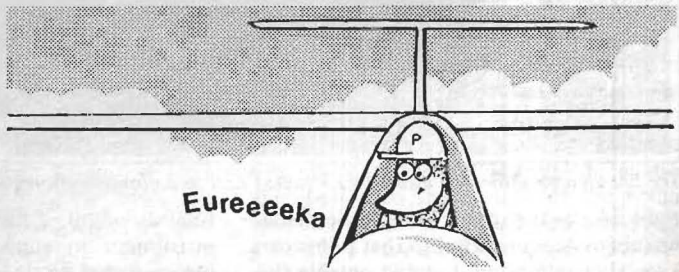
I am coming to the conclusion that this is all nonsense. They may indeed have some of these aforementioned talents, but, particularly now that Free Distance has been abolished and startlines are held, there is less scope for anything so grandiose as a strategic sense. I have decided that what these blighters do is quite simply climb faster than the rest of us. There may be some personal radar that tells these super pilots that a mile or so ahead the lift is greener but I do not believe anymore that it extends much further ahead than that.

You might well say to me, why don't I just ask them? But invariably the best ones can tell you very little about what is an instinctive process. How can a man who has full colour vision explain to one who is colour blind the nature of the special talent that enables him to tell one billiard ball from another?



One billiard ball from another

Dave Watt, for instance, finds the centre of a thermal so quickly that, even without doing a complete 360°, he can decide whether to stay with it or to press on. I am still wallowing around trying to find that core — if there is one — and probably waste twenty minutes over the course of an afternoon with such unproductive trial and error. I have clung on to half a knot at 1000ft in a blank grey sky and seen Bernie Fitchett come in 200ft below, barely waggle his wings, and press on into the nothingness to find a meaty two knots — at a height where I would be hollering for the crew and wondering if it was open season for farmers to shoot glider pilots either in the air or on the ground. When I ask him how? why? he can only say he was sure there was something better further on. However that confidence that there *was* something usable further on derived from the proved ability to find the difficult, moving centre of tiny bubbles at low altitudes.



Audio-vario's half-hearted squeak

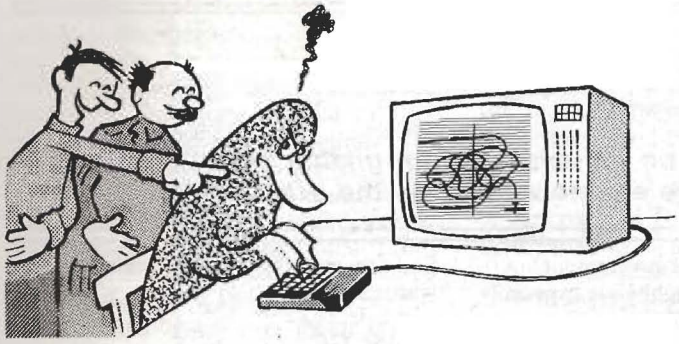
In short, my theory now claims that it's not that they know *where* the good lift is but that they know that when they encounter it they won't lose it. How often have you drifted along in quiet desperation and felt a burble and heard the audio-vario give a half-hearted squeak — and have not known whether a) to press on or b) to turn left or c) to turn right? That, I'm now sure, is where the difference lies between Them and Us. Perhaps Mr Pratt's "Thermalsearch" (see below) can help.

Two More Delightful Programmes for ZX81

First, John Williamson's final glide simulator which really does create a fair amount of tension as you press greedily on in hope of better lift and sometimes fail to find it. This has two useful functions: explaining the basic principles of final gliding as per the great textbooks from Piggott to Reichmann and helping one to get used to operating the John Willy calculator under pressure. The attractive thing about this one is the continuous print out "from the side" of the glider's track across the sky from left to right (west to east), which can be studied and discussed at leisure afterwards. The programme is very "user-friendly" (that is to say Platy-proof) and has plenty of simple instructions on the screen. Certainly not just a game.

Secondly, Graham Pratt's "Thermal Search" which is a serious attempt to test out different techniques for centring in lift. The number of times I got the "Thermal Lost" message was infuriating. The most ingenious aspect of the programme is that although, as in real life you only get vario readings, heading and angle of bank as you circle, after you've finished (triumphantly or in disgrace) the computer screen recreates all your meanderings as a moving trace related to a grid which indicates the centre of the thermal. This lets you analyse the extent to which you tended to turn too soon or too late, use too much or too little bank etc, etc.

Graham Pratt has tried six different methods of centring and concludes that the two best are:



Recreates all your meanderings

(1) Reduce bank 270° after best heading or 90° after worst heading (Piggott)
(2) As climb improves, flatten circle; as climb worsens, steepen circle (Reichmann)

I think the centring programme merits a complete article in S&G once Graham has polished it; although very sophisticated already it has some drawbacks at present. It gives no explanations on the screen as to what you are about to do, and the rate of roll is painfully slow (only 10° per simulated second of flight). No doubt it would be possible to speed that up to at least 20° per second, which would be more realistic and less likely to drive the pilot mad with frustration as yet again he fails to tuck the wing down fast enough and blunders out into the sink. The slow speed of ZX Basic means that the whole flight occurs in slow motion, so a simulated second takes about two seconds. But these are details. I can imagine very high powered models testing the behaviour of different wing loadings, different vario-lags, etc, which could be useful to manufacturers of aircraft and instruments as well as to pilots.

Ban the Bomber?

Talking of computer simulation, there was mention some years ago of a study which proved that the best cross country performance would be achieved not by an ultra-high-aspect-ratio toothpick wing, but by a low-aspect-ratio wing carrying half a ton of water on good days. Such a monster would require a tricycle undercarriage — and a tractor to tow it to the launch point on the day of days. It might also need Greenham Common's runway to take-off with any normal tug. Only there are two big snags about trying to operate from that site . . .



The two snags

Almost lighter than air

Cardington airship hangars are astonishing structures — dim echoing monuments to the days more than fifty years ago when it was believed that Bedford would soon become the hub of the British Empire. The R101 disaster ended that dream. From time to time nowadays microfilm models fly around high up near the catwalks, with durations of forty minutes or more. That's the "Standard Class"; unrestricted versions have touched one hour in America. It's an eerie experience to watch them.

What interests me about these flying machines, which cost more than their weight in gold, is that they are the true ancestors to MacCready's Gossamer Condor, which was the first man-powered aircraft to cross the English Channel. In Britain we were transfixed by the notion that the way to manpowered flight was *via* the sailplane; all our panting pedalling pilots were encased in what looked like extremely flimsy Nimbuses. These beautiful machines were trying at one go to achieve Min weight, Min drag and Max aspect ratio. When they hit the ground and got damaged they were so complicated and delicate that it was back to the workshop for months. That meant people didn't move far up the learning curve either as pilots or designers: to make progress you need plenty of chances to make mistakes and recover from them quickly.

What MacCready built was not the world's flimsiest sailplanes but the world's biggest microfilm models. The big difference is that drag was hardly considered a problem at all; drag is reduced as the square of the speed (if you go half the speed the drag is reduced to one quarter) hence those fine bracing wires which stiffened a wing of incredible lightness and fragility. This simple, braced structure was very easy to repair, so pilots and builders moved quickly up the learning curve. (California weather helped — but then their greatest achievement was over here.)

You might say that it's all very well reducing the drag to one



The power of a fit man

quarter but if your speed is halved it's going to take that much longer to cover the ground (or the water) so you're back to square one. But the most important point is that human endurance is not linear. I mean that a fit man can deliver one horse power for (say) only one minute but he can deliver one third horsepower for an hour or more. The total amount of useful work a man can do is therefore much greater if you can create a flying machine that can stay airborne on a half or third horse power, *even if it is very slow*. He will still go a great deal further before he flakes out.

The interesting point is that all these things were known before MacCready pulled the rabbit out of the hat, so why did we go down the road we did? *(For that matter why didn't Smartypants Platypus point out where everyone was wrong? ED)* Because, I believe we all were in love with the idea of a supersailplane that we could pedal through the sky. We didn't really want any other less aesthetic solution to work.

By the end of the century materials will have improved so much that the Gossamer Condor will have given way to something cleaner and faster and *then* no doubt the new machines will look remarkably like Puffin* and the other noble failures hanging in the roofs of aviation museums. Like the 1930 dirigible, the clean, unbraced British man-powered machine of the 1970s was poised perilously on the edge of the available technology. So, about the time that pensioner Platypus is pedalling from Dunstable to Cardington at 2000ft he might see those hangars happily reverting to their former role, home for working airships — even though we no longer have an Empire for them to serve.

** A failure in the sense it didn't win the Kremer prize.*

SITE SECURITY

BILL SCULL, BGA director of operations, reports on the success four gliding clubs have had in buying their own land and hopes there are more to follow the example.

Once upon a time it was only the long-established gliding club that owned its site* and since many of these were operating at or near capacity, "secure" gliding as a proportion of the whole was reducing as the movement expanded. In the last two years however there has been a change with four sites secured and at least one more to come. Hopefully the clubs will tell their own stories in more detail at a later date; in my view there is no more important message to pass on. Meanwhile here is a summary as seen from a BGA point of view.

The common factors necessary for a site acquisition are financial viability, a bank balance and, of course, a site to buy. Accumulating funds for site purchase is especially difficult if the opportunity to buy is not imminent; the pressure may well be there to buy better gliders or a new tug aircraft. Moreover, with land at up to £2000 an acre the total amount for a moderate size site will be in the order of £100 000.

Despite the cost three clubs have purchased their sites or parts of them — Cotswold GC (Aston Down), Ouse GC (Rufforth) and Wolds GC (Pocklington). A significant factor in each of these acquisitions was the support of the Regional Sports Councils. The Cotswold club thought they hadn't done badly with a grant in aid of £20 000. You can imagine the Ouse club's delight when they were granted £40 000. To cap that the Wolds club received £50 000 towards the purchase of (parts of) Pocklington airfield.

Valuable help from Sports Council

The Sports Council's help has been of enormous importance and reflects, I feel certain, their concern for a lack of site security. The opportunities to buy sites are few and far between and their timely recognition shows a very good understanding of the movement's needs.

The resources, apart from financial, which a club needs is a small team of members dedicated to the task and having the necessary skills. Very often it is a case of learning on the job as it were because the skills required are diverse — ranging from entrepreneurial to finance through planning, PR and liaison with government agencies such as the PSA (the Property Services Agency responsible for the disposal of government land). Often the amount of lobbying, especially of such agencies, is disproportionate to the end result. For example Crichel Down rights which require land to be offered back to the original owners results in land being sold in rather oddly-shaped areas — and no one in gliding wants to buy the two ends of a runway without the bit in the middle!

The commitment of the team is of paramount importance and one advantage of the recent spate of acquisitions has been that some of the lessons learned have been passed on. Here the BGA has been able to help in establishing the necessary contacts and, in effect, we now have a team of experts.

THE SITES IN DETAIL

Cotswold GC

Aston Down is a beautiful airfield. Its runways are in good condition and long enough to allow the Cotswold club to operate a reverse-pulley system of launching. This is good enough to obviate the need for aerotow (which is just as well as the land is covenanted against the use of aeroplanes).

The prospect of purchase did not daunt the club (indeed they had been fund raising for several years) even though the planned disposal by auction did complicate matters. As if the purchase of the land they wanted wasn't enough of a problem the club was faced with the need to buy parts of the runway from other prospective purchasers with Crichel Down rights. One potential purchaser caused considerable alarm by not taking up his rights but fortunately he made this decision in time for the club to persuade him otherwise and pass it on to them.

Since the acquisition of the site there have been problems with footpaths, rights of way and another more critical factor. A disused airfield does not require planning permission for its use. If you buy part of an airfield there is nothing to stop someone else buying or operating from another part of the same airfield. The "catch 22" in this situation is that the planning authority say it's a matter for the CAA and the CAA that it's a matter for the planning authority (and neither will grasp the nettle!). Clubs that might find themselves in this situation be warned!

Wolds GC

This club has operated from Pocklington for a number of years. Its security on the site gave cause for concern mainly due to encroachment of an industrial site and the possibility of a different attitude to the club with an eventual change of ownership (by inheritance). At one stage the club considered the possibility of some land due to be reclaimed — a shallow (gravel) quarry. However the knowledge that this move was afoot altered the owners of Pocklington airfield to the financial standing of the gliding club and eventually a deal was arranged in which the local planning authority was of considerable assistance.

Last February contracts were exchanged — an exciting moment indeed. Even more exciting was the meeting with Sports Council officials at which the amount of the grant in aid became known.

Doncaster and District GC (now Burn GC)

It would be a serious omission not to tell you about this club. They typify the shrewd Yorkshire approach (the penny bank!) of steadily accumulating funds from regular, healthy annual surpluses due in part to carrying their own risks on club gliders and a good safety record. For a long time the club has been threatened with the loss of its site — the Council owned Doncaster airfield; they had even won a Secretary of State appeal against attempts to move them off.

The tension as the auction day approached was nerve jangling; some of us couldn't bear to attend. The upshot was that the club acquired the site but the "selling on" and exchange of land went on for some considerable time afterwards.

One day, for posterity, John Holland, Larry Bleakin and Dave Roberts should really tell us their own story. *(Dave has promised us an account for a future issue. ED.)*

The Ouse GC

After many years of operating from Rufforth this club moved to RAF Church Fenton. When Church Fenton changed its (RAF) status they had to move again

**List of sites from Site Situation Report 1979.*

and for a time they were homeless. Without any site the membership number dwindled because, of course, one must go on gliding! But many who did go elsewhere maintained their commitment to the club as events were to prove.

When part of the original Rufforth site came up for disposal the prospect seemed too good to be true. The immediate problem was their resources were limited because, I suspect, they had never conceived of buying a site or finding one to buy. However the club quickly raised funds by various ploys — loans from members, life memberships etc. Eventually the case they made to the Sports Council was good enough to get a grant in aid of £40 000.

Needless to say there was another team of experts with Dick Boddy, the club's chairman, playing a leading role.

A new prospect appeared in the form of Burn airfield (near Selby) and negotiations with the owners, the Central Electricity Generating Board were started. The shortened version of the story (a saga!) is that the club now have a 21 year lease with an option to purchase.

So, it's all happened in Yorkshire (not forgetting the Cotswold GC) thus bearing out the statement that "where there's muck there's brass". The various secure sites are a tribute to the club managements with the determination and ability to carry the job through — let's hope there are more to come.

What Is a Gel Coat?

By DOUG JONES, a member of the BGA Technical Committee and Chief Engineer of British Composite Materials, who has been working on GRP for 30 years.

A gel coat is usually a white pigmented polyester resin which can be applied by brush or sprayed onto the mould tool prior to laminating the structure.

Why use a gel coat?

The majority of sailplane structures are hand laminated with epoxide resins to impregnate the glass or carbon fibre reinforcement. The resin for this type of manufacturing technique has a temperature limit in service of 54°C. To ensure this limit is not exceeded it is necessary to colour the surface by a white coating. Epoxide resins do not lend themselves to self-colouring for a variety of reasons and to date the only effective way of providing a uniform white surface is by the application of a pigmented polyester resin as the first stage of the manufacturing cycle. Polyurethane or acrylic finishes are however sometimes used.

Durability

Finishes which have to be compatible with the fabrication technique do have limitations. These can be broadly identified as:

1) The coating finish tends to be brittle by comparison with the resins used in the structure and do not have the same expansion characteristics with temperature and

2) They are not impervious to moisture.

These features tend to produce blemishes in the finish, with time, such as blisters which when punctured contain water, and more significantly fine hairline cracks through the thickness of the gel coat, these predominently occurring on those surfaces exposed to sunlight, particularly so in hot countries. The brittle nature of the gel coat can, however, have advantages for if the glider is being over stressed, crazing of the gel coat can pinpoint an area of possible damage to the structure and initiate investigation.

Maintenance

To enhance and protect the finish of a sailplane it is necessary in my opinion to regularly apply and polish with pure wax. This will minimise the ingress of moisture, but it has the disadvantage that if it rains during the flight the performance is more adversly effected than if the surface is not wax polished.

A survey

Since the occurrence of defects in gel coats appears to be increasing it is suggested that a survey could provide useful data. The following information would be necessary and please send any data to the BGA.

Sailplane type
Manufacturer
Year of manufacture
Type of finish (Full details should be in aircraft logbook)
Nature and description of defects and when first occurred.
Country where aircraft is operated.
Hours and launches up to occurrence of defect.
Proportion of time aircraft in open.

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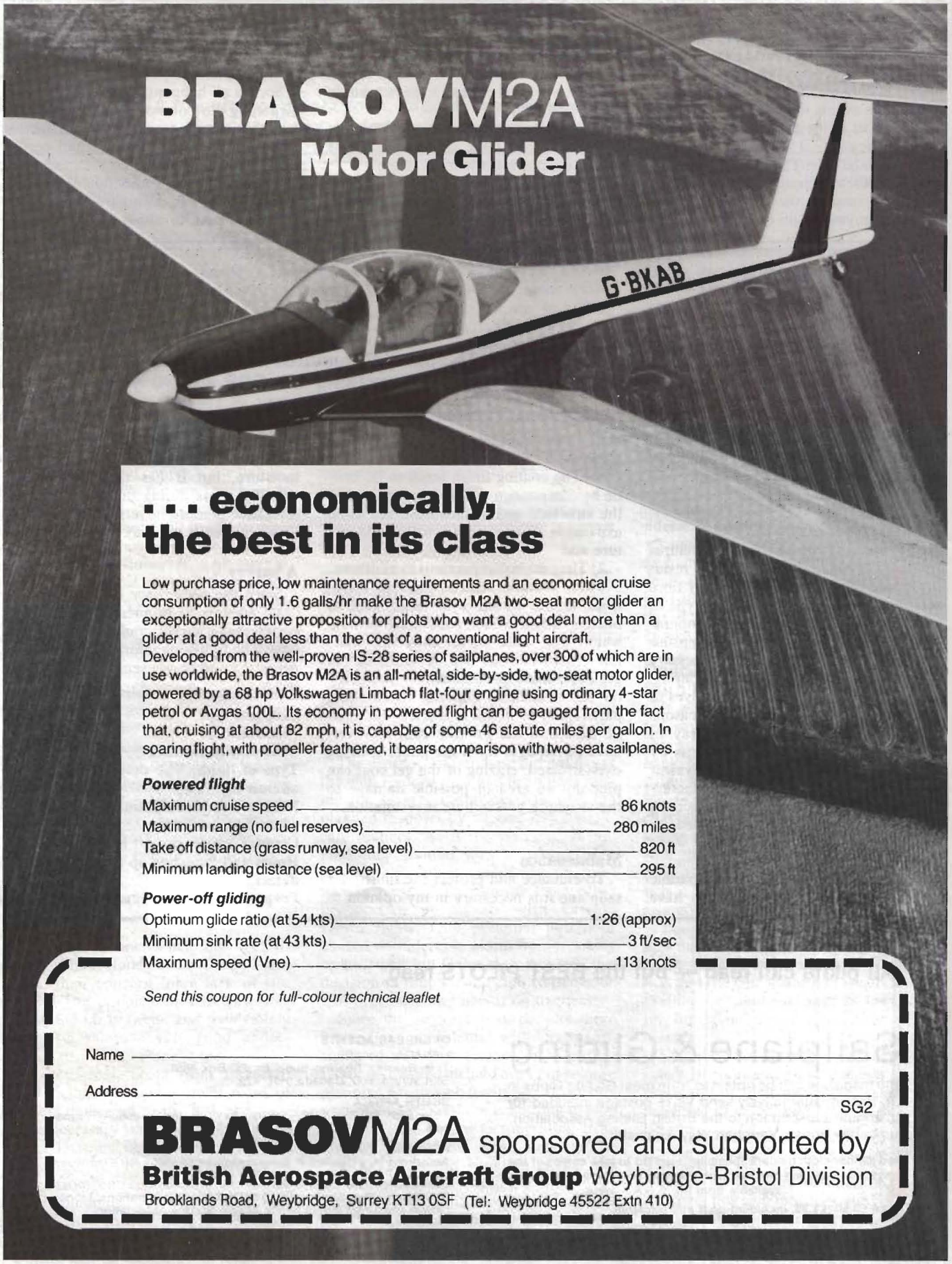
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A Cautionary Tale of Woe *(with apologies to MENTOR!)*

MARTIN DURHAM

Our hero, Joe 90, was comfortably ensconced in his living room watching Coronation Street, when the phone rang.

"Hey, Joe —" said a familiar voice at the other end of the line, "you know the glider I was going to tow down to Much Polebending on Sunday? Well, I can't take it now — do you think you could do me a favour and take it down for me? I'll leave it outside the hangar, and get it all
*1 ready for you — it's a good trailer, I've never had any problem with it and it's as steady as a rock." Joe thought at least it was better than taking the wife and kids to the Zoo on Sunday.

"Fine!" he said, "Will my 1800 pull it all right?" "No problem" came the reply, and that was that.

Joe turned up at Fred's club on Sunday morning with a tank full of petrol. Problem 1 was immediately obvious when he tried the trailer door handle: it wouldn't open and he couldn't get in to check the glider. "Daft beggar must have locked it!" he muttered and went off to find the keys. Half an hour of fruitless searching and interrogation of everyone in sight failed to produce any keys which fitted.

Take his word for it

"OK," thought Joe, "Fred said it was going to be ready to roll, so I'll have to take his word for it. There's a registration number already in the slot — it's not mine, but it'll have to do. I can't very well
*2 break into it — it's not my trailer, and I'm only a visitor here."

So — visual inspection next. Tyres OK — no obvious defects — all lights are
*3 there — what's the all up weight? Ah — no markings! "Well," thought Joe, "Fred said I wouldn't have any problem with an 1800, so it must be within limits for me to tow — I'll have to risk it."

Inspection complete, Joe manoeuvred the car round to the front of the trailer to hitch up only to find that there was no safety link fitted. Muttering again, he marched off to find a length of suitable 4mm steel cable — he was blowed if he was going to tow anyone's trailer without a link between the car and the trailer
*4 braking system! Ball hitches aren't infallible, after all.

A friendly winch driver supplied the cable and the necessary cleats, and now some hour and a half later, Joe checked his lights and set off. It soon became apparent that the trailer didn't really qualify for the description "steady as a rock", and Joe could feel the weight of it every time he applied the brakes. "Still," he thought "Fred never had any problems — I'll keep going and it'll sort itself out." The strong gusty wind didn't really help matters, and the trailer didn't sort itself out but kept breaking into rampant
*5 oscillations at the drop of a hat. Joe mentally totted up the thousands of trailer-towing-miles he'd clocked up over the last ten years or so — and kept going.

Halfway down the route, and so far so good. Nothing he'd not been able to handle, and he was beginning to relax as
*6 he coasted at 50mph over the brow of a hill. A long steep descent loomed up to meet him. With the weight of that trailer behind him, he'd better brake! Brakes on, and the trailer was slowing nicely when a gap in the hedge funnelled a particularly vicious gust of wind broadside on to the trailer. Off it snaked, and there
*7 wasn't a lot Joe could do. Braking was out, as it would only make things worse, and accelerating — he was already going fast enough thank you! So he did nothing, and with the oscillations growing fiercer by the minute, noticed a menacingly large furniture van coming the other way. The driver was beginning to look distinctly scared, and was edging over to his side of the road. Our hero gritted his teeth and put his foot down — the trailer straightened under the acceleration, enough to let Joe past without sideswiping the furniture van, but the slipstream after the van was just too much to cope with. Round he went, the victim of a classic and powerful jack-knife.

A life of their own

Over the next few seconds, Joe was presented with an interesting view of the world at right angles as he went backwards down the road, on his side. His soaring hat and half mill maps seemed to have taken on a life of their own as they flew around inside the car, against a background of black, then green, which grew darker as the car slid into the hedge on the opposite side of the road.

It all went quiet. Joe, remembering his friends hanging in straps in aircraft accidents, gingerly supported himself with a hand on the roof as he unstrapped — and fell promptly down into the passenger seat! It was quite a struggle out of the driver's window, but Joe made it — luckily without a scratch — to find his car nearly upside down in the hedge, and the trailer broadside across the road, in pieces. "At least," he thought gloomily to himself, "all these people running up to help won't have to say 'What you got in there, mister?' — they can all see the glider laying in the road!"

Glider not too bad

Shaken, he inspected the remains: the car was a write-off, and so was the trailer, although the glider didn't look too bad. What really surprised him was a close inspection of the tow bar — all that was left holding the car and trailer together was his little loop of 4mm cable, without which, both car and trailer would have rolled independently down a six foot bank.

Joe was lucky. He got out alive. But it should never have happened, should it?

Cautionary Notes

1. **Always** be suspicious of any unknown trailer.
2. Always check inside a trailer before departure for the security of the glider, and frequently along the route. A look inside can also show how stability may be improved by shifting spare wheels or waterballast around.
3. All up weight is important — if it approaches the weight of the car, **beware!** In this case the glider was a two-seater in a heavy trailer.
4. Of vital importance later! In any accident, ball hitches usually separate, and sometimes do of their own accord anyway if worn. If the combination stays together it is less likely to roll.
5. If Joe had had access to the inside of the trailer he could have increased the nose weight, which would help stop oscillations.
6. 50mph is **not** the legal limit; with no kerbside weight shown, the limit becomes 40mph. Either of these is not necessarily safe for a particularly unstable trailer, or in windy conditions.
7. No driver technique can prevent an accident waiting to happen.

THE MICROPROCESSOR AND GLIDING

Is the pilot in danger of being overloaded with complicated gadgets? Walter Dittel Snr, now of Avionic Dittel GMBH, thinks not, as he made clear in the lecture, delivered on his behalf by Herr H. Skoda, at the BGA Conference. The following is an abridged version.

A quarter of a century ago Ernst-Guenther Haase became World Champion in the Open Class flying a HKS-2. At about the same time the world's first glass-fibre glider, the Phoenix, was launched which lead to new standards in performance. Also at about that time a tiny — by 1958 standards — solid-state device, the transistor, began reshaping aircraft radios and taming their appetite for DC-power. The radio of these days, if installed at all in a glider, was bulky and unreliable. It was a valve set and if you were lucky six frequencies could be switched provided you had the money for six sets of transmit/receive crystals, the battery power to drive it and room in the glider.

A tremendous change

Whilst the basic radio-functions have not changed since its inception, a tremendous change has occurred with today's radio being small, having 760 channels, ultra-low power consumption, and giving up to 10W of output power at a fraction of the real cost of early sets. The units will now tolerate any input voltage from 10.5V to 15V without difficulty, and their efficient use of power eliminates heat-build-ups and greatly increases reliability. In our 720B radio, designed specially for gliders, thermal loss is only 1W while we still get 5W of HF-power. With our new 720C radio even more power is available with an HF-output of 10W and a higher AF-output. This set, in addition to having up to 760 quartz stabilized channels and keyboard dialling, allows ten frequencies to be stored in flight and later recalled quickly by pushing one button at any time. (A lithium/manganese battery keeps these frequencies stored for over 2½yrs). Without the microprocessor this set could not have been developed.

Similarly the use of highly integrated, low-power circuits has enabled us to develop the full 760 channel "HANDY" transceiver which despite its size, small enough to fit in the top outside pocket of a man's jacket whilst still leaving the frequency change mechanism accessible, puts out a full 1½W and is a harbinger of new things to come. New highly integrated circuits pack the necessary functions into one flat little package which drops into a circuit and replaces a 4-layer printed circuit board. This technology will soon apply to a new and even smaller glider radio where panel space is at a premium. Our developments now make possible a radio covering the full military VHF band from 118-156MHz. Modulation in this unit is transformerless, yet the set provides 10W of HF-power into the antenna.

The final development of our VOR/ILS/MLS receivers is awaiting the new and highly stringent technical requirements to be issued by the BFS, our ATC-Authority. We expect to have these in production next year.

Miniaturisation has also led to our new ATC-transponder. It is small enough to be carried in a balloon with minimal power requirements so it can be run off the battery pulling 700mA at 12VDC; A number of these units are already flying in Switzerland. Other transponder developments may follow.

Miniaturisation has also resulted in a new ultra small strobe-light system. The unit may be connected to either 13.75VDC or 27VDC without worry as it automatically switches to the correct setting; lamp synchronisation is switchable by the pilot with parallel or sequential lighting selectable. Special integrated circuits provide over/under-voltage and thermal protection as well as overcurrent protection to prevent power-capacitor and/or battery damage. This is very useful innovation as a leaking capacitor will "eat" the aluminum of an aircraft.

In a minimum of space

However, our latest love, because like you we are all glider pilots in my company, is a new and exciting microprocessor variometer with integral distance computer. Our unit, which we believe is an advance on anything so far, combines in a minimum of space a total energy compensated integrating variometer with a speed bug and a distance and performance computer for cross-country flights. We have had it flying for some time now and production is just starting.

But perhaps we should reflect for a moment on the implications of such an instrument at a price that many pilots will now be able to afford?

Are we trying to overload the serious pilot with unnecessary and unnecessarily complicated gadgets? I think not. What we have ahead of us is no different in impact to the original electric variometer and I see our task being to exploit microprocessor technology to support the pilot by freeing him from routine tasks and leaving him with more time to concentrate on a chosen flight task. This will improve both his flight performance and the overall safety of the flight. We use other modern technology, such as glass-fibre and carbon fibre for structural elements, we use computer-simulations to find the best laminar-flow wing-profile and I believe it is equally logical to use microprocessors for the control of our information processing units and our communications. Our electronic microprocessor supported variometer with its integral distance computer is just part of this idea.

It is quick and exact

Our system is a small solid-state electronics package. It has a piezoelectric static-pressure sensor with supporting electronics to process the raw pressure information and eliminate temperature and altitude errors. The variometer may be compensated either electronically utilising a second pressure sensor or in the conventional manner with a total energy tube. Doing it the electronic way has the advantage of providing a quick and exact means of compensation. The heart of the unit is, of course, the microprocessor. What would have required many additional circuits in conventional technology can now be incorporated in software and new techniques and problem-solving algorithms can thus easily be added without changing an existing instrument. In its design we have not compromised the variometer design just to pursue the ideal of a solid state instrument, but we have sought, successfully I think, to give the pilot the vario response that he really wants.

To make the unit really flexible, L/D-tables for all commonly utilised sailplanes have been stored in the processor's memory allowing it to be quickly changed to suit any glider. We have built into the programme provision for the effects of bugs and rain on the glider and also for different amounts of water-ballast.

In flight, the pilot simply enters the desired altitude at the destination or TP,

coupling this with distance to go and the estimated wind component, and the unit then provides a dynamic display of the essential criteria, height and distance, for the sector of the flight in question. The wind component can easily be determined by entering the distance flown versus the distance planned. It can also show the exact ground speed you are achieving.

Additional data is constantly being derived from the data processed and can give the pilot other useful information either during the flight or after landing. All he has to do is ask for it. Examples are: the total altitude climbed during the flight; the total time used for thermalling as opposed to the total time for the flight; the average climb-rate achieved; average groundspeed flown as well as selected peak data such as the best rate of climb achieved.

To make the unit easy to use the ergonomics of the central indicator and control unit have been carefully thought out. We wanted to provide the pilot with an uncluttered design with the least possible controls but still giving him all the modes required to fully utilise the capabilities offered. A clean, large and easily viewable LC-display presents him with unambiguous and clearly readable symbology and flight-information.

Just a few control-knobs are so located as to minimise interference on the small panel even when flying with gloves, such as in wave, a common form of gliding for us in Bavaria. The layout has been optimised to prevent errors while operating the unit. All the information required for optimum flight-performance is presented at one glance and settings are readily recognised so one does not have to remember what data were entered ten minutes or an hour ago.

Current wind-data, wind-correction, altitude required/available, airmass corrections, final glide and cross-country distance and time, current and average groundspeed; all this information is available and can help any pilot to base his or her decision on sound data without having to rely on, by virtue of their technology, inaccurate instruments.

In summary I believe that microprocessor controlled electronics in gliders can provide a significant improvement towards optimum flight and give the pilot more time to observe the airspace around him and to have more enjoyment and satisfaction by achieving a better performance.

The Future

Some of the developments briefly described before already show what the future may bring. But if we let our imagination wander a bit what do we see? Miniaturisation will go on giving more performance in small units. We may lean back in our sailplane enjoying the scenery and having relevant flight parameters presented on a LCD-head-up display; we shall have cockpit instruments providing visual cues to the glider's current and average L/D-performance and best of all a heading/distance indication to the next or best source of thermal lift while a microprocessor continually adapts the flaps for best performance. It will of course still be up to us, the pilots, to accept the microprocessor's recommendation and to follow its advice. We shall probably even see a microprocessor supported Threat Alert and Collision Avoidance system; this will be a real help in avoiding mid-air collisions in those cases where pilots are unaware of each other's presence.

Without having dealt with the intricacies of the technology involved I have endeavoured to provide you with an insight into the usefulness of microprocessor technology in the cockpit of the sailplane.

(Walter Dittel Snr wishes it to be known that he and his family have no connection with his original company, Walter Dittel GMBH. He sold his interest in this firm some five years ago. Ed.)

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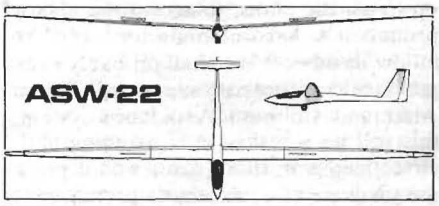
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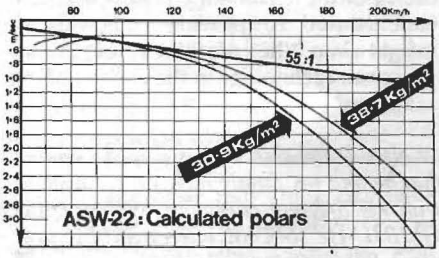
Tel: Dunstable (0582) 63419

SAILPLANE NEWS

ASW-22

Abridged from an article by Siegfried Baumgartl (*Aerokurier*) by Max Bishop.





The ASW-22 is the first Open Class glider from Schleicher to incorporate, from the design stage, a mix of fibres — carbon, glass and aramid. In addition to reducing weight, the use of carbon fibre for the wings gives improved rigidity, thus allowing the span (and therefore the aspect ratio) to be increased — the simplest way of improving performance. Carbon fibre was also the key to the use of modern thin laminar wing-sections, less sensitive to impacted bugs than the thick sections needed to achieve large spans in glass-fibre gliders like the Glasflügel 604.

The design philosophy was to extend the span to the Max consistent with acceptable handling characteristics. Waibel achieved an unprecedented aspect ratio of 1:37. This combined with a high-performance Horstmann-Quast section, produced an incredibly low Min sink rate. Usually, a high aspect ratio causes loss of performance at higher speeds. To prevent this, the ASW-22 incorporates "turbulator" technology. It is the first series-produced glider to use boundary-layer blowing. The use of blowing on the lower surface of the wing yields drag savings of up to 15%. The blow holes are 0.8mm in diameter, and are drilled at 20mm intervals along the ¾ chord line over a 17m central portion of the span. The air blown through these holes prevents the formation of separation bubbles.

Weight. The ASW-22 has the same wing area (15m²) as the ASW-17, although the wing span is two metres greater. A small wing area has the advantage that higher wing loadings can be achieved without the internationally defined Max AUW of 750kg being exceeded. Loadings of 55kg/m² are possible with the 22m version. The glider has a twin undercarriage to absorb high take-off weight. Empty, the glider weighs only 400kg.

Rigging. The ASW-22 can be rigged by two men using a trestle. The heaviest of the six wing sections weighs only 38kg. There are 12 control and flap connections to make. However, apart from the two main bolts there are no loose connecting parts. The elevator connects automatically. It takes about ten minutes to rig, another ten to tape up, and ten minutes to load the waterballast.

Cockpit. The main features are:

— Forward-hinging canopy.
— Instrument panel pivots up with the canopy.
— Visibility similar to the ASW-20.
— Flap lever at cockpit coaming level.
— Electrically-operated ballast dump valves.
— Air vent aperture automatically adjusts with airspeed variations (reacts to elevator movements).

Take-off. Since the wingtips are only knee-high, great care must be taken to keep the wings level. The take-off run is started with 6° of negative flap and the aircraft lifts off at 75-80km/h. The glider is much less sensitive to turbulence than 15m aircraft when on tow.

Low-speed handling. With a wing loading of 32kg/m² and a pilot weight of 80kg the following characteristics were observed:

— Stalling speed with thermal flap: 67km/h.
— Stall warning buffet at 70km/h.
— Positive stall (with nose drop) only if stick is pulled back abruptly.
— Stalling speed unchanged with landing flap.
— Stalling speed increases to 75km/h when airbrakes are extended.

High-speed flight. A particular feature of the ASW-22 is that, even at high speeds, the stick position remains more or less constant when trimmed out. This, and the glider's good longitudinal stability, mean that there is no need to clutch the stick rigidly at high speeds.

Manoeuvrability. The time taken to reverse a 45° turn (with 0° flap at 100km/h) is 6.4sec. With thermal flap at 90km/h it takes 7.5sec. This compares with about 3sec for modern 15m gliders.

Thermalling. In smooth lift, flying at 85km/h with 40° of bank, a 360° turn can be completed in 20sec. Speed control (±2km/h) is straightforward — not always the case with large-span gliders. Modifications have been made to improve the ASW-22's low-speed aileron response, but in any case it is not worth reducing the speed below Min sink, which is 85-90km/h in a 40° banked turn — 100km/h is necessary to retain good controllability in a steep 60° turn.

Stick forces. The trim is fully effective throughout the elevator range. The aileron forces are astonishingly light for such a big glider. The rudder is somewhat heavier, but is easy to get used to and more than adequately effective.

Approach aids. The ASW-22's flaps, which take up about 30% of the span, can be lowered 45°, and the aircraft is also fitted with upper surface airbrakes. At the normal approach speed of 90km/h, the airbrakes increase the rate of descent to 2m/sec, and this can be further increased by flap to 4m/sec (glide angle of 1:6). This is excellent compared with the ASW-17's Max descent rate of 1.9m/sec. A sensible design feature is that total lift with landing flap is the same as with thermal flap — therefore no ballooning or lift-dumping when landing flap is selected or deselected. It is best to use airbrakes as the primary approach aid and only select landing flap when you are sure you can make the landing area. Tip clearance is greater on landing if only airbrake is used. As speed reduces after landing, the tips can droop by 1m, and care has to be taken to avoid ground-looping. There is a heel operated wheel-brake.

Technical Data

Span (m) 24 or 22
Wing Area (m²) 15.5 or 14.9
Aspect ratio 37.2 or 32.5
Empty weight (kg) 420
Max cockpit weight (kg) 115
Max AUW (kg) 600-750
Waterballast (kg) 100-220
Best glide 55 at 105km/h
Min sink 0.45m/sec at 85km/h
VNE (km/h) 270

News from Schleicher. Production of the ASW-20 has now finished and a new version, the ASW-20B is about to appear. It has a new wing section — the same as the ASW-22s — and various other improvements:

— New aileron/flap linkage system
— Sprung undercarriage
— Automatic elevator connection
— More comfortable cockpit

The first three ASW-20Bs will be flown at Hobbs by Peter (FRG), Schroeder (France) and Striedieck (USA). The Max AUW will be 500kg (wing loading 47.6kg/m²).

Twenty-five ASW-22s have now been produced.

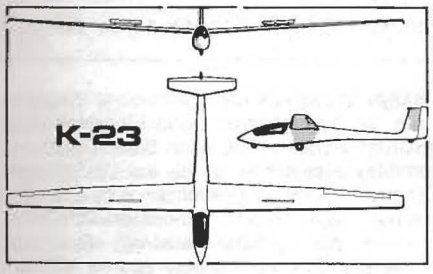
FS-31 — novel fuselage construction. The students of Akaflieg Stuttgart chose a mixed laminate construction using carbon and kevlar fibres for the fuselage of their new two-seater the FS-31. The laminate is made up as follows (starting from the outer surface): gelcoat, one layer of glass-fibre, 1-2 layers of carbon, 4-9 layers of kevlar, 1-2 layers of carbon. Instead of the fuselage being made as is

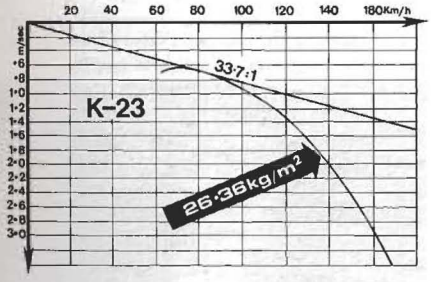
customary in two vertical halves, it is divided in two horizontally. The lower fuselage in the cockpit area is therefore all in one piece, giving better passive protection in the case of an accident. The danger of the fuselage splitting open along the seam on impact is no longer a cause for concern.

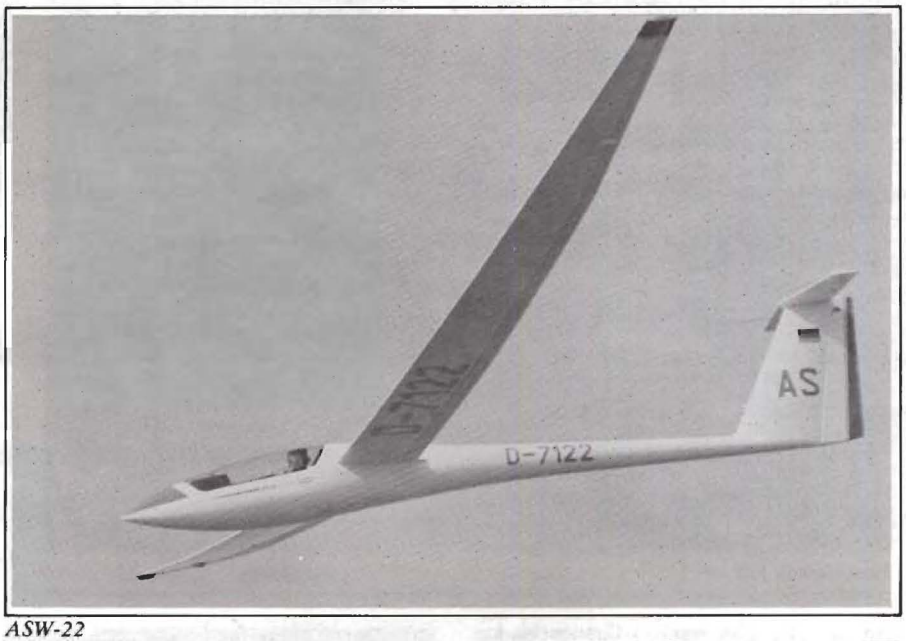
The RF 10, the latest from the Fournier stable, has now been fitted with a new T-tail which has entailed modifying the rear fuselage structure.

Brazil is probably the only country which is still producing all-wood gliders in series. The "Quero-Quero" KW 1 single-seater trainer is built by Industria Paranaluse de Estruturas for civil clubs and for the air force college. Over 60 have been built.

K-23. The prototype of the Schleicher glass-fibre basic single-seater, the K-23, is nearing completion. It is designed to have handling characteristics and a performance comparable to the K-21, and at the same time preserve the docility and robustness of the K-8. To achieve good low speed handling, a Wortmann FX 61-168 high-lift wing section and a large wing area of 12.9m² were selected. The fuselage has a large cockpit which can accommodate a 6ft 6in pilot, and is fitted with two wheels (like the K-21) and both nose and belly hooks. Best glide angle is 34 at 78km/h, Max AUW 380kg and *g* loading limitations + 5.3/−3.2.



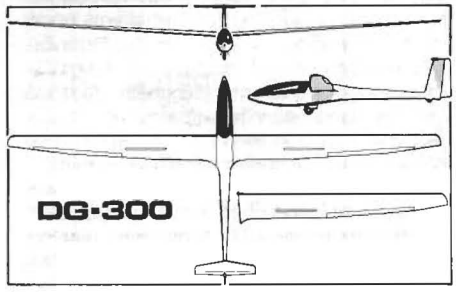


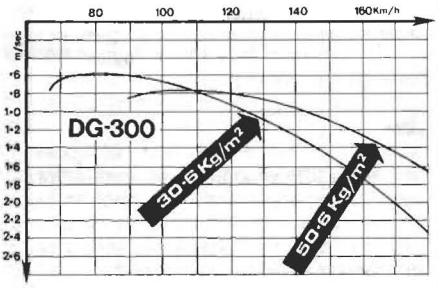


ASW-22

Carbon Fibre Dearth. The increasing use of carbon fibre in the construction of military aircraft and airliners has led to a sharply growing demand for this material, which soon threatens to exceed available supplies. There was a 30% rise in the price of raw carbon fibre in late 82/early 83. Glider manufacturers, who were responsible for much of the early carbon fibre development work, will find it hard to pass on all these increased costs to the customer since, as a labour intensive industry, they have been severely affected by wage inflation in recent years. Schempp-Hirth gliders will rise in price by between DM1000 and DM2500 solely as a result of carbon fibre price increases.

Glaser-Dirks: DG-300 and DG-500. All the stops are being pulled out at Glaser-Dirks to have the DG-300 Standard Class glider ready for the World Championships. The maiden flight was scheduled to take place in early April, and four or five pre-production aircraft were due to conduct intensive trials. The fuselage is similar to that of the DG-100/200, although somewhat shorter and broader at the cockpit. The wing is derived from that of Streifeneder's Falcon, but has a smaller area and greater aspect ratio. The triple-trapezium layout of the wing ensures a good lift distribution, and the new Horstmann-Quast wing section is optimised for minimum sensitivity to bugs, rain and turbulence. The DG-300 will be able to carry 180 litres of waterballast, giving a Max wing loading of 10.36lb/ft². Best glide has been calculated at 1:40.8.

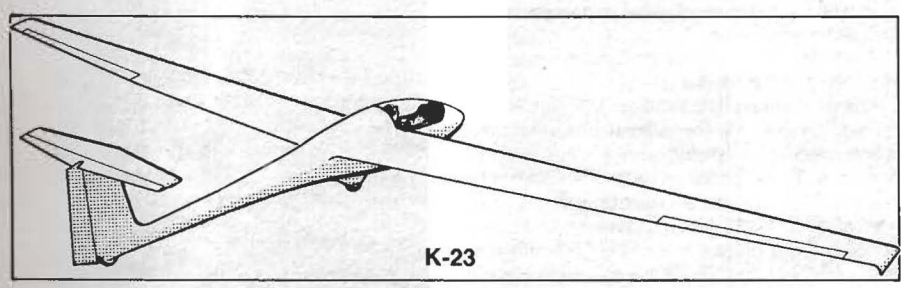




Glaser-Dirks glass-fibre two-seater project, the DG-500, has understandably been temporarily put on ice whilst the DG-300 is being prepared for the World Championships. It is a family of gliders rather than just one. Top of the range will be a flapped 22m ship, but there will also be a motorised version and a flapless, fixed undercarriage club trainer. Special attention will be devoted to ease of ground handling. No wing section will vary more than 75kg.

Pegasus. Centrair are bringing out a fixed undercarriage, Club version of the 101 Pegasus. The version will carry no waterballast. In addition, a "special" Pegasus is being made ready for Gilles Navas to fly at the World Championships. The wing will be reinforced with carbon fibre to enable it to carry about 250kg of water, giving a wing loading of 58kg/m². The original wing section is also being modified to make it competitive with the LS-4 at all speeds.

(Continued on p183)



BGA CONFERENCE

Royal Agricultural College, C



The exhibition hall.

This year the BGA went to Cirencester for their annual get-together and what was once called a Weekend had grown still more, evolving into a Conference and Exhibition. The latter was a sound addition and launched with more than 20 stands plus two gliders (IS-30 and Pegasus) rigged in the hall and two more (a brand new LS-4a and an IS-28MG) outside.

Marjorie Hobby had a good mix of speakers, the right blend of informality for socialising and kept the two-day programme running smoothly. A gifted organiser, she made the event relaxing, informative and low key — just the kind of do to appeal to a wide age range.

Dearth of young ones

But again this year it was disappointing how few of the younger pilots were amongst the 210. The main reason for going to a college rather than a hotel was to be able to offer an economy package in the hope of attracting some of the youngsters.

At a discussion after the AGM on the Sunday, there was a general feeling that if the college idea isn't going to have the desired effect it would be better to go back to choosing a hotel which does give a more suitable choice of dates. As it happened the weather was poor so it didn't matter it being in late March to fit in with the college timetable, but it was taking a risk. Ideally, members thought, the winter would be better.

Some came from Scotland

Another disappointment was the poor attendance from members in the West Country. The Cotswold GC gave it good support but only 10 per cent of visitors came from this part of England, although 40 clubs were represented with some travelling from Scotland.

As to the lectures, Chris Riddel started off the session on Saturday morning with a useful talk on task setting updated. John Williamson gave a lively turn with his "Soaring Sensations", showing how it is possible to put over a serious subject with humour, and Ralph Jones parted with some trade secrets on the maintenance and repair of sailplanes.

During a helpful lecture he made the same point as Doug Jones, p113, that your glassfibre glider will benefit from waxing to stop its paint developing weathering cracks due to exposure. He also advised using the oil can at least twice a year to make sure the bearings are well lubricated and keeping it clean so that you can see defects before they get any worse.

And when the glider is put away for the winter, Ralph said it was wise to grease well all the parts likely to rust during the damp weather.

Walter Dittel Snr spoke on the latest avionics, see p116, and Pete Saundby gave some



Naomi Christy, FAI certificates officer.

valuable guidelines in his "Oxygen, you should never be without it" lecture.

Ted Strong, designer and manufacturer of the slimline American parachute, spoke easily and well, actually deploying a parachute to give extra emphasis.

Keith Mansell, vice-chairman, in welcoming the guests to the dinner on Saturday evening, thanked Bill Walker, MP for Perth, for agreeing to be the official parliamentary representative of gliding and for his enormous help in the battle over the Scottish airways issue. Mrs Mavis Walker presented the annual awards as follows: Wakefield trophy (longest flight originating in the UK) and the Rex Pilcher trophy (earliest predeclared



Marjorie Hobby, the organiser of the weekend.

500km of the year by a pilot completing the task for the first time), John Ellis (Yorkshire GC) for a 582km △, Carlton Bank, Dunstable on May 9 in a Kestrel 19; the California in England trophy (longest distance by a female pilot), Pam Newall (Bicester RAFGSA Centre) for 390km, Salisbury, Eyebrook Reservoir, Finmear on May 29 in a Std Cirrus; the De Havilland trophy (maximum gain

Pam Newall of Bicester RAFGSA Centre, winner of the California in England trophy.



E AND EXHIBITION

Cirencester, March 26-27



Nick Hackett of Coventry GC who won the Enigma trophy.



The stands extended to the gallery.



Basil Meads, BGA president.

of height), Bruce Cooper (Deeside GC) for a 27 600ft height gain at Aboyne on September 9 in a DG-200 and the Enigma trophy (National Ladder winner in private aircraft), Nick Hackett (Coventry GC).

Other awards, though not collected on the night, were the L. du Garde Peach trophy (National Ladder winner in a club aircraft), Chris Starkey (Surrey & Hants GC); Slingsby trophy (second place on the Club National Ladder), Mike Jefferyes (Essex GC) and the Firth Vickers trophy (second place on the Open National Ladder), Warren Kay (London GC).

On the Sunday morning Tom Bradbury gave a splendid talk on wave and has promised us an article for a future issue on the wave data he has been collecting. This was followed by an entertaining account by Ann Welch on the fun end of flying.

Tom Zealley braved jet lag to chair the AGM, coming straight from the USA Soaring Convention and CIVV meeting in Reno.

Ben Watson is the new vice-chairman with Eric Boyle, Dickie Feakes, Keith Mansell, Mike Smith and Brian Spreckley being elected onto the Executive Committee. After the official business and a vote of thanks to Marjorie, there was a general discussion on such topics as the cost of instructors' courses and the Bronze badge requirements.

As to the success of the Conference, the consensus of opinion was that it had a lot to offer pilots of all ages and flying experience, it should certainly be extended along these lines with the exhibition enlarged, and there was the hope the message might get through to the younger contingent that here was something worthwhile they were missing. As to the non gliding wives, Marjorie arranged a tour of the Cotswolds and the area was interesting enough for various visits. It definitely wasn't a drag for them and they too hoped to see more wives and girl-friends another year.

John Ellis of Yorkshire GC who was awarded the Wakefield and Rex Pilcher trophies.



Bruce Cooper of Deeside GC, winner of the De Havilland trophy, with Peggy Mieville, S&G's advertisement manager, and her husband Tony.



GETTING TO KNOW THE BGA EXECUTIVE

So that you might know more about the people who represent you on the BGA Executive Committee we asked them to tell us a little of their gliding background and their thoughts on the way the sport is developing.

TOM ZEALLY



The chairman, Tom Zeally, started gliding in 1959 and is a member of the London and, since moving to the west country, the Devon & Somerset GCs. He flies an ASW-20, has a Gold C and two Diamonds and has been a competition pilot for many years. He first represented the London GC on the old BGA Council in 1964 and has been a member ever since. He was chairman of the BGA Competitions Committee (then called the Flying Committee) for four years from 1968 and is currently spending a lot of time on airspace.

Tom would like to see more youngsters coming into gliding and a greater overall active membership — he points out that Germany has four times our membership. He also hopes for an improved PR and a better image for gliding amongst the general public.

But Tom isn't pessimistic: "We're not in bad shape ourselves — no club has gone bust yet, despite the recession."

BEN WATSON



Ben, the vice-chairman, first served on the Executive in 1980, is a member of Lasham Gliding Society and started gliding in 1952. He has just bought a Nimbus 2 to replace his Libelle, has two Diamonds with the height to come and says he enjoys easy Comps and task weeks.

Ben, who also enjoys skiing, gives his priority as "Fighting for freedom for glider pilots to do their own thing with the minimum of controls."

ERIC BOYLE

Eric, a member of the Derby & Lancs GC, was introduced to gliding in 1943 by the ATC at Fatfield, Co Durham and now says he "flies anything I can get into." He has a Gold C, one Diamond, is a fully rated glider and motor glider instructor and an examiner for both.

He is a newcomer to the Executive but has been a member of the BGA Instructors' Committee since 1969.



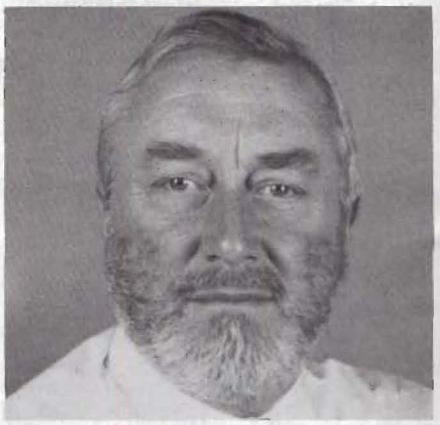
Eric, whose other interests are travel and electronic organs, is philosophical about the sport. "Like the country," he says, "the economic conditions seem to have had a slowing down effect on many clubs and I feel we will just have to sit it out. However, spring always follows winter and I'm sure the thermals will pop again for us all."

VIC CARR

Vic learnt to glide at the London GC and was CFI of the Coventry GC from 1956-60 and from 1960-65 was CFI of the now extinct Leicestershire GC, which became the UK's first all aerotow club in 1962. Vic is a life member and vice-president of the Coventry GC and also belongs to the Shropshire Soaring Group of which he is a founder member.

He flies a Kestrel 19 and a privately owned Twin Astir, has 2200hrs, Gold C No. 35, All Three Diamonds No. 68 and has been a fully rated instructor since 1956.

On the Executive since 1976, he has been on various BGA committees including the Competitions Committee since the mid-1960s and was chairman of the Instructors' Committee from 1976-81.



"I regret that due to distance rather than time available I can't contribute more to the Executive which I believe spends too much of its resources towards individuals, *ie* competitions and World Championships issues at the expense of other items. After all," Vic concludes, "the Association is of British gliding clubs not British gliding competition pilots."

RICHARD FEAKES

Dickie, a Squadron Leader in the RAF, was the British team manager for the 1978 World Championships at Chateauroux and started gliding in 1952 with the ATC. He is a member of the RAFGSA and the Deeside GC and has a share in a Mini Nimbus and a Nimbus 3.

A full instructor and an ex BGA examiner, he



has All Three Diamonds and first served on the Executive in 1981.

Dickie, who gives electronics as his other main interest, is concerned at the BGA problem which is also reflected in the RAFGSA — the lack of young people taking up gliding. "The partial re-equipment of the ATC fleet recently announced may help in this respect," he adds.

FRANK IRVING



Frank was introduced to gliding in 1946, is a member of the Imperial College GC and has a Gold C and one Diamond. He has recently taken delivery of a Centrair Pegasus.

Elected onto the Executive in about 1950, when it was still known as the Council, Frank is on the Technical Committee and has been its chairman, is a member of the BGA No. 1 Flight Test Group and of the OSTIV Sailplane Development Panel.

Frank, who says he has "a share in a modest motor vessel which lurks on a Greek island" reflects: "On the one hand, I enjoy the intellectual pursuit of technical improvements to the machines and the sport in general: on the other, I suspect that some of it, such as the top end of the Open Class, is getting too big and expensive for ordinary mortals. It would be very nice to have a go at designing a really cost-effective sailplane.

"It would also be nice to discourage people from talking about 'the movement'. It is a sport," he stresses, "not a political party!"

KEITH MANSELL



Keith, the new BGA treasurer, came to gliding in 1949 and joined the Midland GC in 1958. He flies a Dart 15, has a Silver C and is a fully rated instructor.

He first served on the Executive in 1972, was vice-chairman from 1974-1983, is the BGA representative on the Royal Aero Club's Medals and Awards Committee and was formerly chairman of the BGA Development Committee.

As to ambitions for the sport, Keith says: "There are many clubs that lack any security of tenure of their sites and so do not have the essential base for development. I would like to see more clubs securing ownership of their sites."

CHRIS NICHOLAS

A member of the Essex GC, Chris came to gliding in 1970. He flies a K-6E, has a Gold C and two Diamonds and qualified as an assistant instructor though no longer instructs.

He was elected onto the Executive in 1974 and is a member of the Airspace Committee (with reference to Stansted issues) and by agreement with the other clubs in the region, represents gliding at the Regional Sports Council and at related meetings.

"Airspace and sites are the two most critical issues for us," Chris considers. "To the extent that our influence with the Government, the CAA, other bodies, press and public relate to



the critical issues, they are equally important. These priorities should receive the highest level of our attention and effort. We can only make progress with a combined effort of the BGA and members at club level, however, we can't afford a large central organisation of professionals, and therefore we must rely on the part-time work of large numbers of amateurs for most of the work."

Chris gives his other interests as wining, dining, music, holidays in France and visiting old buildings and attractive countryside.

PETER SAUNDBY

Peter, a Group Captain in the RAF, is vice-chairman of the RAFGSA and says he flies "anything and everything" from a T-21 to a Nimbus 3.

He started gliding in 1960, has All Three Diamonds and a full instructor rating.

Peter first served on the Executive in 1968



and would very much like to see more young people in gliding.

MICHAEL SMITH



Michael is a comparative newcomer to gliding, beginning in 1980. He is a member of the Coventry GC, has a Silver C and is going on an instructors' course in August.

"The sport seems to be dominated by either successful professional adults/business men/or wealthy younger members," he comments. "I would like to see the sport promoted more to the 16 plus age group and financial assistance given by the Government (as in Europe) to reduce the costs and make this pure sport more possible for the 16 to 21 year-olds.

Michael's other interest is computer programming.

BRIAN SPRECKLEY

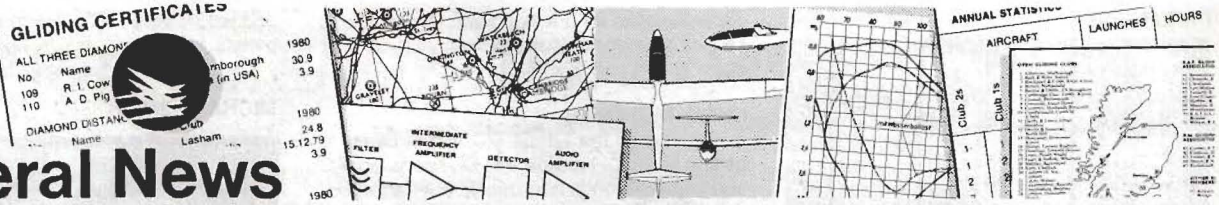


Brian, a national coach for eight years until last summer when he became the manager of the Booker GC, has just been elected onto the Executive. He was a member of the British team for the 1981 World Championships at Paderborn and has been a top National pilot for some years, coming to gliding 18 years ago.

He has a Gold C and All Three Diamonds.

Brian would like to see a more aggressive attitude by the gliding community and the clubs in promoting itself as a true sport. Also a more commercial approach by the larger clubs in encouraging the professional side of gliding. This would result in greater support and sponsorship and ultimately be of help to the smaller clubs," he adds.

BGA and General News



NATIONAL LADDER

Mike Randle, National Ladder Steward, expresses hopes that this is the start of a really good year and says that Yorkshire GC have told him that up to April 8 their best distance was 400km, best height gain 18 000ft and best handicapped speed 69.3km/h. Not surprising, in view of this, a Yorkshire GC member heads the new Open Ladder.

Open Ladder

Leading pilot	*Club*	*Pts*	*Flts*
1. J. Grainger	Yorkshire	2477	2
2. F. J. Sheppard	Booker	2460	2
3. R. Hawkins	Southdown	1984	4
4. J. N. Hayes	Yorkshire	1940	2
5. J. Ward	Southdown	1736	2
6. R. C. Stoddart	Yorkshire	1683	1

TWO FATALITIES

David Bailey of the Midland GC was killed in a Kestrel 19 at the Long Mynd on Sunday, April 3. The accident is being investigated by AIB.

According to eye witnesses the glider abandoned the launch at 100-150ft. The glider's nose was lowered but continued to go down and impact was at a fairly steep angle. The investigation of the wreckage revealed that one aileron was disconnected; the detailed investigation will be carried out at Farnborough.

W. G. Scull, *BGA director of operations*

A 17 year-old ATC cadet, Ian Sutton of Great Bardfield, Essex, was killed on April 16 in a T-31 when coming in to land at RAF Wethersfield, near Haverhill. His instructor, RAF Reserve Flt Lt John Knock, aged 61 of Marks Tey, near Colchester, received head and back injuries.

The RAF are investigating the accident.

RENDEZVOUS 83

The Vintage Glider Club's annual rally is at Lasham from August 13-27 and entries are invited from all owners of pre-war and early post-war gliders. VGC membership application forms are from the secretary, Robin Traves, Rose View, Marden Road, Staplehurst, Kent.

AVIATION PRIZE

The trustees of The British Light Aviation and Gliding Foundation propose to award a prize biennially to the individual who in the two preceding years has made the greatest contribution in the UK to the advancement of aviation. For the two year period ending on August 31, 1983 the prize will be £2000.

Applications must be sponsored by recognised aviation organisations not later than October 31, 1983 and should be accompanied by full supporting evidence. Unsponsored applications from individuals will not be entertained. Applications should be sent to the chairman of the trustees: Mr. M. R. Carlton, Dorland House, 14-16 Regent Street, London SW1Y 4PH.

The decision of the trustees as to the making of an award of the prize shall be in their absolute and sole discretion.

GROUND LOOP INCIDENTS

Inspection of Damage in Composite Constructed Gliders.

Composite constructed gliders may not buckle, bend or splinter, but that does not mean that invisible damage has not been inflicted upon internal control systems, control support brackets etc and that internal bulkheads upon which structural integrity and stiffness depends, may not have been fractured.

CFIs, duty instructors, BGA inspectors, tug pilots and all other knowledgeable persons who witness such incidents should use their influence to ensure proper inspection before further flight.

Dick Stratton, *BGA Chief Technical Officer.*

SSA ANNUAL CONVENTION

The 1983 Soaring Society of America's Convention was held in Reno, Nevada, at the MGM hotel from March 23-27. As well as the main event there was also an instructors' re-validation clinic, a meeting of international coaches and the annual CIVV meeting.

The Convention maintained its international flavour with speakers from as far afield as Australia, Germany and the UK. Some of the big names were missing due to the forthcoming World Championships at Hobbs. The range of topics, with two and occasionally three concurrent, often made it difficult to choose which to attend.

The coaches' meeting, previously a limited European event, went international for the first time — an initiative taken by one of the Convention's co-chairmen, Bernald Smith. "Coaches" is not strictly the correct term for this group; more appropriate would be "Safety and Training" with the relevant person from each national organisation attending. Nine countries were represented and there were some useful exchanges. As on previous occasions I chaired the meeting.

A convention on this grand scale may only be possible in the USA. There were over 800 delegates and more than 500 for the banquet at which Paul MacCready was the speaker. These events obviously entail a considerable amount of work which starts two or three years in advance. Co-directors Nancy Davis and Bernald Smith earned everyone's praise for an exceptionally good convention. They were supported by a pleasant and dedicated team of workers.

Next year's event is at Hartford, Connecticutt, from March 1-4 and there are already many registrations for it. The organisers hope for an increased European participation. Hartford being only two hours' drive from New York must make that a possibility.

W. G. Scull, *BGA director of operations*

BEWARE OF THE HAZARDS

The CAA have recently published the following information circular which contains points worth repeating and noting:

1. Mishaps continue to occur because some pilots appear not to realise the hazards they meet when attempting to land at disused or partially used aerodromes.
2. Unannounced and unauthorised landings at disused aerodromes are fraught with two main types of hazard.
   (a) The paved surfaces and grass areas are not usually maintained in a suitable condition for use by aircraft. Once active flying ceases the surfaces soon become unsafe for use; and
   (b) Ex-aerodromes may be sold or let out for some purpose unconnected with flying. Grass areas may be used for agriculture and the paved area for storage, vehicle testing or for sporting activities.

Pilots must beware of the presence of people, animals, vehicles and equipment, and especially of difficult-to-see fences and overhead wires on and near any disused aerodrome.

3. Disused runways are marked initially with a white diagonal cross at each end but weathering can obliterate these. At some inactive military aerodromes the cross is underlined by a white bar. This white bar means that the runway has been inspected within the last six months and was at that time considered suitable for emergency use. It does not guarantee that the runway is wholly safe for use.
4. Many old aerodromes are now only partially used. When such aerodromes are licensed the usable area is always clearly marked and approach and take-off paths will, to all intents and purposes, be unobstructed. Where significant obstacles do exist their presence will be notified in the AGA Section of the UK Aeronautical Information Publication. No such protection can be assumed at unlicensed aerodromes.
5. If you as a pilot intend to fly to a disused or partially used aerodrome you should always approach its owner or operator beforehand for permission to land and obtain from him a full briefing on the location of the usable operating area, its obstacle environment, and possible hazards.
6. In an emergency you may be obliged to land at a disused or partially used aerodrome and you may have no idea of the conditions of the runway area or its obstacle environment. To guard against the hazards which can await you, a precautionary approach and low-level

examination of the intended landing area should always be made when circumstances allow.

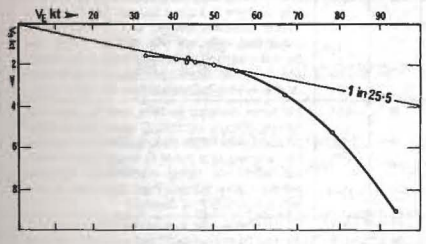
K-13 PERFORMANCE TESTS

Two third year engineering students at Cambridge University, A. J. Birkbeck and J. C. W. Stewart, have made some performance tests on a K-13. This formed part of their course work, under the direction of Professor W. A. Mair.

The measurements were made by towing to 5000-6000ft in the morning, measuring air temperatures during the climb. Glides were then made, descending through 1400ft. Photographs of the ASI, altimeter and stopwatch were taken every 100ft. From these measurements, suitably corrected, a plot of "equivalent" rate of sink (*ie* true rate of sink multiplied by the square root of the atmospheric density ratio relative to the standard sea level value) against equivalent airspeed was derived.

The static pressure error of the aircraft was obtained by using a specially designed trailing static tube stabilised by a small cruciform parachute. Their results are shown in the Table and the polar graph.

	Present Measurements	Manufacturer's Value
Min glide angle	0.0392 ±0.0015 radians = 1:(25½ ± 1)	0.0357 radians = 1:28
EAS for Min gliding angle (kt)	49.5	48.5
Min equivalent rate of sink (kt)	1.56 ± 0.05	1.57
EAS for Min rate of sink (kt)	34	35



Gliderwork

C of A OVERHAULS

and REPAIRS

By L. GLOVER senior inspector

Husbands Bosworth Airfield, Near Rugby
Tel. Market Harborough 880375
Lutterworth 57544

FROM THE SECRETARY's DESK

Barry Rolfe, BGA administrator



It was most encouraging to see so many people at the recent BGA Conference and Exhibition held at the Royal Agricultural College, Cirencester, and I hope that this trend towards a larger annual gathering of the gliding clans will continue. Cynics tell me that the interest shown in the AGM was only because of the unpopularity in certain quarters of our proposals to stiffen the Bronze badge requirement! I would prefer to see it as an increasing involvement by individual pilots in the affairs of the Association as a whole. Having been involved with the organisation of previous BGA conferences I am aware of the effort needed and would like to express our appreciation of Marjorie Hobby's work in providing such a varied and entertaining programme this year.

How money should be shared

Sponsorship — or the lack of it, or what to do with it if we got any — is a subject being tackled by the Executive at present and a working party under the chairmanship of Joan Cloke is looking at all possible avenues. It seems important that we should agree guidelines in advance as to how money received should be shared between association, clubs or individuals and how it should best be used for the good of our sport as a whole rather than only bringing the benefit to certain sections. Don't forget that if you have strong ideas on this or any subject please write and let us know as we genuinely wish to reflect the views of the majority of members.

Democracy does still reign, as has been shown by the consultation process we put the proposals for amended Bronze requirements from the Instructors' Committee through. Area Meetings, articles in S&G and a general discussion after the recent AGM showed that most clubs did not want any alteration to the Bronze qualifications, which they did not regard as any immediate passport for clearance to fly cross-country as this would always be a matter for the judgment of the CFI. At their April meeting the Executive accordingly dropped these proposals and asked the Instructors' Committee to have a further look at the cause of field landing accidents.

This seems an appropriate time to remind all cross-country pilots that we rely heavily on the goodwill of farmers and that there is a "code of conduct" for pilots landing-out in fields which was agreed between this association and the National Farmers' Union some years ago. Please follow the common courtesies listed in the code and if a claim for damages is made then pass it on to your insurers to deal with. Copies of the code are available from us here in Leicester.

We were pleased to welcome two new member clubs recently — Black Mountains GC operating at Talgarth and the Kent Motor Glider and Soaring Centre who have now increased their gliding interests and fleet and are operating from Manston. Finally, new British National records have been homologated for B. J. G. Pearson (500km triangle at 141.3km/h in an ASW-20 in South Africa on December 28, 1982) and R. I. Lloyd and J. Fox (a height gain of 4355m in a SF-28A two-seater motor glider on October 10, 1982).

GLIDING CERTIFICATES

DIAMOND DISTANCE

No.	Name	Club	1983
1/212	P. G. Sheard	Booker (in Australia)	29.11.82
1/213	R. J. Nicholls	Midland (in Australia)	21.1

DIAMOND GOAL

No.	Name	Club	1982
2/1202	M. Sapirstein	Kestrel	22.12
2/1203	J. W. Smithers	Surrey & Hants	28.8
2/1204	H. H. Salisbury	Midland	4.11
2/1205	T. Wilkinson	Twinwood (in Australia)	29.11

DIAMOND HEIGHT

No.	Name	Club	1983
3/573	P. J. Coward	Deeside	20.1

GOLD C COMPLETE

No.	Name	Club	1982
926	T. Wilkinson	Twinwood	29.11

GOLD C DISTANCE

Name	Club	1982
M. Sapirstein	Kestrel	22.12
J. W. Smithers	Surrey & Hants	28.8
T. Wilkinson	Twinwood	29.11

GOLD C HEIGHT

Name	Club	1982
G. J. Busby	Booker	29.9
D. C. Berry	Kent	30.1.83
A. P. Stacey	Wrekin	22.10
P. Morgan	Wrekin	20.10

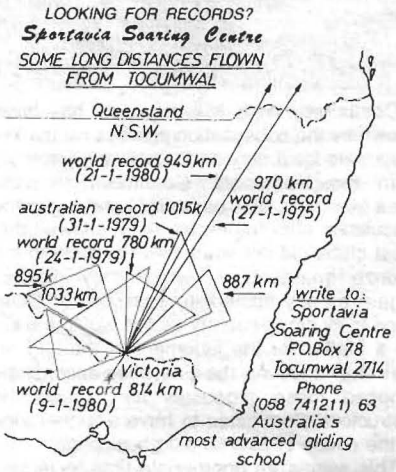
SILVER C

No.	Name	Club	1983
6374	M. Sapirstein	Kestrel	16.12.82
6375	H. H. Salisbury	Midland	2.11.82
6376	A. M. B. Smart	Clevelands	22.1
6377	A. E. Skipper	Fenland	29.1

Club News Contributors: Please note the deadline date for the next issue is June 7 and regretfully we can't print reports arriving after that date.

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C.F.I. Ingo Renne
World Champion, 1976

BGA ACCIDENT SUMMARY —

Compiled by ARTHUR DOUGHTY, Chairman, BGA Safety Panel

Arthur has expressed concern that the 22 accidents so far this BGA year have produced one fatality (and sadly there is another to be recorded) and four when pilots had serious injuries. In one accident a pilot fractured both ankles, there have been two cases when the pilots broke one ankle and another resulting in spinal injuries. "These sort of injuries take a long time to heal, if in fact they do so completely, and there is always a risk of permanent disability" Arthur added.

Ref. No.	Glider Type	BGA No.	Damage	Date Time	Place	Pilot/Crew Age	Pilot/Crew Injury	Pilot/Crew P/Hrs	SUMMARY
13	Skylark 3F	987	W/O	09.01.83 14.00	Talgarth	55	S	1½	After getting out of position on aerotow pilot released at about 200ft, converted speed to height and turned back to site. Airbrakes were seen to open and glider then turned right over centre of site crossing runway. Then attempted to turn left through 180° and made rapid spiral descent until lost to view.
14	Skylark 4	1063	S	08.01.83 10.50	Old Sarum	54	S	123	Entered base leg at 500ft, encountered lift and at point for final turn pilot decided he had height to spare so backtracked. Then decided to turn away from field through 270° in lift but discovered height was lower than expected. Undershot, striking boundary hedge and post with wingtip, cartwheeled into field.
15	Club Libelle	2203	S	15.12.82 14.30	3 miles West of Abergavenny	38	M	241	Arrived at local hill after aerotow and decided not to attempt hill soaring. Rejected large field next to river as probably being muddy and chose smaller grass field. Closed airbrakes over downwind boundary of under-shoot field and halfway across noticed airspeed decreasing. Lowered nose to increase speed to clear downwind hedge of selected field — collided with it.
16	K-8B	1563	S	23.01.83 14.56	Dallachy	36	N	1½ 793 Pwr	Pilot opened airbrakes on base leg, closed them before final turn and re-opened them on finals. Decided glider was slightly undershooting so adjusted airbrakes but unaccountably opened them fully instead of closing. Undershot into trees. Pilot has considerable power flying, including instructor's rating.
17	Swallow	?	S	27.11.82 ?	Aboyne	25	N	5	On take-off for aerotow the nose was held down and glider was lifted off, pilot allowed oscillations in pitch to develop. Released, climbed to about 15-20ft and opened airbrakes. Failed to round out sufficiently or in time and landed heavily on nose in rough ground off the runway.
18	Motor Falke	G-AYZW	M	06.02.83 13.45	Portmoak P2	50 46	N M	480 Pwr 1485 Gldr 150 Gldr	P2 was making glide circuit and approach verbally assisted by instructor and on finals was prompted to lower nose to maintain airspeed through wind gradient. Closer to ground P2 thought speed was still decreasing and lowered the nose further and failed to roundout. P1 considered P2's experience was adequate to make approach and landing and failed to take over in time.
19	Club Libelle	2188	S	15.01.83 14.00	Loxton Hill, Avon	42	S	552	After clearance of orographic cloud glider was one of three launched to local hill. Climbed to 1700ft, explored forward and on return to hill cloud had reformed with tops at 1200ft. Got behind crest and while attempting to fly forward entered cloud. Broke cloud 50-100ft agl to crash land in severe turbulence near the top of ridge.
20	K-13	2406	N	06.02.83 15.00	Lasham P2	49 33	N N	414 6 P2	Instructor decided to take over as pupil was having difficulty controlling speed and direction on approach. While making correction the control column came out of its socket due to retaining wing nut being insufficiently tightened although wire locked. Pupil took over to land with difficulty but no damage.
21	K-7	1259	M	13.02.83 14.00	Rufforth P2	50 38	N N	293 1⅓ P1 15¾ P2	P2 on check flight successfully recovered from a failed launch at 100ft but on touch down on grass at the side of the runway the glider struck a concrete block not readily visible as it was partially buried in snow.
22	K-7	1626	W/O	19.02.83 14.00	Pocklington	38	S	?	Early solo pilot was observed by an instructor who thought later stages of circuit were very low. Glider turned finals at 100ft and it was estimated it would clear boundary fence by 20ft. When about 50yd short of boundary the glider assumed a steep nose down attitude and struck the ground at about 45°.

M = minor; N = nil; S = serious and W/O = write off.

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1983 Meeting of the International Gliding Commission

Brief extracts from a report by Tom Zealley, BGA delegate, who attended the Commission International de Vol à Voile (CIVV) meeting held on March 25 in close association with the Soaring Society of American's annual convention at Reno.

Minor rule changes. Tor Johannessen's proposed minor rule changes to the Sporting Code were agreed, *eg* single-seater records may be claimed when one person is flying a two-seater. The dispensation under section 5.3 allowing distance claims from uncompleted triangles will not apply if the start point is not at one of the corners of the triangle.

Championship scoring systems. Peter Ryder had made a survey of National scoring systems and suggested there should be improved CIVV systems for World Championships after Hobbs. A proposal jointly developed with France was that B and C should be replaced by the systems used by W. Germany and the Italians at Rieti which avoided failed race days and short distance days having too strong an influence on the overall result. A decision will be taken in time for Rieti.

Weight question. The American FAA had ruled that it would be illegal to fly any glider at an AUW in excess of the designer/manufacturer's recommended limits, regardless of whether the glider carried an "experimental" classification. The meeting agreed that the Max gross weight of gliders in World Championships should be that specified by the manufacturers and approved by the C of A issuing authority; that it should be each pilot's responsibility to furnish documentary evidence of his glider's weight limit; when gliders of the same model manufactured in different countries have different C of A weight limits, the lower weight shall be used; there will be penalties for exceeding gross weight limits, as provided in competition rules.

Motor gliders. Per Weishaupt reported that they were flourishing, especially the two-seaters, with successful 1982 Championships at Burg Feuerstein.

Club Class. The Championships at Hammelburg hadn't been very successful with only seven countries represented, but Per Oberg pressed for the continuation of efforts to make it work.

Rieti. Piero Morelli felt that if the European Championships were to become a regular feature in the years between the World Championships there should be every effort to minimise the costs. Describing planned improvements to the site for the 1985 World Championships, he said the limited runway length would probably mean an AUW on take-off of 700kg.

Hobbs. Hal Lattimore said that in general things were in good shape for the World Championships. A mechanised ground clock using a tractor and fixed marker panels was to be tested at a Regionals in May when they would then decide whether to use this or the conventional observed startline.

Australia 1987. Wally Wallington reported on preparations for the World Championships at Benalla, which was being supported by the city council and the new government. The Australian Gliding Federation were planning to offer heavily subsidised entry to their 1984 Nationals for the three World Championships winners.

European Championships 1984. The French are running the European Championships at Vinon in July for a maximum of 100 gliders in three Classes.

Lilienthal Medal. This is to be awarded to Hans Nietlispach of Switzerland.

Those mentioned in the report represent the following countries: Tor Johannessen, Norway; Peter Ryder, W. Germany; Per Weishaupt, Denmark; Piero Morelli, Italy; Hal Lattimore, USA; Wally Wallington, Australia and Per Oberg, Sweden.

Make sure of getting your copy of S&G by taking an annual subscription. For full details, see p113.

GLIDER INSTRUMENTS

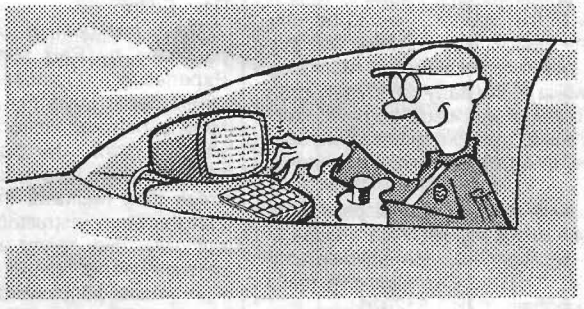
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Your Letters



DIG INTO YOUR WALLET

Dear Editor,

Of course Jeremy Beringer is right (see February issue, p34). The emphasis should be on raising funds, not on how cheaply we can kit out our World Championships team. A move designed to lower morale.

How much have we, the gliding fraternity, contributed? According to Mike Pope in the last issue, p80, pathetically little. And yet what are we doing to support our team, we members of a sport which has numbered among its ranks a World Champion three times running and which remains one of the few largely self-financing sports without recourse to the public begging bowl? Very little, it seems, apart from gripe.

So wake up. During a grotty winter we must all have been deprived of at least one flight and thus saved its cost. Dig into your wallet and post it to the BGA — now.

The February issue also featured the Annual Statistics, p22, showing a total of 9791 flying members. I don't know the cost of the average flights but 9791 times whatever it is must add up to a lot of blazers and trousers and still leave a bit over.

PETER JANES, **Farnham Common, Bucks.**

PS. Yes, I have!

50 YEARS AT OXFORD

Dear Editor,

This year is the 50th anniversary of the founding of the Oxford Gliding Club, as the Oxford University and City Gliding Club, by Robert Kronfeld in 1933.

To mark our half-century, I hope to write a short history of the club and I would be very grateful if any readers who can help with this work would get in touch with me. Memories and memorabilia of the early days, from 1933 until the outbreak of war would be particularly useful, but I would also like to hear from anyone who flew with OGC in the early post-war years.

If readers have any tales to tell, please set them down on paper and send them to me at the Oxford Gliding Club, RAF Weston-on-the-Green, Nr Bicester, Oxon, or give me a ring on Buckingham (0280) 812876.

IAN MAILER

EARLY CROSS-COUNTRIES

Dear Editor,

In the absence of any claims for the earliest cross-country, no doubt due to rain, wind, snow and floods (in our field at least) I would like to inform readers that on March 6 two cross-country flights were made by myself (PIK 20) and Peter France (Astir) in wave.

Peter got to Church Stretton and returned to Usk whilst I got to Lake Bala and photographed the dam, returning *via* the Vale of Neath GC, totalling five hours.

I haven't measured the distance yet but it's the "early in the season" aspect we cherish.

IVOR SHATTOCK, **Bedwas, Gwent.**

(We make this about 347km. ED.)

EQUALITY OF THE SEXES IN GLIDING

Dear Editor,

I am responding to Barry Rolfe's request for comments on the FAI's proposal to abolish female gliding records. (See the February issue, p29.)

I could not agree more; in fact I cannot imagine how such separation arose. Gliding is one of the many activities in which women and men are on equal physical terms. It is unrealistic and unnecessary to create this sub-class of glider pilots — almost the same as creating some awards which physically handicapped pilots may win! It is my belief that the rarity of a woman holding a general gliding record is a sampling effect; there simply are not enough female pilots seeking them.

This argument may also explain the rarity of women in the British team and as winners of the Nationals. What we need to understand is why women do not seek to reach the top in gliding.

ALISON CAMPBELL, **Cambridge.**

INSTRUCTOR'S EGO TRIP

Dear Editor,

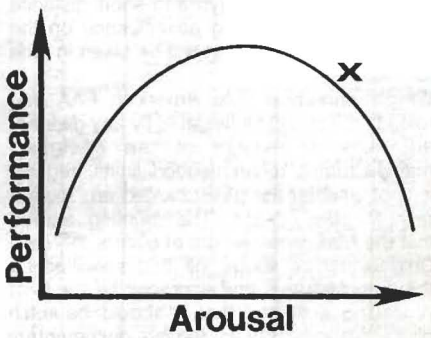
There has been a fair amount of correspondence by Paul Minton (see "Learn by Experience", October issue, p213) and others dealing with the problems of the relationship between instructors and pupils out of which, I think, the pupils have come out badly. I quite appreciate that people can break their necks at this gliding game and that therefore instructors should have some authority, but many use this pretext to become tyrants.

In general people who really are competent have got it made and don't need to throw their weight about. If you want to get personal let's name names, Derek Piggott, Ingo Renner and, yes, Paul Minton himself, but if you've got a Gold C and you visit a small gliding club where the instructor who checks you out has only a Silver C expect to get criticised for slipping on your final turn etc, etc, because he's got his ego to protect.

I once had to belt an instructor on the chin, it worked like magic, because nearly everyone felt as I did! For many instructors it is the only bit of authority they will wield in all their life so they tend to make the most of it by being tiresome and settling all the imagined scores that they can dream of.

Inter-personal relationships during instruction require great skill and understanding. Instructors are people who are doing a difficult and important job and as a result get great respect from their pupils, who strangely enough all want to become World Champion pilots so shouting at them is largely a waste of time.

The relationship between performance and stress is given by the Yerkes-Dodson law curve — most pupils are at point X and are



going off the boil because they are trying too hard already. Blasting them with abuse relieves the instructors' frustration but tends to push them further to the right and makes their performance deteriorate. Most pupils are self-taught by numerous instructors, sometimes despite many instructors.

BRENNIG JAMES, **Marlow Common, Bucks.**

FEASIBILITY OF A GLIDER PARACHUTE

Dear Editor,

Having worked very closely with Peter Best who came up with a keel-mounted parachute for hang gliders and microlights, which incidentally was featured on the BBC TV Tomorrow's World programme, the logical progression after this seemed to us to be that if you can lower a microlight and two people by parachute safely to the ground why not a fixed wing sailplane. (See "Parachute for pilot and glider?" letter, p281.)

In conditions where a pilot may find it difficult to bale out, such as in a fast spin when centrifugal force would keep him in the cockpit, it would be an advantage if he could pull a handle to release a parachute which would not only save his life but possibly save the glider from being a write-off. This is quite feasible now with the development of modern fabrics with high tensile strength but low bulk weight.

We have some ideas of where and how to

place the parachute on the glider and the type of release mechanism for the parachute to be ejected. I am sure that if any manufacturer was interested, it would take very little modification while the glider was being constructed to incorporate the parachute as part of the design.

The large parachute used for lowering the heavier of the two microlights, *ie* the two man version with an AUW of approximately 700lbs, had a descent rate of between 16 to 20ft/sec. It sounds fast I know but believe me it isn't.

I know we can come up with the parachutes and will be only too pleased to discuss this with any interested party.

"LOFTY" THOMAS, *Thomas Sports Equipment Ltd, 102-104 St John St, Bridlington, N. Humberside.*

SNAKING OVERCOME

Dear Editor,

The problems of caravans and trailers snaking, pitching and being buffeted by winds and passing lorries are too well known to need definition. We have overcome these problems completely with a prototype design that works — and works well.

The only problem remaining is that we have run out of money, and so far have not been able to get help from any of the many schemes for small businesses. What we need, they say, is Venture Capital. Do you think that any of your readers might be interested in finding out more, with a view to financing the final stage?

E. J. SHELDRAKE, *Advanced Towing Techniques Ltd, River Farm House, Shipdham, Thetford, Norfolk IP25 7RR.*

MORE ON MNEMONICS

Dear Editor,

With the enormous increase in letters and their wide-ranging subjects one has to reply on occasions.

John Marriott's letter ("Time to add 'tail dolly'?", last issue, p81) raises a point which has become more relevant as time goes on. First, John didn't your (RAF) instructor tell you that the check "All clear above and behind" meant that you look into the sky above the rear of the glider (for approaching aircraft) and behind the glider to see that no tyres, coats etc are on the *empennage*? This obviously includes handles, dollies, tail dollies and any instructor who might be lurking in the shade.

But while we are on the mnemonic subject, I think it is wrong to include items which aren't in *general club use* and I use those words carefully. I am not pleased to see *ab-initios* going through the ever increasing mnemonic list when half of the items don't apply. Later on when he/she flies something quite different from the gliders in general club use then items can be added (preferably singly) at the briefings. Heaven help the pilot who is expected to jump from a K-13 into a retractable, flapped, waterballasted, all electric, 360 channel, tail dolly glider — mnemonic or no mnenomic.

Me? I've got the lot in my glider but I had to mentally block out the airbrakes! 'Aven't got 'em!

Lastly field landings. How about "S", the universal mnemonic, for a field landing check? Surface, Size, Slope, Smoke, Stock, Sideslip, Speed and, if you're still in trouble with that far hedge, Swerve. Any more Ss? Oh yes, Sircuit!

IVOR SHATTOCK, **Bedwas, Gwent.**

(We're glad you have replied Ivor and are delighted our letter columns have increased in recent issues with diverse subjects being aired. Please keep the letters coming, especially if they are brief and to the point. ED.)

THE MILITARY TREATMENT

Dear Editor,

I am the wife of a glider pilot and although I don't fly, I get drawn into retrieving. This usually means getting on one of my motor cycles (that's my hobby) to collect him and take him back to Aston Down to pick up the car and trailer. He still doesn't trust me with the Libelle and trailer.

It was with interest I read the report by Martin Clarke in the February issue, p16, as we have also had firsthand experience of the Military treatment he had at Welford. My husband was trying for his Silver distance from Aston Down when he phoned to say he had landed at Middle Wallop.

I've since found out it is about the second busiest Military airfield next to Kennedy Airport. Flying finished for the day ten minutes before he landed. He had all the treatment mentioned by Martin — glider searched, baggage taken out and the film removed from the camera.

I told my husband I dealt with a "customer" in Andover who might be able to put him up for the night. He only turned out to be the Lt Colonel in charge of the airfield, so my husband had the shock of his life when half an hour later he was let out of the guardroom and they couldn't do enough for him. I managed to collect him later in the evening. I thought this was a good case of "who you know, not what you know".

A pleasant end to the flight was when the barograph was checked and we found he had Silver height and distance.

CAROLINE KEAR, **Cheltenham.**

CONFUSION BETWEEN NAMES

Dear Editor,

Peter Riedel has pointed out an error in my book **Half Mile Up Without an Engine,** and I would like to correct it publicly. Riedel, a Wasserkuppe pilot in the 1920s, as most readers of S&G know, is the author of the two-volume Rhoen history **Through Sunlit Skies.** A third volume is nearing completion.

The error arises from a confusion between the names Wolfram Hirth and Friedrich Harth. It was Harth, not Hirth, who in 1921 established a time record of 22min. Further, as Riedel points out, "the record was not flown on the Wasserkuppe during the second international meet, but more than a month later in semi-secrecy on the Heidelstein mountain, five miles from the Wasserkuppe. Harth believed that he had found the answer to "dynamic" soaring — an error." In 1921, in fact, Hirth hadn't even yet learned to fly.

A few other errors crept into the book — mislabelling of aircraft, types that slipped by the proof readers, and so on — but they are mostly minor. My Harth/Hirth confusion (picked up from writers before me), however, is a major historical mis-statement that should not go unrectified.

ROBERT GANNON, **Pennsylvania, USA.**

MORE THAN ONE DENVER

Dear Editor,

I very nearly made the same mistake myself! If Mr G. Yates of the USA (see letter in the last issue, p35) will plot a course of 036° true from Hobbs, New Mexico, and follow this for approximately 48 miles, he will find himself in Denver City, Texas. A quick glance at an atlas shows that there are several Denvers in the USA.

My excuse for nearly getting lost is that I've never been to America!

C. J. CHAPMAN, **Nuneaton.**

Correction. *With reference to the photograph in the last issue, p81, Peter Janes of Farnham Common is well aware it isn't a Graf Zeppelin! An incomprehensible twist of words during a last minute correction gave us this final result which looked like yet another April 1st spoof. He merely mentioned that when the GZ visited the (now) Heathrow area in 1932 there may have been some sort of light aircraft rally, including gliders brought in by trailers. Our apologies to Peter.*

The letter in the last issue, "Another wave site – Dishforth", p82, was written by Paul Whitehead and not Peter Whitehead as stated.

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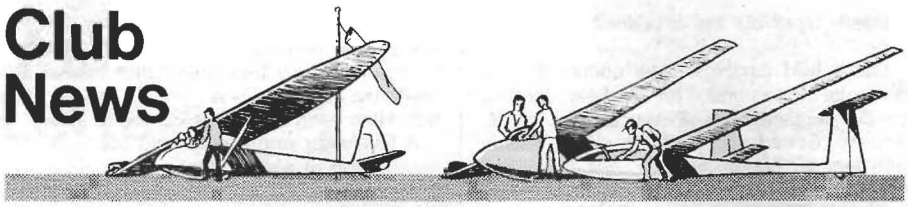
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Club News



Copy and photographs for August-September issue of S&G should be sent to the Editor, 281 Queen Edith's Way, Cambridge CB1 4NH, tel 0223 247725, to arrive not later than June 7 and for the October-November issue to arrive not later than August 9.

April 6, 1983 GILLIAN BRYCE-SMITH

BOOKER (Wycombe Air Park)
Following claims by a club pilot that lift can occur beyond Didcot or Bicester a Pegasus has been bought to investigate. A M100 and a Nord 2000 have been obtained to soar waves of nostalgia forming downwind of Chinnor ridge.

There has been further expansion of the training fleet with the arrival of a Super Falke.

P.R.

BRISTOL & GLOUCESTERSHIRE (Nympsfield)
February and March produced several good soaring days, both ridge and wave.

The dinner-dance on February 26 was very well attended and much enjoyed. It is intended to reinstate this as an annual event after several years without one. Other social events have included an Easter disco.

At the AGM our treasurer, David Barker, reported a disappointing year financially, but announced ambitious plans for the coming season. Owen Harris was re-elected as chairman, despite his earlier fears of being transferred by his firm. Don Chatterton replaces Dave Wales as vice-chairman. Flying trophies were awarded to Eve Dent, Ian Lane, Ron Sandford, Lance Peters, and Chris Hughes, while the Webster plate for most deserving instructor went jointly to John Patchett and Gerry Martin.

J.R.B.

COVENTRY (Husbands Bosworth)
There were more than 250 members and friends at the president's party, with the ladies' committee providing the buffet.

Nick Hackett completed the first declared cross-country of the season with 106km. The task week, from May 28-June 5, already has 44 entries and we are hosting the Standard Class Nationals from August 13-21. The Inter-Club League starts on the May Bank holiday when we host clubs from Essex, Dunstable and Saltby.

Congratulations to Graham Smith and David Asquith on becoming full Cats. The new winch is fully operational and if anyone would like to try it out, call any Wednesday evening.

The BGA area officials' meeting was held at the club recently. Mike Smith has become a member of the BGA Executive Committee.

For any club looking for ways of raising funds, you may like to copy our idea. We offer local motoring club rally drivers a cooked breakfast, but it means having someone willing to get up early — our first cars usually arrive about 4am.

N.B.

DONCASTER (Doncaster Airfield)
Work has started in earnest on our new site: the runways have been cleared, a hangar and cladding purchased and a fence erected along our boundary. Our water diviners showed great courage locating the water main while subjected to ridicule and scepticism by other members.

Our first course started at Easter giving some good flying days. Our courses are rapidly becoming over-subscribed, so it's wise to sign on quickly.

Congratulations on going solo to A. McKenzie, T. Bell, P. Ellis and Diane Fowley, Diane being the third female to go solo this year.

V.F.F.

DUMFRIES & DISTRICT (Falgunzeon)
Bob Rodger (Skylark 3) broke our altitude record with a wave flight to 9850ft on March 6 from a winch launch. Others during the day enjoyed good soaring but failed to find clear air to climb in.

Bill Gordon has taken delivery of his M100, which has been affectionately named Jaws 3 due to its very distinctive airbrakes. A T-21 will soon be with us to back up our club K-2.

The Forestry Commission have repaired the damage to our access road caused by winter flooding and we have been planting Christmas trees as a long term investment to boost club funds.

F.S.

EAST SUSSEX (Ringmer)
Congratulations to Fred Bishop on becoming DCFI, to Neil Kelly and Joe Batchelor on completing their assistant instructors' courses and to our knowledgeable team who beat Challock and Southdown in the Inter-Club quiz.

Our K-8, being re-covered by Tony Challoner and helpers, is nearly ready.

M.C.

ENSTONE EAGLES (Enstone Airfield)
Our annual open weekend was a resounding success despite being short of one K-7 suffering from mainspar problems. Conditions were perfect with our pilots having to avoid the thermals in order to give the visitors a go!

A lot of hard work was put in during the winter to refabric our second K-7. Many thanks to Tony Cox, Dave Shadrach and Charlie Skinner for leading the effort.

G.D.

We always welcome photographs to illustrate your reports. Ideally, we like black and white but can get reasonable results from colour prints.

ESSEX & SUFFOLK (Hadleigh)
Peter Wilby, CFI, reviewed 1982 at the AGM as a year of "record personal achievement" with an increase in the utilisation of gliders and tugs and the number of air experience flights. A cadet class of membership was proposed to encourage youth participation.

Trophies presented were: Fastest 100km Triangle, Mark Mathieson; Jeff Cork trophy (longest flight), John Thurlow; Club Ladder, Alan Hall; Instructors' cup, Brian Commercial; "Sodit of the year" award, Simon Commercial for landing two fields short of Silver distance and the Members' cup, given this year by Dave Gilder, Sylvia Wilby. A 200km Triangle trophy and a Tiny Triangle trophy are to be competed for this season.

Congratulations to Kevin Bye and Kevin Balaam on going solo.

An expedition is planned to Talgarth in June. We have been able to soar in every one of the winter months and had some wave.

R.C.A.

HAMBLETONS (RAF Dishforth)
We have had some pleasant wave days, both the usual westerly type and a little of the less common NE variety. The reason for no height claims is there were no members flying solo on the appropriate days who needed them!

At the AGM, awards went to Clive Armstrong (best *ab-initio*) and Ray Whitham (best cross-country). Congratulations also to Mick Bowman on going solo after weeks of unsuitable conditions.

J.P.

HEREFORDSHIRE (Shobdon Airfield)
Most of February was besieged by bad weather so the time was spent fettling. The first week of our wave fortnight hosted the BGA field landing course which was well attended by members from the Cotswold and Midland GCs and found to be very useful and assuring. The second week we welcomed our old friends from Dunstable and everyone contacted wave.

There were two notable flights by our chairman, Tony Maitland (Mini Nimbus) and Mike Costin (Nimbus 2C). They both reached 16 000ft, turned Swansea docks and wave hopped back to Shobdon.

We had thermals, ridge and wave, plus a mixture of all three, over the Easter weekend.

B.J.H.

INKPEN (Thruxton Airfield)
The tone of our March AGM was highly optimistic. We have been fortunate in obtaining a healthy grant from the Sports Council, and sufficient additional loans and donations from members to buy some of the aircraft we previously leased. This augurs well for our future financial health.

Our full-time employment of a resident CFI worked well in 1982 and we are continuing the arrangement.

Our annual dinner in February was a great success, supported by more members than usual, and we are planning several other social events.

Easter brought superb conditions to Thruxton (and to Old Sarum on the two race days of the Easter holiday). It was an excellent and busy start to the season.

T.D.

KENT (Challock)

While there is a slow start to the soaring season our start-of-season dinner-dance was well attended by some 50 members.

Some members have been benefiting recently by visiting other sites — congratulations to Doug Berry on his Gold height and to Derek Kember on completing his Silver C. We now have, a syndicate Pirat and Tony Moulang and Co are awaiting their ASW-20.

Our new two-drum winch is fully operational and kept busy on our early courses, thanks to the efforts of Glyn Richards and Alex Wright. Our thanks also to Alan Garside for organising the Inter-Club quiz between ourselves, East Sussex and Southdown GCs, the latter winning.

Congratulations to Hugh Colton, Alan Smith and Mike Moulang on gaining their assistant ratings.

Tom Rudge is retiring after five years as chairman and we thank him for all his hard work and wish Dave Manser, who takes over, every success.

J.B.

LAKES (Walney Airfield)

Awards presented at the AGM in February were: the Earl of Lonsdale trophy (best cross-country from the site), Neil Braithwaite for an O/R to Ingleton off the winch; the Alsford trophy (best gain of height), Keith Butterfield for 11 500ft and the Duddon trophy (service to the club), Dick Redhead.

E.K.

LONDON (Dunstable)

Congratulations to Alex Evans, Ann Stotter, Kay Harris, Peter Plant, Malcolm Bolton and Chris Collingham on going solo.

A fourth K-21 will soon be added to our two-seater fleet and we plan to eventually replace our K-18s with K-23s. We have bought Terry McMullin's two Super Cubs and may acquire a fourth after selling two Chipmunks which, with our new on-site maintenance facilities, should reduce launch queues on busy days.

A new trailer rack with electric power and water is nearing completion — but this labour is nothing compared with the difficulties of persuading some private owners to "move house" from their traditional trailer sites.

The expedition to Shobdon was enjoyable although there were no spectacular wave flights. However Robin May took his ASW-20L to 26 000ft at Aboyne.

Enthusiasm during the Easter competition wasn't matched by the weather, though John Jefferies and John Cardiff completed tasks.

D.S.

MENDIP (Weston-Super-Mare)

The single-seaters were out in force on Good Friday but after several noble attempts to complete durations only Clive Bailey (Delphin) succeeded.

There is a lot of optimism in the club with talk of forming new syndicates and running task and club weeks.

T.B.

MIDLAND (Long Mynd)

Several good wave days have given us more flying than usual at this time of year, resulting in Gold heights for Chris Ellis and Peter Taylor and a number of wave cross-countries by John Stuart, Jeff Rowson and David Bailey. On March 5-6 the tug was much in demand to reach the best lift, although the system was within easy reach of the ridge from a winch launch for part of the time.

Early in the year Bob Nicholls achieved his Diamond distance whilst on holiday in Australia.

We have replaced our 3.4 winch engines with 4.2 Jaquar engines to give more power for launching the heavier aircraft. The Astir CS, to replace the K-6CR, is already proving popular.

Bob Williams and John Turnock have soloed and at our annual dinner-dance in March, John was presented with the Neill trophy for the *ab-initio* who has made the most progress. Other trophies went to Chris Alldis and John Gee, for a flight in the club K-21, Bob Nicholls, Malcolm Allan, Phil King, Andy Turner, John Rayner and Ron Hawkes. Ron, who has just started his first full season as our second professional instructor, was also awarded the Maxam trophy for contributions to the club. Wg Cdr Tim Webb, CFI at RAF Valley, presented us with a mapboard for cross-country planning.

D.M.K.

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Obituary — David Bailey

David, one of our most talented young pilots, was tragically killed on Easter Sunday in a flying accident at the Mynd. He joined the club about five years ago, when he was not yet 18, and progressed quickly to become a keen cross-country pilot and capable instructor.

Although David recently moved to Northampton, he still flew regularly at the Mynd and will be sadly missed. Our sympathy goes to his parents.

Diana King

NORFOLK (Tibenham Airfield)

Our thermals are becoming even stronger and blowing away our cobwebs while the brace of Condors, resplendent in yellow and blue on new fabric, are ready for the season.

The Super Falke is busy on the popular MGPPL courses this season, aided by our CFI, Roy Woodhouse.

Tony Walsh and Dave Hill have been picked for squad training. The Norfolk contingent at Aboyne over Easter enjoyed wave to 20 000ft producing Diamond and Gold height claims.

Congratulations to David Hodgson, a Pilot Officer, who has been selected for jet training.

N.F.S.

NORTH WALES (Pen-y-Parc, Nr Holywell)

We had a successful dinner-dance at the end of 1982 at which the McBain trophy was presented to R. McGouch, the Griffiths trophy to B. Tweed and the B. Reid trophy to N. Anyon. The year also saw K. Payne and R. Ball soaring the Clwyd ridge from a winch launch.

We thank Tony Knight for his series of film shows and talks during the winter on gliding techniques. Ray Ball has qualified as our first home-grown instructor. Congratulations also to J. Royle and E. Deyes on going solo.

J.B.N.

OUSE (Rufforth Airfield)

After a quiet winter and last year's building programme, we are hoping for a good season with the emphasis on cross-countries. For the

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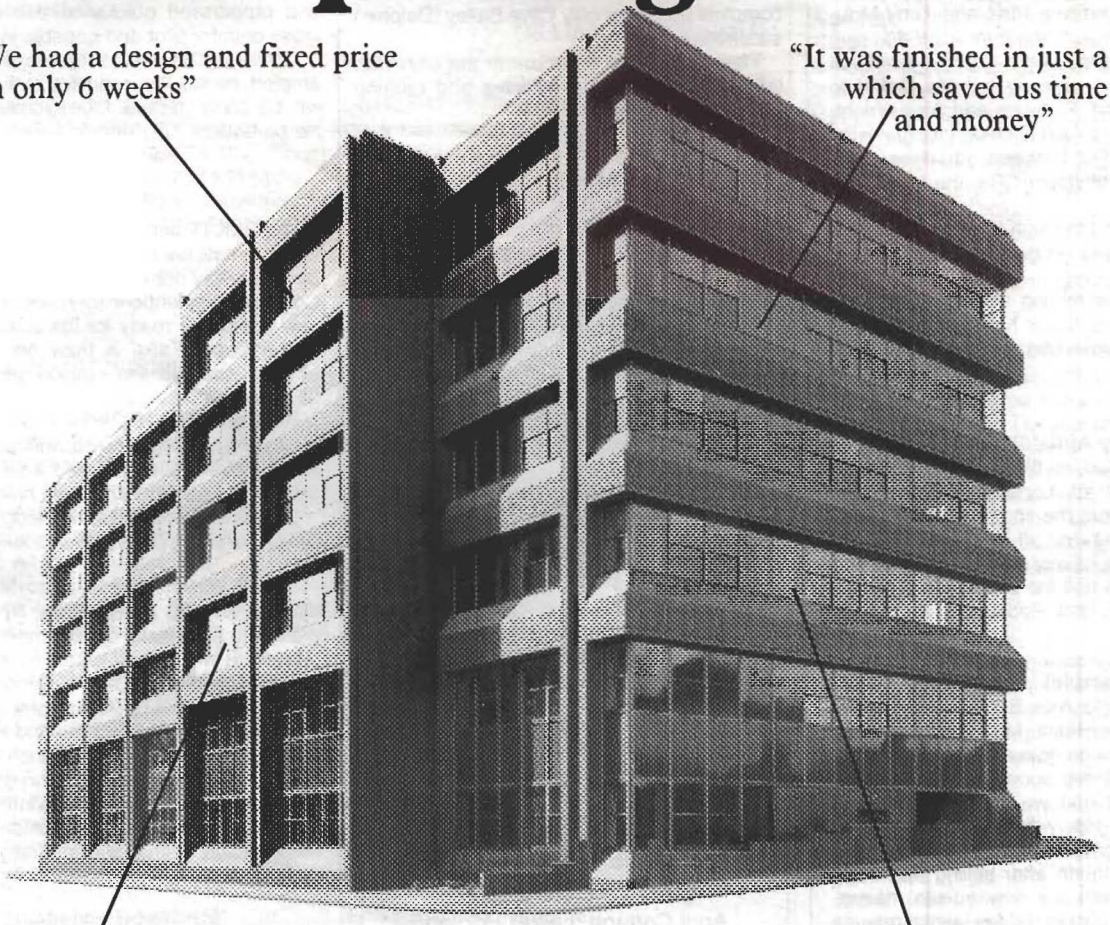
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first time in many years we have a ladder competition.

Congratulations to Mike Cline on going solo and to Julian Day (K-6CR) for the best handicapped 300km last year.

We now have electricity and hope to have water flowing shortly.

S.R.L.

Obituary — Oliver Speak

It is with a sense of loss we report the death of "Oly" Speak. Over the years Oly showed great enthusiasm, quickly getting involved in the maintenance side of the club. Without his energy the club winches would have expired long ago and over the last two years we were indebted to him for supplying the materials for our large building programme.

We will always remember what we thought was his lead boot and his no-nonsense winch launching, — it certainly was all or nothing. Oly enjoyed his flying, both in power and in his Oly 2B, and continued until a few weeks before his death.

In Oly we have lost a valuable member and our sincere sympathies go to his wife and family.

S. R. Lee

OXFORD (RAF Weston-on-the-Green)

During the winter, all the club maintance has been carried out by keen members meeting Tuesday evenings. This enthusiasm keeps our costs low, will enable us to move to another site, if we could find one, and ensures a versatile team to run the gliding operation during the soaring season. We are now operating in all winds following long negotiations with the RAF Sport Parachute Association who had grounded us in north winds because of the noise nuisance they had caused! The new scheme is running well and we hope the three-month trial will become permanent.

J.R.

Obituary — David Haigh

It is with great sadness that we report the death of one of our younger members, David Haigh, who was killed in a mid-air collision of Harriers near Peterborough on February 23. David joined the club in 1977 when he was 15.

He lived for flying and despite the inconvenience of a Saturday job which he needed to fund his training, he made rapid progress. He showed characteristic initiative when he supplemented his earnings by painting traditional designs on the longboats on the canals of Oxfordshire on unsoarable days.

David went solo when he was 16 and in April 1979 achieved his Silver C in a single flight to Lasham. He made a perfect crew because he was so meticulous. He was always excellent company, even in the difficult situations which gliding is so clever providing; snowed-up or wet through he stayed cheerful. He entered the RAF in September 1979 having passed three A levels.

We saw less of Dave after this but he returned frequently to report on his flying training. During his Officer Training at Cranwell he flew with the RAFGSA Club there. He flew the club Skylark 4 in the Easter task week of 1981 and showed some promise in competitive flying. His main energy was devoted to excellence in flying. He won the Ragg Aerobatic trophy during his tour on Hawks at Valley and he had just started his chosen course to fly Harriers when he was killed.

As a boy, and a man, Dave had very special talents: the sort that make great men. The club intends to perpetuate his memory with a trophy; but it will be hard to find an appropiate citation.

Jane Randle

PETERBOROUGH & SPALDING (Crowland Airfield)

Our annual dinner-dance and prize presentation in March was again well attended. Congratulations to award winners Martin Clarke (Club Ladder); Eric Arthur (runner-up); Dave Feneley (fastest 100km triangle); Ernie Martin (first soaring hour of 1983) and Gordon Marsh (Da Spoon) for Silver distance without the barograph.

As usual there were the "funnies", including an anatomical gesture decorated in the Stars and Stripes to be sent to USAF Welford.

Two long standing committee members, Ron Ward and Jack Wayman, retired at our AGM in April and we thank them for their many years of unstinting effort. Our thanks also to Marnie Thorpe for running the kitchen so well for so long. Tess Feneley and Brenda Marshall have taken over.

Four Camphill members visited us over Easter with the K-21 which many of our members flew, some experiencing glass for the first time. Rachel Martin has a Bronze leg and Sue Curtis flew the ASW-20 for the first time in over a year.

M.G.

SOUTH WALES (Usk)

Our lease has been settled for the next four years. Graham White is the new chairman and Maurice Pack-Davison the new secretary. Peter Storey will continue his effective work providing aircraft and other maintenance and mid-week towing.

The latest private acquisitions are a Blanik and a Vega — the place is getting crowded.

We shall be active with courses and evening flying through the summer. The first few weeks of 1983 were better than in recent years and we suspect we had the best of the wave on March 6!

P.F.

STAFFORDSHIRE (Morridge)

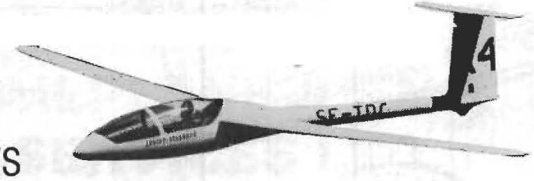
At our AGM Phil Barnshaw became chairman and Alan Jones our secretary but John Graham continues as treasurer. Alan and Mike Golder are going on an instructors' course.

The BGA/club get-together at Camphill was very worthwhile. It also gave our CFI, Charles Webb, the opportunity for a spot of horse trading with Camphill for the use of their Motor Falke for a navigation and field landing training course. Also slanted towards cross-country flying was a talk by Colin Ratcliffe, DCFI, on weather forecasting.

Our K-18 has been given a Cambridge vario with the aid of a Sports Council grant. It has already been much in demand for local soaring to explore the low level wave which has given us the best winter soaring since we moved to Morridge.

B.G.

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Club News Contributors: If sending hand written copy, please print all names.

STRATFORD ON AVON (Long Marston Airfield)
We had a good turnout for our AGM on March 23. While membership fees stay the same, we had to increase launch fees and flying time to keep pace with costs.

Trophies were awarded to Maureen Leonard (most progress); Trevor Tibbetts (best flight in club aircraft), Vivian Wright, John Leonard and Gerald Kelly (club ladder) and Bill and Linda Annan and John Simonite trophy for organising our air experience evenings. Congratulations to all.

Thanks were given to Geoff Knight who retired from the committee after seven years. John Blakemore was duly elected.

Several members went to the Neath GC for Easter in the hope of ridge and wave flying.

The Aviation Club, converted from the old control tower, is open again for meals or darts and members are welcome.

M.M.

SURREY & HANTS (Lasham Airfield)
The season is off to a good start. On a long weekend expedition to the Mynd, under the guidance of Charlie Kovac, Graham Leach collected his five hours. John Lloyd gained his on the spring thermals at Lasham.

Throughout the winter we had an Astir based at Talgarth and several members sampled the superb Welsh ridges and hospitality. Another Astir will visit Sutton Bank later this month.

Our tipped Ventus is fully instrumented and Roy Pentecost christened it on March 26 with a 187km triangle. Chris Starkey took the Mosquito on a 319km O/R to Leicester Forest East on April 3.

R.W.P.

SWINDON (South Marston)
Clubhouse improvements continue with the former committee room well on the way to becoming a small dormitory, under the inspiration of Suzy Johnstone.

CFI Dave Schofield's birthday party was a great success and he was presented with the ultimate in cold weather gear — complete with tassel!

We now have a Piper Cub tug and aerotow retrieves are available most days for those who land out at South Marston.

We were sorry to lose Pete and Angela Higgs, who have moved away from the area after years of hard work for the club.

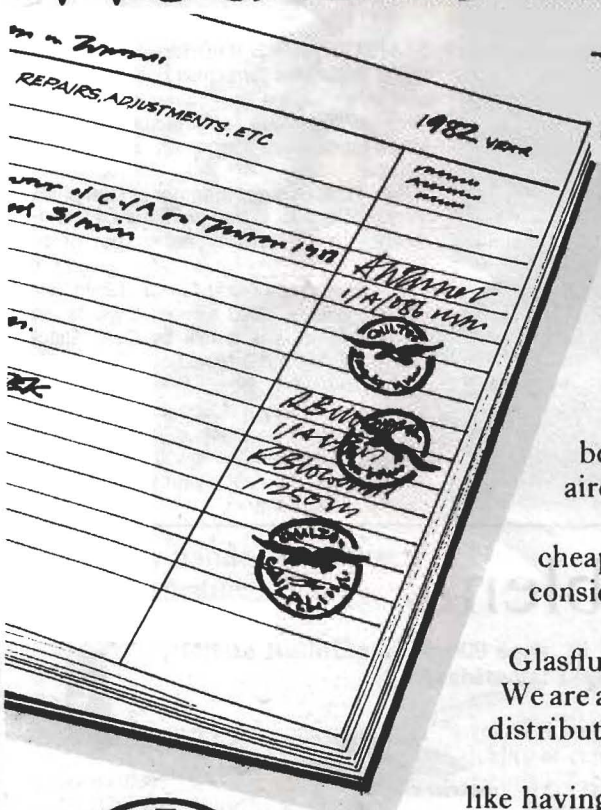
The search is on for a replacement for our Blanik which has gone to the Crusader GC in Cyprus.

P.M.

TRENT VALLEY (Kirton Lindsay)
The Easter weekend, though not exceptional, gave us some good soaring. It was also the first weekend of using the tug leased to us for a month so that we can assess whether to buy one of our own.

After considerable winch trouble over the

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winter our double-decker is again fine and our single-decker almost ready with its reconditioned gearbox.

Relations with our neighbours, the Army, have improved and we are sharing the field with few problems. The Red Arrows have found a new home ten miles south of us at RAF Scampton and consequently our MATZ has been extended to 6500ft.

Andy Bourne, Rex Flint, Nick Crowcroft, Nigel Bull and Paul Newby have their Bronze Cs and congratulations also to Mary Stuffings on going solo.

We have several flying weeks planned for the summer and there will be Friday evening flying.

R.H.

ULSTER (Bellarena)

This was written on Good Friday — not a holiday here — with marvellous thermal streets and a brisk NE wing auguring well for our nine-day Easter camp beginning tomorrow. Dubliners are trekking north with five sailplanes and a Hus Bos crowd is flying over.

Billy Craig succeeded Jeremy Bryson as CFI in January and the winch served us well during tug maintenance in February and March with wave contacts off the wire to 10 000ft-plus. The tug was also fitted with a radio and we now have an entirely radio-equipped club fleet.

For the first time we are running Monday-Friday *ab-initio* summer courses in July and August and hope to gain more members from the north and west of the province.

Former ATC instructor Reg Browne re-soloed in March after more than 20yrs. On the syndicate front delivery of the Wallace/McKelvie/Stewart DG-400M is imminent; Jerome Connolly has gone off to design plastic aeroplanes in the USA leaving Charles Hill as a K-6CR sole owner and Alan McKillen has bought into the ASW-20. The Monerai being built in Louden Blair's garage is very nearly complete.

R.R.R.

WOLDS (Pocklington Airfield)

Our new clubhouse should be completed in the very near future. Owing to the workload generated by buying our site, Les Cooper, chairman, has been appointed as a full-time airfield manager.

We have had our first soaring flights of the season and congratulate Ernie Danby on going solo.

N.C.

SERVICE NEWS

BANNERDOWN (RAF Hullavington)

The Motor Falke made two trips to Chepstow in early March, each time reaching 11 000ft in wave. Our Ventus has arrived and is having the instruments fitted.

The expedition to Talgarth for six pilots with three gliders gave enjoyable ridge and wave soaring although the conditions were not too good.

Marilyn Kay, Paul Mason and Pete Laws have gone solo, Pete soon gaining a Bronze leg. Vanessa Davies, Simon Bawden and Grp Capt Mears also have their first Bronze leg while "Noddy" Williams and John Rumble have both.

We had an enjoyable soaring week leading up to Easter and several flew cross-countries over Easter weekend. Colin Masters flew 50km to complete his Silver C, John Joiner did the same task but with a failed barograph and Mark Desmond completed his Bronze C.

V.B.

BICESTER (RAFGSA Centre)

There was a well attended party on April 2 to celebrate the start of the soaring season. The Nimbus 3 is being prepared for George Lee to fly in the World Championships. Plans are under way for Competition Kitty being held here on May 7-8.

Our expedition to Talgarth was very succesful. Although no good wave was encountered, everyone had some memorable flights in the Welsh mountains. Congratulations to "Mossie" Williams on passing his instructors' course.

D.M.C.

CLEVELANDS (RAF Dishforth)

After a dismal February, our wave returned in March with numerous flights of more than 15 000ft. Ben Benoist narrowly missed his Diamond again but Phil Shambrook, after a series of early starts and 6hr marathon flights, was lucky with a creditable 20 700ft.

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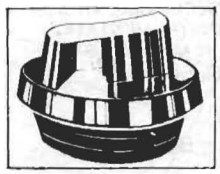
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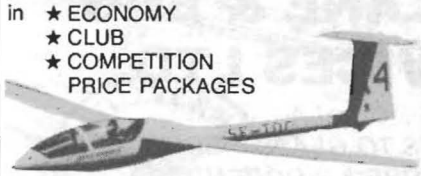


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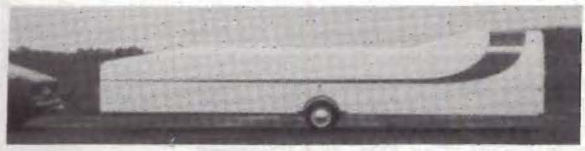
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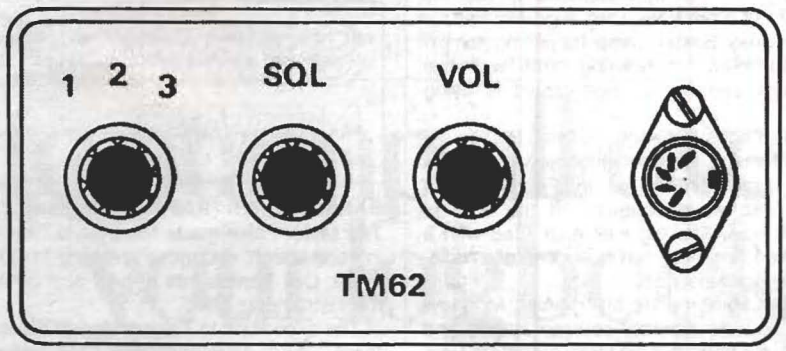
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Our much loved Chipmunk (G-BCSA) has gone to Scotland and been replaced by an ex-crop spraying Chipmunk.

The thermals returned at Easter to give us four good soaring days. Our thanks for all his work to our secretary and engineer, Keith Earndon, who leaves us for Wiltshire.

P.A.

CRANWELL (RAFGSA)

The year started well with several wave flights including the first cross-country in January. Easter brought some soaring with mixed weather and a slide evening on Easter Saturday was well attended.

Several members are undergoing MGPPL training and Bill Burker, David Couper and Bill Veitch are already solo. Garry Moxham has gone solo in the Blanik and our chairman has converted to the Astir and the tug. We now have our replacement K-8 which brings our fleet back to strength.

On the weekend of August 20-21 we are hosting a British Women's Pilots' Association gliding weekend. This will involve flying in RAFGSA and civilian gliders with a party on the Saturday evening. All females are welcome and there will be some accommodation available. Please contact Jayne Lee 0400 61654.

G.A.B.

TWO RIVERS (RAF Laarbruch)

Despite losing our hangar and clubroom we are still surviving, but our new facilities are nowhere as good. Our recent expedition to Aosta was quite successful with members gaining useful mountain flying experience, if not badges.

We've already achieved some cross-countries and members will be represented in competitions at Asperden, Detmold and Kamp Lintfort.

At the AGM trophies went to Al Thomson, Simon Hutchinson, Bob Dall, Dennis Standley, Mike Cooper, Steve Tape and Mike Lee.

M.C.M.

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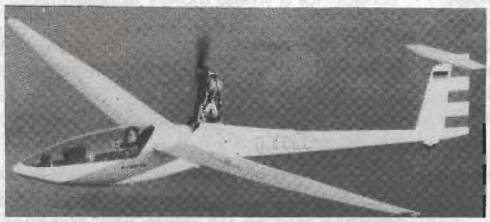
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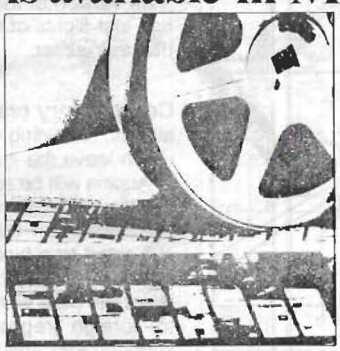
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50 YEARS AGO – First British Thermal Flights

A. E. SLATER

A short potted history is needed to explain what led to the first British flights in cloudless thermals. Gordon England, who had been very active in the early history of British aviation, concluded as a result of taking part in the 1922 Ilford Contest, not that soaring flight should be further developed, but that Britain needed a subsidised gliding school, and that he was the man who would "get the Youth of Britain into the air."

Emulate Germany's achievements

He never showed any interest in the exploitation of soaring flight, and failed to turn up at the "gliding lunch" in December 1929 at which a BGA was tentatively formed to encourage British pilots to emulate the great heights and distances achieved in Germany.

But on January 24, 1930 it was announced that Lord Wakefield, the millionaire promoter of aviation, had given the BGA £1000 to start it off. Here was the wherewithal to establish Gordon England's pet gliding school, and he turned up at the official inauguration of the BGA shortly afterwards with a bevy of friends who voted him into the chairmanship and helped to swell the BGA Council of 31 members.

He then set up an extravagant BGA office evidently designed to give the impression that it was capable of running a gliding school, but no financier or Government department took the bait and by the beginning of 1933 the BGA was bankrupt. However this was soon put right by raising £500 from a Derby sweepstake promoter by allowing him to put "in aid of the British Gliding Association" on his tickets. The wangle caused the Public Prosecutor and the Director of Civil Aviation, who were both on the Council, to resign "owing to pressure of work."

Having been put on the Council as a result of beginning to edit S&G, I could see that Gordon England was bedazzled by this £500. He proposed, and got the Council to accept, that in addition to that year's usual national rally the money should be used to run a gliding "school" for a whole month, apparently under the impression that national attention would be drawn to the need for one, though in fact neither he nor anyone else took steps to give it publicity and nobody had heard of it outside the immediate neighbourhood apart from readers of S&G.

The site chosen was a stretch of downs south of Marlborough running west to east for about four miles, with a steep escarpment along the south side about 400ft high from top to bottom. The event lasted from mid-June to mid-July. The "school" consisted of a Lowe-Wylde two-seater with a wheeled undercarriage, Eric Collins to fly it, his wife to keep the records and a towcar. But it had not the appearance of a "school", and there was no notice to say that it was one. A large proportion of the launches were for passenger "joy" flights.

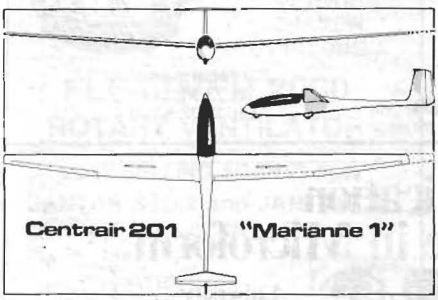
A distance record

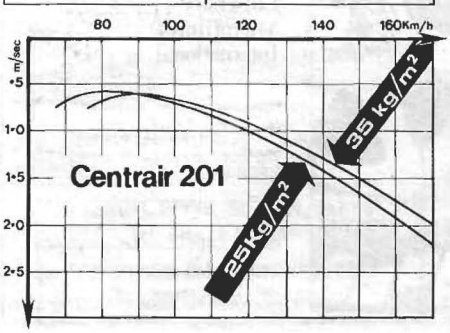
The first thermal contacts were on Sunday, July 2 with Collins climbing about 100ft above release. Then on July 3 he went up with his wife, caste-off at 1.21pm at 600ft, circled up to 900ft in 20 to 30 second circles, then set off southwards, lost a bit of height above the escarpment, regained it, but then found no more thermals and landed out at All Cannings, six miles from the start — a British two-seater distance record. Next day he reached 2150ft above the hill, and thereafter continued developing his technique.

Sailplane News

(Continued from p119)

Centrair 201 "Marianne". The French gliding Federation (FFVV) has chosen the Centrair 201 from four designs submitted for consideration as the French new generation two-seater. An application has been made to the national civil aviation directorate (DGAC) for government assistance in the development, testing and production of the Marianne.





The wing section for the new glider will be designed by ONERA which was responsible for the Pegasus wing. The intention is to design a profile which can be flown with or without flaps. There will, it is hoped, ultimately be three versions: the basic 18.5m span flapless trainer, a flapped version, the Marianne 2, and then a Marianne 3 with tip extensions giving a 20.9m span and a glide angle of 1:44.5. The main characteristics of the basic Marianne are:

Technical Data
Span (m) 18.5
Wing area (m²) 17.2
Aspect ratio 20
AUW (kg) 600
Max wing loading (kg/m²) 35
Best glide 40 at 95km/h
Min sink 0.65m/s at 85km/h

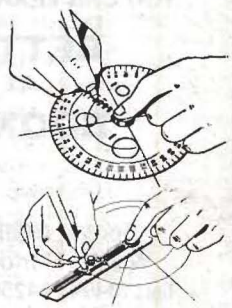
Issoire Aviation is building under licence a 17m version of the PIK 20E motor glider. The first test flights of this "stretched" version are due this winter.

Compulsory crash locators. In future, all aircraft, including gliders and hang gliders, which leave the immediate vicinity of airfields in Austria will be required to carry emergency locator transmitters which automatically start transmitting on the distress frequency when subjected to a high *g*-loading, such as might be encountered on impact with the ground. It is not yet clear whether this regulation applies to foreign registered gliders temporarily imported into Austria.

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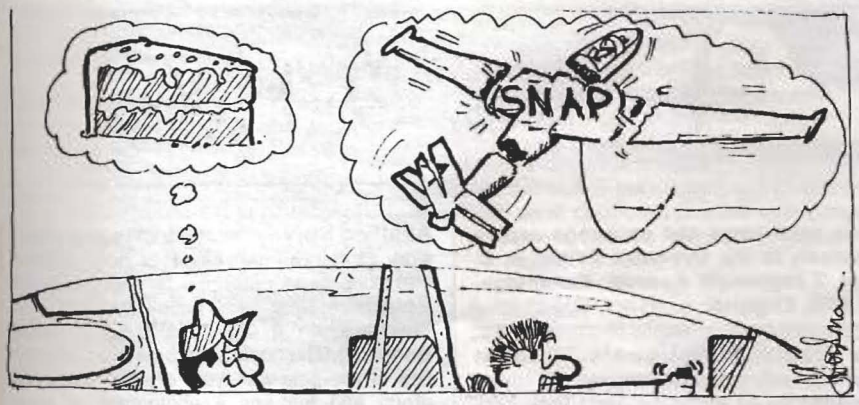


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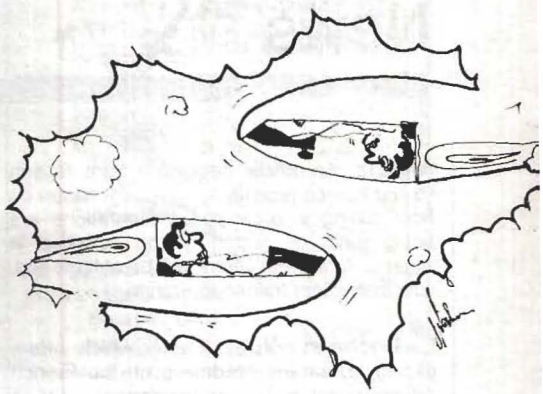
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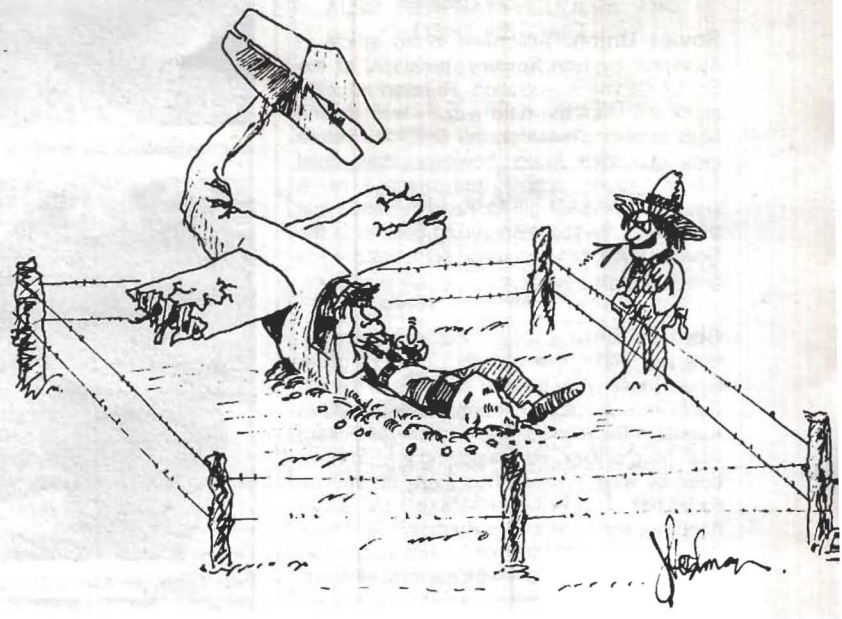




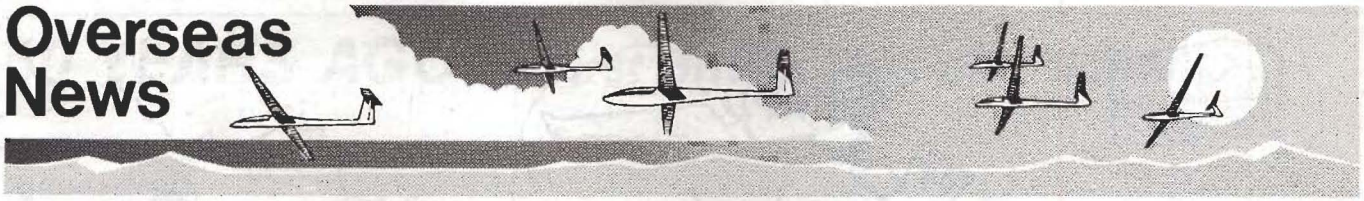




"**. . . might try a bit larger field next time.**"



Overseas News



Algeria. An official delegation from Algeria visited France recently to seek information on how gliding is organised. Preparations are being made to restart gliding activities in Algeria. A national centre will be established, with instructors trained in France.

La-Roche-sur-Yon. A club which offers gliding to families holidaying on the French Atlantic coast is "Vol à Voile Yonnais" at Lea Ajoncs (La Roche-sur-Yon). Only 25 miles from the popular seaside resort of Sables d'Olonne, the club has for hire: Twin Astir, Bergfalke, M200, Superjavelot, K-8 Phoebus, Astir and Mosquito.

La Llagonne. Two years after the closure of the previous club, gliding has started again at the highest airfield in France, La Llagonne in the Pyrenees (1700m). Since the re-opening in November 1982, there have been more than 50 wave flights to over 5000m.

Pyrenean Gliding Centre. A new centre with great attractions for those seeking new horizons has opened at Puivert in the foothills of the Pyrenees, some 40km SW of Carcassonne. The centre has 12 rooms with accommodation for up to 35 people. There are facilities close by for skiing, tennis, riding, fishing and walking. The area is rich in history and there are many castles nearby which were strongholds of the Albigensian heretics. Add fine Corbieres wines and excellent local specialities, and all the ingredients of a memorable holiday are there. For details write to: Bernadette Dumont, Centre Aerien de Puivert, Boite Postale 1, 11230 Chalabre, France. Tel: 68 20 90 06, VHF Frequency 122.5.

Soviet Union. According to an article in *Aviasport* by Ivan Kovalev, president of the Soviet Gliding Association, Russian *ab-initio* pilots still learn the hard way — with ground hops in a single-seater, the BRO-11. Before they can start flying, however, they must attend ground school and practise on a simulator. Surprisingly Mr Kovalev states that there are only about 50 gliding centres in the Soviet Union. More detailed statistics are not given.

German Club Class Championships. Fifty-two pilots, five contest days, 14 glider types: these were the raw statistics of the 6th German Club Class Championships, held in August at Breitscheid. The winner was Eckard Stoi flying a K-6E. Handicapping was to have been by wing-loading. This threw up several curiosities — the K-6CR received the same handicap as the Phoebus for example. There were so many protests that the organisers had to revert to a more conventional form of handicapping.

Please send news and exchange copies of journals to the Overseas Editor: A. E. Slater, 7 Highworth Avenue, Cambridge, CB4 2BQ, England.

New Zealand Nationals. Held at Matamata airfield from January 29, there were tasks on 12 of the 14 days. Tony Timmermans (DG-400) was the Open Class Champion, Lindsay Stephens (ASW-20) the 15 Metre Champion and Peter Lyons (LS-4) the Standard Class Champion.



Tony Timmermans, the New Zealand Open Class Champion.



Lindsay Stephens, the 15 Metre Class Champion.



Peter Lyons, the Standard Class Champion. Photos and details: Ross Macintyre.

Akaflieg Survey. An historical survey of the work of the German Akafliegs from 1953 to 1981 has been published by Pierre Schmitt (obtainable from him, price DM30, at Am Steinkäulchen 6, 5202 HENNEF 1, West Germany). The book gives a detailed description of the post-war work of each university group and features a photograph of each experimental glider, together with three new drawings, technical and performance data, and an account of the aircraft's development and construction.

100km triangle world record was put up by Ingo Renner in a Nimbus 3 from Tocumwal in Australia on December 14. The weather was exceptional with whirlwinds destroying property in the neighbourhood. Just short of his first TP Renner got some 3m thermals to 8000ft from which he rounded both TPs at 140kt and completed the course in 32min 25sec, giving an average speed of 195km/h.

The Australian record for the 100km triangle had been 146.47km/h and the world record, held in USA, 165.35km/h. Renner's height over the finish line was 900ft so he could have gone faster. — *Australian Gliding.*

China Calls. The Chinese Aerosports Association invited French and German teams to take part in an international gliding competition at Anyang which started on May 24 and ends on June 14. There are three pilots in each team, all flying in the Racing Class.

New Alpine Centre. A new centre — the Centre de Vol à Voile de l'Obaye — has opened at Barcelonette-St Pons in the heart of the southern French Alps.

Fuentemilanos. The German Gliding School at Oerlinghausen is holding its fourth summer camp at Fuentemilanos, the Spanish site with quasi-Australian conditions. Problems were encountered in previous years with unserviceable tugs and some pilots suffered the frustration of not getting airborne until after 4pm on an obvious 500km day. This year these difficulties should be avoided since the Germans are bringing their own tugs and a twin-drum winch is available. Visiting pilots will be required to pay a fixed weekly charge of DM200/glider (to cover charter and ferry costs) and then DM2.50/min on tow. A winch launch will cost about DM15.

Germans separate Classes. The next German Open Class Championships will be held at a different place and time from the 15 Metre and Standard Class contests, and future national teams will be selected by Class. The squad of 16 from which the final team is picked will consist of four Open pilots and 12 pilots from the 15 Metre Classes. The next Open Class Nationals will be partially handicapped: a "span factor" of 1% for each

metre of span will be subtracted for all gliders with spans in excess of 20m. There will be no bonus for smaller spans.

The First World Glider Aerobatic Championships, organised under the aegis of the FAI, will be held in Germany this year.

POETS' CORNER

Was Lewis Carroll A Glider Pilot?

DAVID STARER

The published works of Lewis Carroll present little, if any, evidence that he was a glider pilot. However recent research by the eminent literary scholar, D. Stradivare, has uncovered a hitherto unknown work by the author of the Alice novels. It is now postulated that Carroll was in fact a closet glider pilot some sixty years before such behaviour became socially acceptable.

We print it here in full for the first time since the Oxford mathematician penned it on the back of a page of discarded calculations for his immensely popular **Elementary Treatise on Determinants (1867).**

JABBERMOCKERY

Twas brillig and the gliding coves
  Did gyre and gimble in the wave;
All whimsey were the barographs,
  And the varios off scale.

Beware the cu-nim cloud my son!
  The turbulence, the clutching hand!
Beware the new-ploughed field and shun
  The frumious cabbage-patch!

He took his vorpal stick in hand:
  Long time the turning point he sought —
So circled he in his Nimbus 3,
  And sat a while in thought.

And as in roughish lift he flew,
  The Booker mob, with eyes of flame,
Came whiffing through the tulgey blue,
  And burbled as they came.

One, two! One, two! And round and round
  The camera went snicker-snack!
He set his ring, and dolphining,
  He went galumphing back.

And hast thou won the Nationals?
  Come to the bar, my beamish boy!
Oh frabjous day! 500km!
  He chortled in his joy.

Twas brillig and the gliding coves
  Did gyre and gimble in the wave;
All whimsey were the barographs,
  And the varios off scale.

CIRCLES

Eager Circles in a summer sky,
Climbing gently — climbing high,
Racing on cloud streets not to exceed
Completing a task at maximum speed.

Careful Circles in a morning sky
Another task is set to try,
High up at cloudbase or a low level scrape,
Who knows how the day will eventually
  shape.

Sunlit Circles in a cloudless sky
Like singing with angels or songbirds that
  fly
Part of the summer and distances vast
Of cornfields and heat haze and long days
  that last.

Ragged Circles in an angry sky,
No time for regrets or doubting why,
Icing in cloud tops at ten thousand feet,
Or high in a wave at heights not yet beat.

Gentle Circles in a wintry sky.
Seeking a wave or a hill to fly,
Hugging a hilltop on an upwind slope
Tethered to base by invisible rope.

Lazy Circles in an evening sky,
Time to ponder — time to sigh,
Drift down for landing and packing away
Sailplane stowed for another day . . .

D. CARTER

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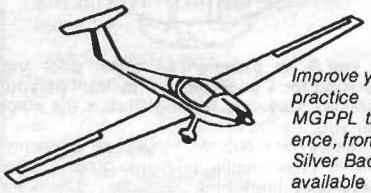
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ADVERTISERS' INDEX

AMF Enterprises	136
Aero Marketing Associates	136
Anglo Polish Sailplanes Ltd	101
Austin Aviation	137
Avon Soaring Centre	99
Booker Gliding Club	137
Beaumont Aviation Literature	137
Peter Bower	141
Bristol & Gloucestershire Gliding Club	144
British Aerospace	114
British Gliding Association	127
R. Bull	131
Cambrai Coverings	142
Cambridge Aero Instruments Inc	99
Cambridge University Gliding Club	144
Chiltern Sailplanes Ltd	134
Classifieds	142-143
Commercial Credit Finance Ltd	98
Conder International	132
Cook Variometers	126
Cornish Gliding & Flying Club	144
Coventry Gliding Club	144
Doncaster Sailplane Services	141
DRE Ltd	142
Deeside Gliding Club	144
Dunkeswell Gliding Club	IBC
Fieldtech Heathrow Ltd	100
Glider Instruments	127
Gliderwork	125
Gliding Accessories (F.B.J.)	138
Gordonair	143
J. A. Harrison (Brokers) Ltd	100
Herefordshire Gliding Club Ltd	144
Hobbies	143
Holmes/Hulbert & Co Ltd	133
H.T. Communications	129
JSW Soaring	135
Kent Gliding Club	IBC
Kent Motor Glider & Soaring Centre	143
Lasham Gliding Society Ltd	IBC
Limited Lift Services	142
London Gliding Club	IBC
London Sailplanes Ltd	136
London School of Flying	102
R. L. McLean	143
Micro Biplane Aviation	101
Midland Gliding Club	IBC
Mowbray Vale Insurance	IFC
Nine Four Aviation Ltd	131
Norfolk Gliding Club	IBC
Oxfordshire Sportflying Club	143
Piggott Bros & Co Ltd	137
T. & A. D. Poyser	100
RD Aviation Ltd	102
Rematic	142
Sailplane & Engineering Services Ltd	135
Sailplane & Gliding	113
Schleicher Aircraft	117
Scottish Gliding Union	IBC
Shelina Jewellers	137
Sherburn Aero Club Ltd	143
Soaring Equipment Ltd	100
Southdown Aero Services Ltd	98
Southern Sailplanes	BC
Speedsoaring	98
Speedwell Sailplanes	117
Sportavia Soaring Centre	126
Thermal Equipment Ltd	135
Three Counties Aero Club Ltd	102
Brian Weare	141
Welsh Hang Gliding Centre	143
Westley Aircraft	135
C. P. Witter Ltd	126
Wyatt International Insurance	103
Yorkshire Gliding Club (Pty) Ltd	IBC

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JUN / JUL	mostly thermals and Ridge	JAN	31,000 ft
		FEB	Skiing
AUG	17,000 ft	MAR	31,000 ft
SEP	29,500 ft	APR	27,000 ft
OCT	21,000 ft		

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Please ring Challock (023 374) 274 or 307
Or write to The Secretary, Kent Gliding Club
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LASHAM

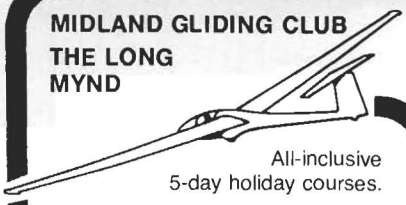
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Write for Course brochures or club membership details to the Manager, or ring 0582 63419

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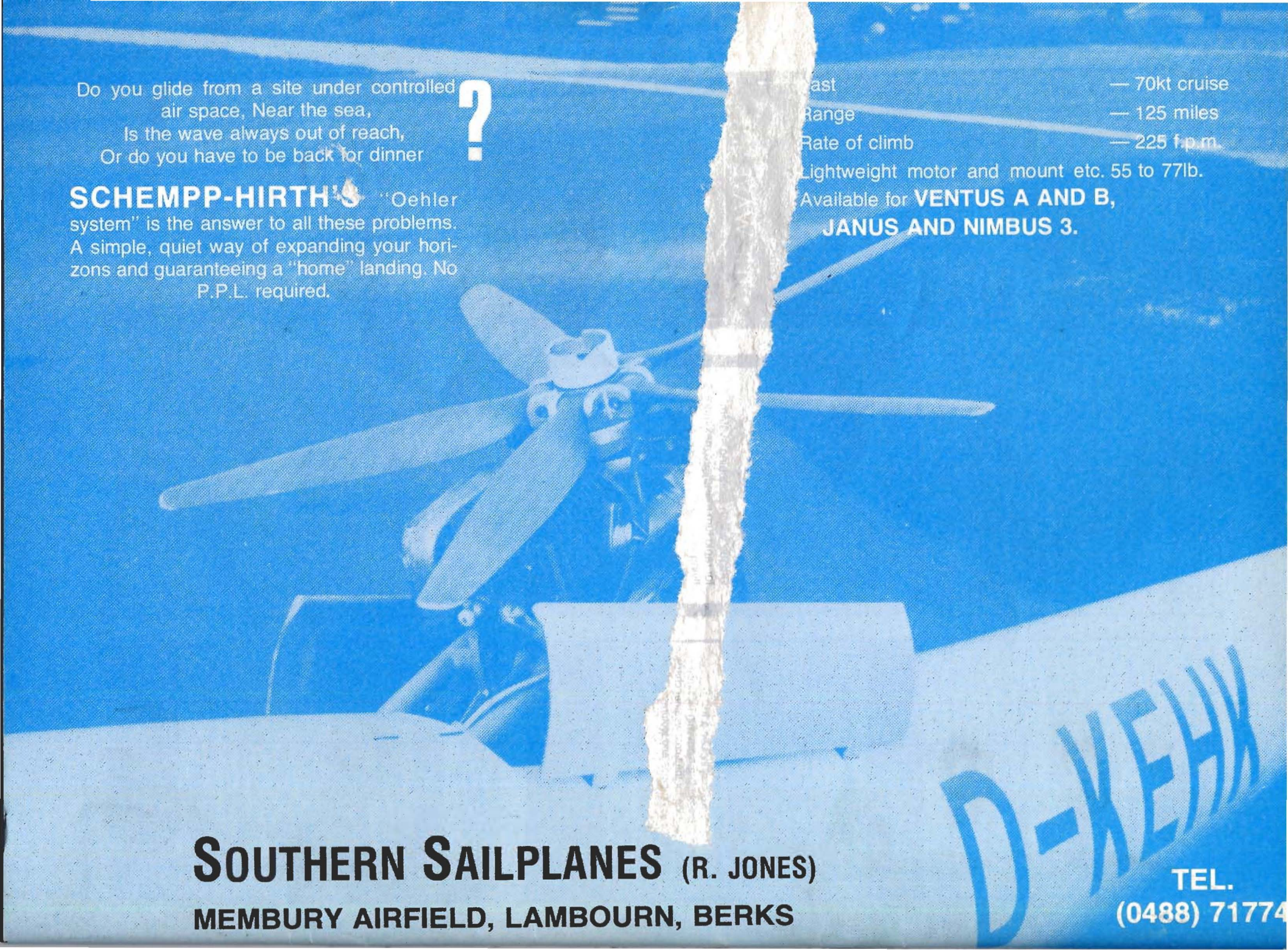
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Club absolute record is 30,200 ft. Club record gain is 29,500 ft. Both from the winch

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