

The background of the cover is a photograph of a sailplane in flight. The plane is positioned in the center of the frame, flying from left to right. The sky is a deep orange and yellow, indicating a sunset or sunrise. A large, dark silhouette of a tree is on the left side of the image. The sun is visible as a bright yellow circle near the bottom center, partially obscured by dark foliage. The overall mood is serene and peaceful.

SAILPLANE & GLIDING

December 1972 — January 1973

30p



Christmas, 1972

AT this season I can only wish all our readers what they would wish themselves—higher, further and longer soaring—and, perhaps, that every day in 1973 may hold the fellowship and goodwill of a Christmas Day.

What of 1973?

Gazing into a crystal ball without the foresight of a Hebrew prophet may be unwise for the timorous, but this is not the time to be afraid.

Problems such as Value Added Tax, shortage of permanent gliding sites, airspace and many others loom ahead, but the attraction of gliding lies in its many challenges, and I am certain that next year's problems will be resolved successfully by the spirit of enterprise that gliding always seems able to raise.

1972 has been a year of expansion in terms of clubs, club membership, aircraft and sites and this, I think, will certainly continue throughout 1973, assisted as sympathetically and generously as before by the Civil Aviation Authority and by the Sports Council.

I wish you all, and not least our many friends from overseas,

A HAPPY CHRISTMAS AND A SUCCESSFUL
NEW YEAR.

CHRIS SIMPSON, *Chairman BGA*

SAILPLANE & GLIDING

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Cover photograph: A restful sunset scene in Zambia.

Photo by Mike Sibthorp

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THE ROCK-POLISHER'S SPECIAL

A ROCK-POLISHER, according to our American friends, is a gentleman who indulges in hill-soaring. For most of us, hill soaring is a means of staying airborne until some more attractive lift (thermal or wave) phases in with the glider, and is otherwise something of a drag once we've got Silver duration behind us.

But hill-soaring is nothing to be despised, as American Karl Striedieck first demonstrated with his world out-and-return record flight of 767km made in a K-8 in March, 1968, carried out by ridge-soaring the Appalachians. For a long time, this particular task, on both a national and an international level, has been recognised as being particularly suited to lift of a topographical origin.

Thoughts in recent years have, perhaps not unnaturally, concentrated on wave lift, and the world record has on several occasions been held by exponents of this form of lift. Among these, Dick Georgeson stands supreme, and he recently achieved the world's first closed-circuit 1,000km flight in New Zealand with an out-and-return of 1,003km in his Kestrel 19. He took to the southern hemisphere once again the record currently held by Karl Striedieck, who made a ridge-running flight of 916km in his ASW-15 in November, 1971.

Georgeson didn't know what he started. The Americans just couldn't allow that basically low-level out-and-return record to remain in the upper reaches of the atmosphere for long, and since that flight in September, the out-and-return record has been shuttling from one end of the Alleghenies to the other. At the time of writing it stands at 1,093km, broken by Karl Striedieck after it had been broken by Jim Smiley (1,045) after Striedieck (1,023) had taken it from Georgeson.

In this feature, we first provide as an appetizer, a 100km out-and-return made along the Welsh Border in hill lift by Ivor Shattock (does this constitute a Welsh National record?), followed by a personal account by Dick Georgeson of his epic 1,000km flight in wave in New Zealand (which highlights some of the disadvantages of this kind

of flying). The feature returns to earth (almost) with a summary of the recent rock-polishing efforts in the Alleghenies, including Jim Smiley's personal account of his flight. (Subject to homologation all the 1,000km flights mentioned here qualify for the FAI Diploma.) During 1972 seven flights exceeding this distance have been made making the total 11.

May we respectfully suggest to exponents of hang gliding in this country such as Geoff McBroom, John Cardiff and Justin Wills that here is a type of record admirably suited to the potential of their machines?

BLACK MOUNTAINS OUT-AND-RETURN

By IVOR SHATTOCK

THE art of ridge soaring is dying out, they say. If you have a ridge 50km long, I think you should use it even if it means trying to fly when the easterly wind keeps all but the foolhardy indoors fettleing for the more sensible weather. At Usk we have such a ridge, called the Welsh Mountains.

The idea of a ridge-soaring 100km out-and-return along the Cwmbrian edge to Abergavenny and thence to Hay-on-Wye in an easterly wind had been in my mind for a long time. "But Ivor, you have a glass ship. They are for high-speed inter-thermal flight and triangles and competitions . . ."

"But I love the Black Mountains."

"Go and have a launch, then," they said, "and see how difficult thermals are low down." "They" were right. Our field is 900 yards long and 1,000ft is about as good a launch height as you'll get. But at 1,000ft on this occasion the winch driver seemed to have his foot on all of the five litres of diesel motor. Of course he didn't, but it was the indication of a thermal that I needed. Once off the cable. I averaged half a knot up with 80° of bank and 60kts, a climb rate born of the

union of plus four and minus two the way I was thermalling. However, it improved at 1,200ft and I was eventually getting two knots all the way round.

"424 going on an out-and-return to Shobdon," I announced.

My optimism was greeted with "Then we'll get the trailer hitched up."

I was by now four miles downwind of the site at 1,500ft over the lake at Llandegfedd, and the lovely expanse of the steep, 1,800ft face was looming up.

The hill worked well—so well that I enticed Ken Gardner across in his K-6e, 124.

Working the hill to the Blorenge (Fox-hunter is buried at the top) I climbed to 2,400ft, with Ken coming up behind at around 3,000ft. The first problem was the gap in the mountains at Abergavenny, but I took the long way round by working upwind to the Skirrid for curiosity. This hill worked up to 2,000ft, as did the hill behind it.

I was now well into the Black Mountains area with Sugar Loaf higher than myself at times—and now on my own.

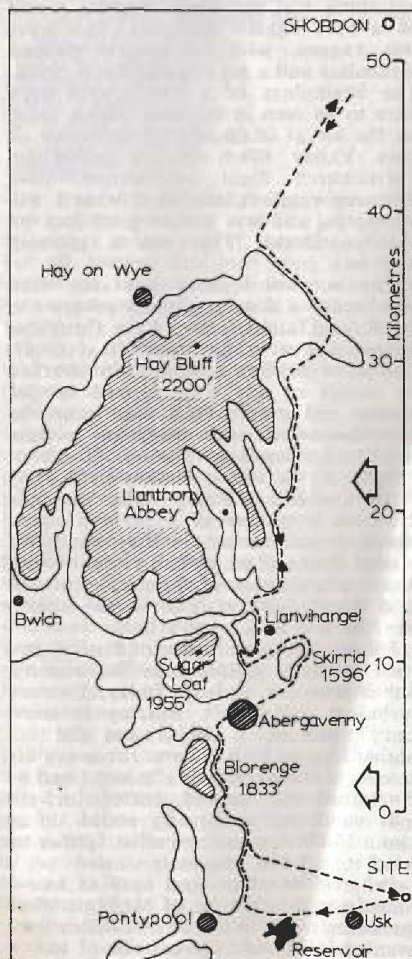
The view had to be seen to be believed: The sun coming through the thin cloud in small patches highlighting the autumn colours of fern going rusty, trees in varying shades of green-brown, squares of green fields and the purple tint of the higher mountains . . . Oops, you're in four down. Put the knots on and get thinking!

After another gap at Llanvihangel, the hill improved in shape, size and texture, taking me up to 3,000ft and on past Llanthony Abbey to the northernmost tip of Cefn Hill, where I could see Hay-on-Wye and the basin in which Shobdon nestles.

My return trip was marvellous. I'd learned that for speed when in wave one works along in the best part of the upcurrent, so I tried it with hill lift. I found that at 110kts I could fly at 2,000ft along the whole length of the Black Mountains just going up and down a little.

Abergavenny again came into view and there on the road beneath me was 124's trailer. The Skirrid to the north-east of the town provided an interesting place from which to look for 124 and relay radio messages to the trailer. The K-6 was reported as being down at Bwlch, and the trailer turned and disappeared into the mountains.

Crossing the Abergavenny gap, I got down to 1,500ft, but the hill took me up to 2,300ft and the "John Willy" said I should be able to make it home. Final gliding has its excitements when flying into a headwind of imprecise strength, but the calculations worked and it was straight in to Usk on a bearing of 110°



THE FIRST 1,000km OUT-AND-RETURN

By S. H. GEORGESON

THE world out-and-return record has been, and will continue to be for a little longer, a possibility in New Zealand. The Southern Alps lie across the westerly wind which flows in from the Tasman Sea and often produces standing waves and lee waves of a good magnitude. One of the problems is to get the same weather lying the whole length of the country. In the south, the cold fronts tend to come in early and cloud Southland over, even though the rest of the country may not be covered by them for many hours, or even days.

On Tuesday night, September 5, Helen and I were looking at the TV weather and I commented that the situation was developing suitably for an out-and-return record, with a high approaching the North Island and what looked like a low developing which would pass to the south of the South Island. On Wednesday I rang Alan Ryan of the Weather Office and asked his opinion. He confirmed that the situation looked good. Since losing my previous world out-and-return record seven years earlier, I had been trying to recapture this record. Although many attempts had been made, the weather had never proved suitable and the flights had usually been abandoned in the early stages. It was therefore arranged that Helen, my wife, would man the base radio at home, that Terry Shannon would be the official observer and retrieve for me if need be, and Bruce Drake undertook to handle the aero-tow aspects.

We left for Brian Robinson's sheepstation, "Mount Palm", and arrived late in the evening. We were enthusiastically welcomed by Brian and Helen and prepared for an early night. At 4.30am, Terry and Bruce got me out of bed, we had breakfast and went down to the field. We rigged the 19m Kestrel in the dark and had one dreadful moment when a gust of wind caught the wing and spun it square on and I thought that Bruce and the wing would collapse. However, quick as a flash, they managed to get the leading edge up and into wind. As

daylight broke, I was sitting in the cockpit ready to go and Bruce was in a Piper. Documentation had been completed, the barograph was on, oxygen on—and away we went.

At 07.00 I released at 995m above Hanmer airstrip. It was evident from the beginning that the whole venture would be a race against darkness. The wave was ragged, with no clearly defined lenticulars and a lot of scruffy roll cloud. The beginnings of a high cirrus arch were to be seen in the west. Helen came on the air at 08.00 when I was west of Lees Valley 60km out. I called up Christchurch flight information, gave them my position, explained what I was attempting and was wished good luck by Marilyn Drake. This was a pleasant surprise.

The outward journey was into wind and I made a slow, but steady progress to the Rakaia, arriving over Lake Coleridge powerhouse at about 15,000ft at 09.05. The wave pattern, although not marked by clouds of any sort, seemed to disappear and eventually I was forced to turn downwind and ended up a little south of Snowdon Station at about 7,000ft. At Snowdon Station lives Lucy Wills, a cousin of Philip Wills. She once drew me a picture of a peculiar cloud which sometimes sat in the vicinity of Mount Hutt and which had a spiral which went up a number of thousand feet and then leant forward into wind—almost like the top of a witch's hat.

I had also seen this cloud once and tried to fly a sailplane in the vicinity, but it was too violent. Today, I struck turbulent, rough lift. Bearing in mind Lucy's picture, I circled and did not bother to treat it as a wave. I rose rapidly at over a thousand feet a minute, and as I climbed the aircraft drifted forward into wind and eventually ended up at about 15,000ft, some two miles further up wind than I had originally started.

Progress was slow and hard as I continued south in the lee of Mt Hutt, there not being much in the way of indications, even of roll cloud. The process of travel-



ling was that of imagining where the wave might be lying, crabbing along the imaginary wave and if the rate of lift fell off, turning first into wind, and if it continued to fall off, turning sideways into wind and drifting back to where one hoped the wave was lying. The process required continual effort and vigilance and one always appeared to be losing the wave.

Shortly after 11.00, I was in serious trouble, having entered the Fairlie Basin under difficult conditions, getting into the lee of the Foxes Peak Ski tow hoping to pick up wave, but only striking turbulence. Eventually I found myself at about 3,000ft above the ground over Ashwick Station, where I lived as a small boy. I seemed to have completely lost the wave system. The usual rule-of-thumb we had was that once below 8,000 it would be very difficult to get going again: the wave system usually did not operate below this level, except in unusual or exceptional circumstances.

At this stage I felt I was losing time badly and it actually looked as though the flight was off. However, striking weak lift, I tried the technique of circling, and again it worked. I climbed slowly, according to Terry Shannon's flight log of my radio reports, and 18 minutes later was at 12,000ft south over Burke's Pass. Morale picked up, and Terry's calculations showed if I could keep travelling at this speed, I would reach Mossburn around 14.30.

This was acceptable, as we believed from rule-of-thumb estimates made the previous night that it should take eight hours to reach Mossburn and three to come home. There was a head wind all the way down and the Weather Office gave wind speeds of about 50/60kts between 10-15,000ft, and this appeared to be borne out by the speed at which one had to fly at to even maintain station over the ground.

Parts of the MacKenzie Basin were extensively covered by dust. It was necessary to fly between 80 and 90kts to make headway against the wind. By 12.50 I had passed Omarama and was in the region of St Bathans. I was beginning to lose time but Terry felt I still had half-an-hour up my sleeve. At this stage, we were hoping to return to Hanmer at about 17.50. Terry was working on the principle of having an hour's reserve for trouble.

At this time I expected Helen to go off the air, as she was going to have her hair done. However, I still received words of encouragement from her and also a description of what was going on in the sky from time to time. Conditions to the south looked better—there was marked rotor cloud activity and also some high lenticulars. However, Terry informed me that I was beginning to run behind schedule. I therefore decided to change tactics, as I had struck some good lift, and try and climb to 30,000ft and then from this altitude run almost down to Mossburn.

At 13.30 I was over Clyde at 26,000ft and decided, as the lift had decreased to about 5kts, to abandon it and head south. Shortly after this, I could see Mossburn away in the distance. It was tremendously exciting, as it looked as though the impossible may now become a reality and I may reach the turning point—the first major vital step in the record attempt. Just after this, I noticed a fire up-wind of Mossburn spreading smoke across the town. Shortly, it was completely obliterated. I called Helen on the radio and said Mossburn was behind a pall of smoke, and continued south, over Five Rivers and on down to Lumsden. This was directly downwind and at 16,000ft I started the 11-mile upwind run into Mossburn.

Arriving over the south-west corner of

the town, I found I was under the trailing edge of a lenticular—in other words, I was in very heavy sink. I managed to get four pictures in the space of about five minutes. The smoke was extensive. However, the picture taken of Mossburn shows up clearly enough, although further north the ground is completely obliterated. I headed down-wind back toward Lumsden at 5,000ft. I picked up a weak wave and turned into wind and found that at 50kts I was drifting backwards. I climbed to about 8,000ft and headed north towards Athol, where I hoped to pick up further wave and climb to about 16,000 or 17,000ft before entering the Nevis and Garvie valleys. There was a considerable amount of turbulence in the area of Athol and also a lot of cloud.

However, I was now beginning to feel concerned that I would not be able to find the wave and would have to hill-soar the Remarkables. Persevering, I suddenly broke into wave and the massive clouds started descending below me and it wasn't long before I was in clear air at 18,000ft and headed into the Nevis Valley.

I had a tremendous run north as far as Omarama. I actually averaged 250km/h for this leg. But on looking into the MacKenzie Basin, it was extremely hard to see where to go. There was no indication of wave and the decision was difficult. Unfortunately, the decision I made was the wrong one and very nearly cost me getting back to Hanmer. From there on, it became a desperate struggle. I should have run up the lee of the Ben Ohau range, up the Tasman Valley toward Mount Cook. However, I missed the wave and found myself over Benmore and tried to head north up the middle of the MacKenzie Basin. This, however, did not work, and once more I found myself in the Burke's Pass area down to about 5,000ft.

The situation once again looked desperate, and once again I thought I would have to look for a landing. However, I went over the same spot I had been some five hours earlier. Once again it worked, and at 12,000ft I started heading north. I could see I had missed the leading edge of the North West Arch. This huge lenticular was now west of me and had I gone via Mount Cook and

then turned east, I should have been able to pick it up. This would have made a tremendous difference, as I could have climbed to about 25,000ft and then ridden the leading edge all the way back to Hanmer. This was no longer feasible and I had to be content with the low level lee waves which were invisible and required great care to work.

At the Rangitata River, at 16.50, I had my last contact with Terry. He said if I could average 150km/h, I would arrive at Hanmer just before dark. At the same time, Harry Kindon came on from Dunedin and had a brief talk with Phil Howell; also Gerry Hunt. I would have loved to talk to this group of supporters, but the oxygen mask mike was not working and it meant having to take my oxygen mask off again to do so, so I could not acknowledge them, but their encouragement was much appreciated.

Helen came on the air at this time to say she was leaving the house and was heading for Hanmer to meet me, so I wondered what had happened to the hair-do! However, it was exciting to think Helen felt this record may be a reality, even if my own confidence was not high. It would mean that I would no longer have her words of encouragement and I was not at all sure I could make it. At 17.10 I was at the Rakaia Gorge. Here I called Christchurch tower and told them that I was just south of Red 1. They then told me Bruce Drake was about to take off with Helen on board and would endeavour to pick me up in case I needed assistance on the last leg into Hanmer. I continued north and this was the beginning of the final struggle.

Gradually I lost altitude and by the time I had cleared Red 1 and was at the head of Lees Valley, I was down to 10,000ft. Hanmer looked an awfully long way off. The wave system appeared to have completely disappeared; there was no evidence of wave, nor was the blue wave which I had been following for some time providing lift any further.

I could hear Christchurch radar giving Bruce Drake his headings to pick me up and I was amazed how long it took him to catch me. However, he was under the impression that I was a good deal higher than I was. When he finally picked me up, I was down to 7,000ft downwind of

Hanmer and sinking at 1,000ft/min. Things now looked bleak. It was almost the time to be looking for a safe paddock and landing while there was sufficient light. The only thing left to do was to turn downwind and hope that a lee wave existed some 20 miles downwind of the ranges.

With Helen and daughter Anna on board, Bruce Drake headed for the Hurunui River. This is an area where Bruce had previously found wave and I was down to 4,000ft when he called back that the wave was working. I was not far behind him and soon I was in it, climbing. At 8,000ft I decided I could not afford to wait any longer due to the approaching darkness, and at 16.10 I started the final glide into Hanmer.

Bruce had found a route which gave reduced sink and was desperately searching for lift further up-wind. He had his navigation lights on and it was easy to pick him up. Reduced sink held well and I was able to box along at about 80-85kts. However, I was not at all confident that I had enough height to get through the Gorge into Hanmer, which was probably about 10km long. Bruce called up to say he was over a fire and getting lift. However, I said I was too far north to be able to turn about and would continue pushing on. Bruce then called up to say the Cherokee was losing altitude fast and that there was heavy sink toward the Gorge. I had no option but to continue. I felt the light was not good to attempt a landing and the point-of-no-return had been reached.

Bruce called to say he had found a rotor, that it was very rough, and that it was giving tremendous lift. Shortly afterwards, however, he said it had broken up and he had lost it. I reminded him that if this sink continued, which had suddenly gone up to 1,000ft/min, I would be in serious trouble. The air became violent and very unpleasant. The sink continued and I was pushing the aircraft along as fast as I dared, somewhere between 90 and 100kts, to try and get through the down. I was down to 1,000ft above the valley floor, light was very poor indeed, and I still had about 10km to go.

The turbulence seemed to go on and on and on—violent up, violent down—the vario going from one extreme to the

other. The cameras were all round the cockpit—the maps—I had lost one mike over my shoulders. The situation was beginning to look sick. I turned east on to the ridge. The violence continued, but the sink stopped. Just then I rounded the corner over the Waiiau Bridge. Then I reached smooth hill lift and I was quietly going up.

The relief was incredible. Terry called up on the radio saying to stay where I was until the flare path with cars had been laid out. This gave me the opportunity to tidy up the cockpit in preparation for landing. At 18.25 Terry called me and said all was clear. I made a big sweep of the field and came in to a straightforward and easy landing with the wind blowing at about 25kts.

Helen, Anna, Bruce, Terry and all the Hanmer Atkinsons descended upon me and the flight was over.

In retrospect, one realises how a flight like this is so much of a team effort. One's thanks must go to one's friends and supporters—in this case Bruce Drake and Terry Shannon, Helen and Brian Robinson, to my radio friends for encouragement, to the Government departments (Weather Office and Civil Aviation) and to Christchurch tower for its tremendous help. But above all, to one's wife and family, without whose support the whole thing wouldn't be on, anyway.

When relating this flight to previous flights, it is interesting to note that on my first out-and-return record flight the speed was 50mph in the Skylark 3F. The second record was 454 miles at an average speed of 54mph in a Dart 15. This one was approximately 626 miles at 54.5mph. Conditions on this trip were certainly not as good as on the previous trip, especially in view of the fact that the sailplane was very much better than the previous ones used. The distance being claimed for this record is 1,003.8km.

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OVER TO THE ALLEGHENIES

KARL STRIEDIECK had held the current world out-and-return record for less than a year when Georgeson broke it with his 1,000km flight. Exactly a month after Georgeson's flight, on October 7, favourable winds for soaring the Alleghenies were expected. Striedieck rose at 5am to find a drizzly overcast accompanying the winds. He therefore delayed his start until 8am.

The task was Port Matilda, Pennsylvania, to North Tazewell, Virginia, and return, for a distance of 1,023km. He was auto-towed in his ASW-15 from his ridge-top strip "Eagle Field" near Port Matilda at 08.05, and sped SSW with the wind from a northerly quarter. He had gone barely 50km when he was held up for an hour at the Altoona gap where the top of the ridge was still in cloud. Conditions improved further south, however, the cloudbase rising to 6,000ft as he passed Cumberland, Maryland, about a third of the way out. The overcast broke up, eventually to provide a cloud cover of only 40%, and the wind

backed to north-west to bring it more perpendicularly on to the ridges.

Most of the flight was carried out by flying fast along the turbulent ridge lift; only once did Striedieck attempt to use any wave. He turned North Tazewell at 13.20, and the return leg was uneventful, although somewhat slower because of the into-wind component. He landed at 18.23, 10 hours 18 minutes after take-off, with less than 45 minutes of daylight remaining.

Hardly had the dust settled in his cockpit before Jim Smiley, at the opposite end of the Alleghenies, was studying the weather pattern . . .

A SORTIE FROM THE SOUTH

By JIM SMILEY

ON Sunday afternoon, October 8, I noticed while at the gliderport that there was a good WNW wind blowing and not being put to proper use. The sky was clear and a dry cold front was due to pass during the night. This was certain to switch the wind direction towards the NW and increase its speed somewhat. With the temperature in the sixties there was the promise of a good day for flying the ridges.

After making arrangements with Lin Bachtell to rise at the necessary hour to fly 100 miles to Mercer County Airport, near Bluefield, West Virginia, for a single tow and to act as official observer, I made the final decision to give it a go at 21.00. We drove the first 150 miles from my home in Clover, Virginia, before stopping for the night.

We were on our way again in the morning darkness of 06.00 for the last 50-mile drive through the narrow mountain roads. The wind was blowing so I knew the ridges would be working.

I was released over a field just SW of Bluefield near the ridge to be flown. I descended immediately to the top of the ridge. The time was 08.45, the wind NW, 7-8kts, and I was on my way in the Libelle H301B at a very smooth 80kts.

The 80 miles to Covington were easy.



Jim Smiley

The first problem was the transition to the Hot Springs ridge. The wind was rather light at this altitude and convection had not yet started. I never actually made it to the big ridge but had to settle for a smaller one in front of it. The next 45 miles took about an hour, and a thermal was necessary to gain me the 1,500ft I needed for the up-wind transition of another gap, SW of Monterey.

This low and slow flying ended, however, about 15 miles past Monterey. The leaves of the trees were showing their bottoms. The air was becoming more and more turbulent. Convection was picking up, and so were my spirits.

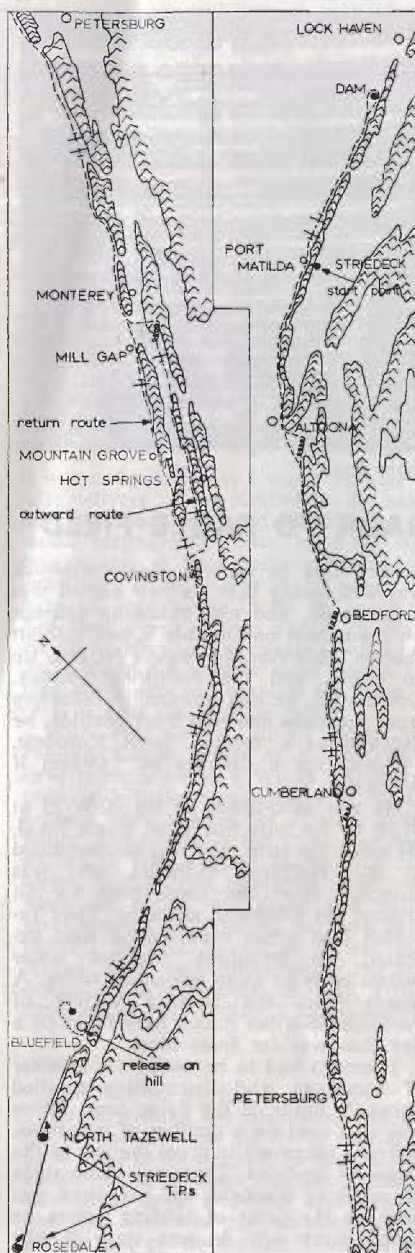
At Cumberland I had to cross another gap on to a ridge which lay further upwind. The climb by which I achieved this was in a 10kt thermal. The surface wind was now 12-20kts. This kept me level with the top of the ridge or a little above it while flying at 90-95kts. The ride was becoming rougher and rougher in the increasing turbulence. At 12.40 I made another climb, to about 5,000ft asl, to cross the 12-mile gap at Bedford. The flight to the turning point and back to Cumberland was fast and easy going, and I was in sight of Cumberland for the second time almost an hour earlier than I had estimated.

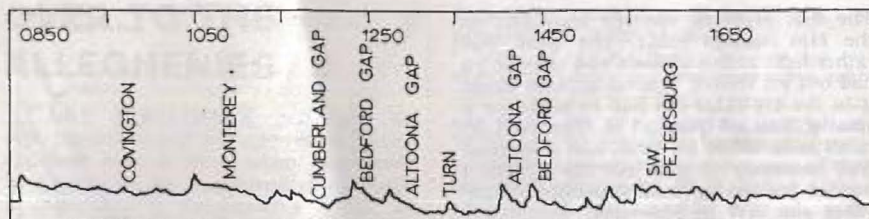
Taking the tailwind into account, I thought I would be back at Bluefield at 18.00. A happy thought, as in the rush to depart I had failed to bring anything to eat or drink.

Passing Petersburg, the wind seemed to be dying a little and the ride was smoothing out—a real relief from the constant banging of my head on the canopy no matter how tight the safety harness was.

I decided to take a slightly different route on the return stretch from Mill Gap to near Covington—a ridge upwind of the Hot Springs ridges I had used on the outward journey. Use of a thermal would be needed for this route, but I did not expect that to pose any problems; it was only 16.00. Just past Mountain Grove, I used a 200ft/min thermal and some drift to put me in position to join the final 80 miles of perfect ridge home. All I needed now was a steady 5-8kts of wind for one more hour, and this got me home without any trouble.

The return leg averaged about 70kts,





Barograph trace of Smiley's flight

but the outward journey, into-wind, was about 56kts.

I soared for an additional 45 minutes at Bluefield while the landing area was checked by my wife and witnesses were rounded up, thus bringing the total flight time to 9 hours 45 minutes.

All soreness had gone from my stomach and right arm muscles after three days.

BACK TO EAGLE FIELD

According to reports, Karl Striedieck was well aware that his new record was in jeopardy, and also made an attempt on the record on October 9, but without success. However, he wasn't to give up so easily, and the following Sunday, October 15, he had another try. Starting from the same site near Port Matilda, he declared as a turning point Rosedale, Virginia, for a distance of 1,093km if successful.

He was auto-towed in his ASW-15 at 07.00 by his wife Sue from Eagle Field, his ridge-top strip, and was accompanied by Bill Holbrook (Libelle), who was launched from the same field for an attempt on Diamond distance. They reported that winds were weaker than expected, so Striedieck dumped water ballast early so as to remain airborne. A report from the Soaring Society of America describes it as a hard flight on a day that was far from ideal.

Thermals had to be used on a number of occasions, and thermalling totalled about 2½ hours of the flying time. Wave was also used on a number of occasions, and was necessary to cross the gap in the ridges at Bedford. There was little ridge lift south of Bluefield, and Striedieck was once on the point of landing before he found more lift. At one stage it was

doubtful whether the pair could continue to the turning point at Rosedale, about 25 miles southwest of North Tazewell, Striedieck's previous turning point, but they talked each other into trying and were successful.

The return leg was much the same, using weak ridge lift most of the way. They often had to slow down to less than 55kts during the southern part of the flight.

Holbrook was at times in the lead, sometimes by up to 20 miles, but they maintained radio contact and were often near each other. As the day drew to a close, Holbrook was ahead by about 10 miles, but as darkness approached over terrain unfamiliar to him he felt obliged to land before reaching the goal, at 18.51 after a flight of 1,057km. But Striedieck knew the ridge quite well, and made it home at 19.00, 12 hours after take-off. Average speed, about 91km/h against Smiley's 116km/h.

And there the saga rests.

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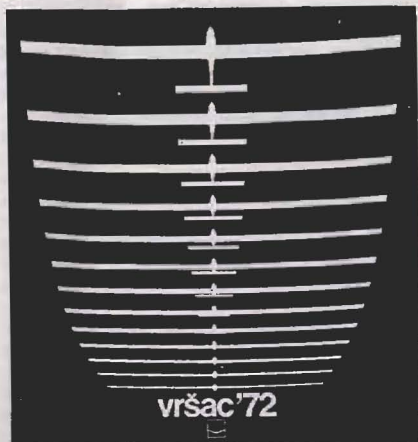
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SO THIS TIME WE WENT TO YUGOSLAVIA

By NICHOLAS GOODHART



MY BIG preoccupation when preparing for the 1972 World Championships was what aircraft to fly. We were having trouble getting Sigma developed up to a competition-worthy standard and finally it became clear that she would not be ready. By this time most other possible sources of a top-class glider had committed themselves to other World Championships pilots and I was only saved by a splendid gesture on the part of Slingsby's when they made arrangements to lend me a Kestrel 19 brand new off the production line.

While getting the aircraft question sorted out, other aspects took a back seat. But, anyway, there did not seem to be any great problem. A look at the map showed us that Vršac was situated at the edge of a huge agricultural plain, so it looked as if conditions for outlandings would be pretty reasonable. The statistical Met information looked thoroughly encouraging, with good thermal conditions on at least 12 days out of 14, and maybe one thunderstorm day. It was a bit further to go than previous Championships in Europe but otherwise there seemed no reason to anticipate anything vastly different from what we had previously met in France, Germany, etc.

The other three British entries decided to move to Yugoslavia a few days before the official practice period began, with a view to increasing their number of practice days in the country, but I did not believe this was necessary. In any case,

it was not possible as I was only able to take delivery of the Kestrel on the same day the others left, and we still had to install instruments, radio, batteries, wiring, etc. A hard weekend's work got everything done, except that I never did have an opportunity to fly the machine, and then Frank Irving and Judy Slade set off to drive to Yugoslavia while I and Brian Slade did another week's work before flying out to complete the team in time to start the practice period.

With the Kestrel fully fettled and Frank's Range Rover as a tow car, I have never gone to a World Championships with better equipment and, though I could have wished for at least a few hours' flying time in the glider, we were all set to give a good account of ourselves. Our morale improved even more when we found the living and eating arrangements at Vršac to be most satisfactory. In fact, as far as I was concerned, they were undoubtedly the best domestic arrangements of any I had experienced in World Championships.

ORGANISATION

And then we started the flying—

The first thing we discovered was that the organisation on the flying side left a good deal to be desired. In general, one gained the impression that the organisers had never done it before and had not had the benefit of the accumulated experience of previous championships. For

instance, experience shows that you cannot successfully hold a long, multi-lingual briefing; inevitably, whichever language is being used at any particular moment, those interested in the other language will chatter among themselves, thus ensuring that those trying to listen cannot hear. All standard items of briefing—task, weather, airfield arrangements—can be put up on the boards or circulated on duplicated sheets; it should then only be necessary to brief on special warnings or “church notice” type items, and to answer questions. Only in this way can the basic multi-lingual problems be avoided.

Another aspect which was not adequately organised was the provision for pulling out of the take-off line and thereafter establishing a take-off order and time. In fact, there was no provision whatever and, as can be well imagined, this led to some pretty active gamesmanship.

Camera arrangements also gave the impression of not having been fully thought through, while the arrangements for manning the retrieve telephones did not exist at all.

However, while the inadequacies of the organisation were undoubtedly annoying, it would be Utopian to expect a perfect organisation, and to my knowledge, the World Championships have yet to be held in Utopia.

In any case, there was too much to do getting ourselves completely organised during the practice period to waste time worrying about the organisation. For a start, I had never used water ballast before and we had the problem of learning all the quirks. For example, it is all very fine saying in the pilot's notes that water must be jettisoned before landing, until you discover that unless you have arms of simian proportions, it is quite impossible to work the Kestrel 19 water cock while in flight. (A mod has since been incorporated to solve this problem.)

Then there was the trailer, which was a new design. We had to do some fairly major mods on it to ensure its structural integrity, and in the light of later events, these mods proved to be of paramount importance. The tail trolley was yet another piece of new design equipment which required major alterations to make it satisfactory.

It turned out that the first three practice days were easy, and I got home each day, but on the fourth we were set an out-and-return going down south of the Danube. On the return journey there was a large blank area and, in the same area as many others who had pressed on with the task, I was forced to make my first out-landing. From that moment on we realised how wrong we had been to think that Yugoslavia would be just another European competition.

“GIVELI!”

For a start, I landed the wrong way—across the combine harvester tracks instead of along. It turns out that they don't drive the combines that way just by chance. They drive them along the plough lines because the ride across the lines would be tough at 5mph let alone at 55mph. However, we came to rest successfully, and it was at that point that I began to discover what is special about Yugoslavia.

For one thing they speak Serbo-Croat only, a language of which I only know one word which sounds like “giveli” with a soft “g” and means “cheers”. It's valuable for cementing Anglo-Yugoslav entente but not so good for running to earth the one telephone in the village, which, after walking about two miles, turned out to be in the post office which was shut. So, after retiring to the village pub (where my knowledge of Serbo-Croat served me well) a man was dispatched on a bicycle to telephone from the next village.

Whether he did or not I don't know, but my crew somehow became dimly aware that I was at a village called Lipe. You might think this would solve their problem, but it was not as easy as that. First, Lipe was not on any of their maps. Second, no-one who does not live there had ever heard of it. Finally, even when it was located, there wasn't anything which could reasonably be described as a road which went there.

However, three cheers for the Range Rover, which weaved its way happily in and out of two foot deep potholes, with the trailer spending a significant part of the time with its wheels off the ground, simply being dragged along by sheer Range Rover drawbar pull. Soon after

midnight, we were hitched up and away back along three miles of potholes to the "autopot" where the Range Rover demonstrated the other side of its personality by turning into an excellent "turnpike cruiser", happy to cruise at 60 or 70mph in great comfort; and so back to base by about 03.00, convinced that we had learnt a lot about retrieving in Yugoslavia and it should be a lot easier next time.

MUD...

It was about this time that the weather turned very unstatistical indeed, with vast quantities of rain falling out of a thoroughly fractious sky. Not only did very heavy thunderstorms interfere with the task on many days, but the rain rapidly turned everything that was not a hard road into a quagmire.

And no ordinary quagmire either, for the mud of the Danube is a very special material of fascinating properties; if you walk across a wet ploughed field you pick up even bigger footballs of mud on each foot until you come to a halt. On the other hand, it is an excellent lubricant and if you are on the least bit of a slope you can guarantee that your feet will slide out from under you. Finally, it has one even more devastating property in that when it dries it sets absolutely rock hard and sticks irrevocably to whatever it dries on. In fact, you scarcely need a kiln to make bricks.

It may be wondered why I stress the properties of the mud, but there is no doubt that this was the most significant item in our lives throughout the fortnight of the competition itself. We flew on nine days (though two were no-contest days) and due to the prevalence of thunderstorms, I had six out-landings. Suffice to describe one.

...MUD...

I was final-gliding at about 900ft and the Range Rover was no more than five miles behind me. I was describing my intended landing place about three miles in front and was just approaching a river. Suddenly a severe downdraught hit me and I could not even get over the river. A very quick 180 showed a small ploughed field—wheel down, flaps, brakes, help! The field looked soggy and

I already knew that a wheel-down landing in wet mud is most unsatisfactory. The glider goes straight on to its nose, and could even go right over on its back. So: Wheel up, tail parachute and into the field as slowly as possible—splosh! It was just like ditching with a bow-wave of wet mud going up on either side, and we stopped in about 20 feet. I was glad I put the wheel up again.

We were on a piece of high ground near the river, but the road where the car would be passing in 10 minutes or so was in a valley over the edge of the little plateau we were on. I tried the radio for half-an-hour but no joy. It started to rain—hard.

...GLORIOUS MUD

Four hours later (after I had walked out three miles to the police station to find a telephone) my crew turned up and in the gathering darkness we struggled to get the trailer somewhere near the glider. There was no hope of getting it into the field but we did get it on a neighbouring cart track and then set about carrying out the Kestrel bit by bit. We had long since discarded our shoes and socks and rolled up our trousers as bare feet were the only possible way of coping with the mud. The small bits of the glider were relatively easy, but when it came to a Kestrel 19 wing in the dark, in this impossible mud over a distance of about 200 yards, four people were about four fewer than the minimum number necessary.

We sweated, we heaved, we gasped for breath and were mud from head to foot. The fuselage should be relatively easy. We lifted it, put the wheel down, and started to heave. After five yards nothing could move it. The wheel was completely locked by the mud. In desperation we got the Range Rover into the field and it was just capable of moving itself, but as soon as we hooked on to the fuselage it bogged down. But we finally won by driving the Range Rover first without the fuselage to make tracks for itself, and then reversing along the same track to hook up to the fuselage. Ah well, it had only taken four hours to de-rig and put the glider in the trailer.

But this was not the end of our troubles, for, while it was just possible to

get the unloaded trailer in, it was just not possible to get the loaded trailer out. Despite every effort, we finally had the trailer immovably bogged and decided to give up and go back to base for reinforcements. What, under normal circumstances, might have taken at the most half an hour, had so far taken eight hours and was still not complete. However, next morning, two Range Rovers and 60 feet of rope did the trick, and the retrieve was finally completed at about 11.15, when the Kestrel was rushed together by many willing hands for me to get airborne on the next task.

On another retrieve, I landed within radio contact of the Range Rover—certainly less than two miles. It then took over four hours for the crew to reach me, during which they covered 13 miles. It sounds silly but just how do you find a small square of plough containing a glider in an absolutely flat plain of assorted rectangular fields, mostly containing eight foot high maize you can't see over? We finally evolved a system in which you compared the apparent position of the setting sun with respect to a few clouds.

CU-NIM FLYING

On the flying side, the outstanding feature was the amount of thunderstorm flying. Fortunately I had fitted a really satisfactory artificial horizon and also a turn and slip with separate power supply, so no worries on that score; I also had a satisfactory oxygen system. It is my own assessment (though I entirely accept that there is not sufficient information to justify it fully) that the prime causes of trouble in thunderstorms is loss of control and excessive speed, so, being reasonably confident of being able to stay within a few knots of the desired speed as long as the artificial horizon continued to work properly, I was comparatively happy to take advantage of the opportunities that came my way to make good thunderstorm climbs. However, I can't say I enjoyed the electrical manifestations, and on one climb my electric vario enjoyed them even less, as its transistors expired completely and irrevocably.

The biggest climb was one to 29,000ft and I only broke off the climb, despite still going up at 2,000ft/min, because I had more than enough height to com-

plete the task. This climb exposed one problem of the modern trend towards sealing of aileron and flap gaps. There had been a great deal of water in the lower levels of the cloud, and this had obviously run into the gap above the seal. At altitude this all froze absolutely solid with the result that when I came out of cloud the flaps were immovable and the ailerons had remarkably limited travel. Once out of cloud I was extremely lucky to find the turning point just clear of low cloud so that I could photograph it from 17,000ft after scraping a hole in the ice on the inside of the canopy for the cameras to see through.

On one day my flight consisted simply of two cu-nim climbs. A climb to about 17,000ft soon after crossing the line was followed by a nerve-racking piece of dead-reckoning which—more by good luck than good judgment—brought me out of cloud only three miles from the first turnpoint. After getting my photographs, another brewing cu-nim presented itself only a short distance away, and I went back to 19,000ft. Again I was able to photograph the second turnpoint from a fair height, but this time I did not have enough height to glide back to base, and had to land out for a distance of 182km using two thermals.

On both these days I got first place, and on a third day, with two climbs to 19,000ft-odd, I was second, so it is fairly clear that cu-nim flying had a lot to do with the outcome of the Championships.

To sum up, the whole Championships was quite an experience for all four of us, and we wouldn't have missed it for anything.

BEGINNER'S WORLD

By ALVARO de ORLEANS-BOURBON

HAVE you ever wondered what would happen if a comparative beginner tried to compete in the World Gliding Championships? I think I can tell you.

First some background. I am a 25-year old electronic engineering student and I saw a glider for the first time on April 17, 1970; my girl friend made me try it. The same year in October I bought a 50% share in a used SHK, in

June 1971 got my goal Diamond and in August won the beginner's class in the Italian Nationals.

At this point I had some 200 gliding hours. Although I live in Rome, once a year I go to my mother country, Spain, to see my grandfather; there I met some Spanish glider pilots and asked them why no Spanish team had been sent to Marfa. I thus learnt about the sad condition of Spanish high performance gliding: There is only one plastic glider, a Phoebus. I also learnt that nobody was planning to go to Yugoslavia.

Then I realised that, due to a set of favourable circumstances, it was at least theoretically possible for me to compete at Vrsac. I wrote to the gliding representative of the Real Aeroclub de Espana, chief DC-8 pilot of Iberia Airlines. He came to Rome, asked me a few questions, and a week later I got from him a letter with an incredible "OK". I clearly hadn't told him it would be my second contest! It was late in October.

PREPARATION

First of all I had to decide in which class to compete and then find a ship; with great luck I found a beautiful used ASW-15, after having chosen Standard Class for economic and ease-of-handling reasons. The Italian team members with great kindness allowed me to listen to their preparatory meetings and there I learned a lot. In January I paid a two-day visit to Vrsac and found that the main problems were navigation, mud and the Serbo-Croatian language.

Navigation was solved by learning it from the Jeppesen Manuals and by getting the "secret" American tactical pilotage charts that everybody had. Mud was fought with a big second-hand Citroen which I consider inferior only to the Range Rovers used by the British team. A young engineering student from Zagreb agreed to participate in the Spanish team solving thus all our language difficulties; he was to prove invaluable.

In February the instruments were chosen and a new instrument panel built, and in March I brought the ship to the Italian Glasflügel factory, where many small modifications were carried out. I never managed to get the wheel brake to

brake as it should—any suggestions? Water ballast installation was found to be exceedingly difficult, so I stowed 50lbs of removable lead in the fuselage, and always flew with them. Being, in my judgment, quite a bad pilot, I decided that the gains expected in varying the wing loading according to the normal variations of weather conditions would be more than cancelled out by my inability to adapt myself rapidly to the different handling of the glider. Maybe this reasoning was only a subconscious effort to protect myself from the feeling of being at a disadvantage with respect to the pilots who had water ballast. I felt happy with my substitute, and as it turned out, water ballast was often of very minor importance in the conditions found in Yugoslavia.

PRACTICE

From April to June I practised, mainly on week-ends; I concentrated on cloud flying, never doing triangles larger than 250km. A big error I made was not to practise in very weak conditions; the meteorological Bulletin 04 promised strong conditions at Vrsac (and they usually were; what the Bulletin didn't say was that they ceased 10 miles from the field!)

Crew: Apart from my girl friend, who owns the other 50% of the glider and has some hundred hours, the other two had never seen a glider before. This proved to be of absolutely no importance—I now believe that a clever non-gliding crew is easier to find, learns the simple job in one or two days and is superior to a lazy bunch of glider pilots, who mainly come to enjoy the scenery. Of course willing glider pilots are better, but very scarce!

In June, a few days before leaving, came good news: The Real Aeroclub was to pay me all expenses. Just in time, I might add, as I was facing a "liquidity" crisis...

The trip to Vrsac was straightforward. The first minutes I flew in Vrsac were to me almost a shock: Having always flown in Rieti, Italy, where it is very mountainous, this infinitely flat plain, broken only by the small hill of Vrsac, made me almost dizzy. Navigation proved to be a problem only on the first day, in which I flew the practice 100km triangle.

The other practice days were not bad.

I remember a beautiful 300km triangle where I had enormous fun. I managed to fly some stretches with Reichmann, and I think I learnt quite a bit. In dolphining he often flies to the side of the cloud indicating the probable position of the thermal. When he finds lift, he pulls up and turns towards the centre of the cloud, and with this technique he manages to stay longer in the thermal without turning.

The first competition day arrived: A 350km triangle. The Met man announced greater stability towards the north-west and of course I went too far in that direction and spent half an hour circling over the rooftops of some nameless village waiting for the salvation thermal to strengthen. Fortunately it did and I completed the course, 29th with 834 points; some pilots took wrong photos and this put me in 26th place.

Next day a race to the Greek border. After flying for 50 miles between 600 and 1,200ft, I should have reached the good conditions I had heard about on the radio. When there I crossed a valley, hit continuous sink and landed on the other side, at 2pm. The police were quite uncooperative; I came 47th with 449 points, but was happy not to have damaged the glider in the third off-field landing of my gliding career.

DAYS OF RAIN

Then many days of rain followed, in which we rapidly exhausted all our reserves of patience and cheerfulness. On July 15 a task was set, but almost everybody refused to leave the airport area, and with reason.

On the 16th, after releasing, I found 6-7kt lift to 8,000ft, waited an hour, crossed the start line, climbed again to 8,000ft and left the field at a careful 70kts. Down to 5,000ft, I flew at max L/D and landed after exactly 50 miles in Bernard Fitchett's field. We waited two hours but were not in a conversational mood; when Bernard's Range Rover arrived he towed my glider to the far end of the mile-long muddy field—his kind gesture saved me two hours of hauling glider parts to the edge of the field on which my Citroen couldn't go. I always took great care to land in a field

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adjacent to some major asphalted road—local farm roads were practically impassable because of the most viciously sticky and slippery mud I had ever seen.

Next day I found out I was 47th on the cumulative placing list. This annoyed me because so far I hadn't learnt what I had done wrong.

The day's task was a short 214km triangle, and cumulonimbus were foreseen. Waiting to start I went over the Rumanian border to find exceptional conditions, 10kts to a 9,000ft high cloud-base. After crossing the start line the first cloud had rain under it. I was almost landing 20 miles out of Vrsac when I found a weak blue thermal that condensed during my climb and lifted me to 13,000ft where I left it to avoid ice—a mistake. I had oxygen and should have climbed higher. Then on the third leg the cumulonimbus that killed the Hungarian Lajos Varkozi, gave me a little lift in front of the rain, but I had to land nine miles short of the field for 29th place 43rd overall.

The fifth task found me waiting at 12,000ft like a DC-8 at Kennedy Airport until the storm over the first turning point subsided, allowing me to take the photo. Then, with the remaining 6,000ft, I glided in dead air until I touched ground, 98km after the start. Two more kilometres and the task would have been valid, as I was tenth, and at least ten pilots had to cover the qualification distance of 100km—too bad. It would have greatly benefited my rickety beginning.

Next day was the best of the whole competition, at least I think. I started very early for an out-and-return of 252km and had to crawl across the Danube, but after that conditions became very good—13,000ft over the turning point brought me home with only one

more thermal, finishing eleventh and rising to 37th overall. That day Wroblewski came first beating me by one hour—and still I was eleventh!

DAY OF DANGER

The last day was in my opinion very, very dangerous and this could be seen before starting. All 88 gliders were sent along the same short triangle, with 1,800ft cloudbases and 7/8 cu-nimb forecasted for 13.00. Climbing in cloud, I managed to pass the starting line at 3,000ft, with clouds far lower than me. Then I got really scared at cloudbase, where everybody wanted to be, as lift was $\frac{1}{2}$ to 2kts; black shadows kept appearing all around me and I made a five miles right angle deviation shortly after the start to get a cloud all for myself. If cloudflying had not been allowed that day, I think it would have been a catastrophe, because instead of a "I-don't-see you-but-hope-well" separation of many thousands of feet, the same kind of separation would have been applied within the 300ft of the irregularly high cloudbases, with obvious increase of risk.

That cloud I found pulled me up to the usual 13,000ft with the highest final rate of climb I had ever seen—50kts—perfectly smooth, and getting out of cloud felt like stopping a very fast elevator. I got over the first turning point at 5,500ft, was very lucky to find it through a hole and be able to photograph it; then I entered another of the closely spaced vertical cumulus towers and in a few instants was back to 13,000ft, where I got out heading west, only to find myself vertically over Belgrade International Airport, watching a DC-8 take off.

Towards the second TP there were

cloud layers higher and lower than me and towers to the left and to the right; I was in a big dark hole in the middle. I only found a slight drizzle, but the darkness made map reading difficult. After 20 miles the lower layer broke and the ground became visible. With clock and compass I arrived over the second TP, an airport, with 3,000ft. It was very cold, raining, and I had heard that a pilot had to launch himself with the parachute. I decided to land there; if I had kept going on I now know that I would have probably been third instead of tenth for that day, but maybe with a broken ship, because I was tired. Final general placing 26th; Bernard Fitchett beat me by one point!

What I have learnt: First, I made many tactical blunders, mainly due to obvious inexperience. Second, my knowledge of meteorology proved very inadequate, I had to interpret the forecasts by myself and could not easily read the unfamiliar tephigram used there, nor interpret the upper level synoptic charts, important for thunderstorms, because I never learned it. This for instance made me start too early on the best day. Third, I had not practised enough in very weak weather, $\frac{1}{2}$ kt and less. Fourth, my athletic condition should have been better.

What went well? My ground team, headed by my girl friend Giovanna, was above praise. The whole system (glider, instruments, trailer, car, communications) worked without a single hitch; navigation didn't offer many difficulties; the team captain, Juan Alegret of Barcelona, was very efficient, checking all scoring and acting as a perfect buffer between me and the organisation, and, most important of all, the little Spanish team had great fun.

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*Champagne
across the bows?
Justin Wills about
to be launched
(see p477)*

Considerable interest in hang gliding has arisen in Britain over the past year, and we present below two articles which, it is hoped, will help reduce the number of bruises sustained by experimenters with this form of flying. It should be emphasised that, for various reasons, the BGA has decided for the time being not to exercise control over this sport, but rather to encourage its growth under its own organisation. As a result, therefore, CFIs of BGA gliding clubs should note that hang gliding must not take place from their sites.

FLYING THE ROGALLO SAILWING

By G. McBROOM and L. HOCKINGS

FOLLOWING the articles on hang gliding in S&G, a group of six of us built one, a Rogallo Sailwing, which has now been flying for many months.

We suspect that others are building similar craft, or at least toying with the idea, and might benefit from hearing of many of the mistakes we made, often painful.

The following is a brief description of how to fly the Rogallo Sailwing, including some of the difficulties we encountered.

THE SITE

It may sound obvious, but it is essential that a good site is chosen for the first attempts. Ideally it should consist of a 1 in 4 slope, approximately 50

yards long and levelling off to a comparable length of flat ground for landing at the bottom.

The early landings often look like headlong rugby tackles on an invisible man, so make sure the ground is soft and free of large stones. Always wear a crash helmet. The initial navigation will be a bit random, hence there should be no trees, fence posts, etc, within likely range to either side.

WEATHER

First flights should take place with a wind of 5-10kts on to the slope. If the wind is less than this, the pilot will have difficulty in controlling the craft while sprinting flat out. If windier, there is a

danger of the sailwing being blown over if mishandled.

CONTROL

The pilot sits on a swing seat and holds on to the A-frame just in front of him. All control is effected by movement of the pilot's weight.

For instance, if he wishes to increase his speed he draws himself forward by pulling on the A-frame so that his weight, now nearer the nose, will tend to tip the sailwing nose down. The craft will now accelerate forwards.

Similarly, if he wishes to reduce his speed he should push himself back from the A-frame.

Turns are made by the pilot pushing himself out to the side in the direction he wishes to go.

The response to all these movements is positive, but sluggish in comparison with a conventional sailplane. However, with such a slow flying speed, tight turns are possible.

TAKE-OFF

The pilot, strapped to his seat, holds the sailwing aloft with the nose just high enough for the sail to fill out. He must ensure that he is lifting the craft high enough for the seat supports to be taut. This is very important since, if the seat supports are loose, the pilot will have no control over the machine. He then accelerates forward, either walking or running, until he becomes airborne. If the wind is the correct strength this will take no more than a few steps. During the take-off run he must steer the craft in the same way as in full flight—by moving himself to the side in which he wishes to turn. Once airborne the pilot raises his legs and assumes a comfortable sitting position on the seat.

The two common faults are getting the nose too high or getting it too low.

With the nose too high the pilot will have great difficulty in accelerating forwards, as he is pulling the equivalent of an open parachute. If the nose is too low the sailwing will refuse to lift the pilot, despite an ever-increasing speed. This situation ends with the pilot falling forwards when his legs can no longer cope.

The biggest danger of all is when the nose is allowed to rise after take-off. The

craft will rise steeply into the air for perhaps 40ft or so, and descend in a stalled condition. This rarely happens, however, and is prevented by the pilot bringing himself forward if he feels he is leaping away from the ground.

This stall looks and feels horrifying, but the sailwing acts like a parachute and the result is similar to jumping from a six foot wall. If the pilot lands on his feet with his legs slightly bent he will probably not even fall over.

LANDING

The pilot should maintain his flying speed until he is approximately 5-10ft from the more level ground at the bottom of the slope. At this point he must straighten himself into a standing position. He now reduces his speed by pushing himself steadily back from the A-frame so that when he touches down his arms are fully extended, producing the minimum flying speed.

The start of the round-out must not be too late, as with the rather sluggish response it would be possible to fly into the ground at a higher speed than intended.

Right from the start, the pilot must avoid making "backside" landings; all landings should be on the feet.

In case you are now sawing up your nearly completed sailwings, we must hasten to add that our craft has proved a delight to fly and shows real promise as a viable ridge-soaring machine. It has certainly been well worth the bumps and bruises acquired while learning to fly it.



*Airborne! Justin Wills and the Marlborough downs
Photos: Philip Wills*

ON BEING A ROGALLO DAD

By PHILIP WILLS

IN 1927, at the age of 20, I scared the lights out of my parents by learning to fly. They did their best to stop me, but fortunately failed. One consequence of this was that I felt fairly confident that my own children could find nothing left to scare *me*, but if they succeeded I realised that I was in no position to object. Our youngest, Justin, has nearly succeeded, on the first count anyway.

A month or so ago he arrived home with a large rolled-up sheet of transparent plastic, a few lengths of aluminium tube, some wire and yards and yards of sticky tape. In the course of a weekend, for the expenditure of some £35, he had knocked up a Rosallo.

A Rogallo looks like a large diamond-shaped kite, under which the owner dangles at the end of a piece of string. In front of him hangs an A-shaped pole which is rigidly connected to the kite above. By pushing yourself away from the pole your weight moves backwards, hence the nose of the kite lifts and you climb. Pull your body towards the pole and you dive, to the left and you turn left, right, right. Right?

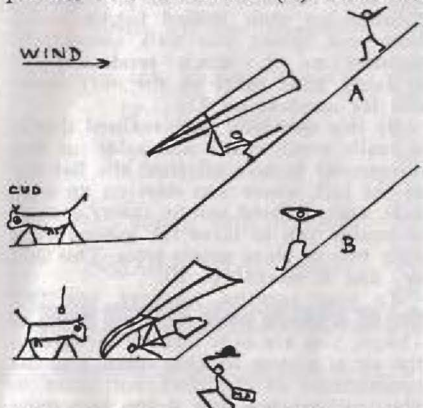
The contraption weighs about 35lbs when you hang your 140lbs on it; then it has a wing loading of under 1lb per square foot, and it takes off at around 12mph. If . . .

Carrying the thing, you clamber up a very carefully selected hill. It must exactly face the wind. It must have an almost smooth slope of between 1 in 2 and 1 in 3 (which makes clambering quite a job) and it must have an unobstructed field at the bottom. There aren't many available, but the country round Marlborough seems the most favourable we have yet found.

Since you aren't exactly brimming with confidence at first, you only clamber up a fairly short way for the first try. You stand the thing right way up, with its nose on the ground, strap yourself to the rope, and lift it up.

What you haven't realised is that, when standing on a steep slope, the nose of the kite has to be lifted much higher than

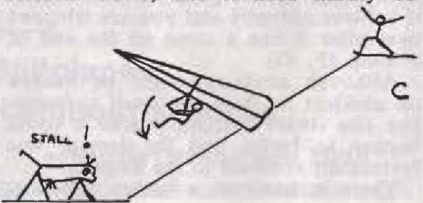
you think, otherwise the wind is still blowing against its *top* surface. As you start running, the wind will force the thing more and more nose-down, you push the bar as far away as you can, and end up practically head to foot parallel with the hillside (A). Then the



nose of the kite plants itself in the ground like a turnip (B), and your speed reduces from say 10mph to zero in the twink of a black eye as you proceed head first through the kite itself.

After accident no 1, you arrive home Sunday night, limping and with a sprained wrist. Monday and Tuesday mornings your parent or girl friend has to tie your shoelaces, knot your tie, and fasten your port cuff-link. By Wednesday you can do the shoelaces yourself. Thursday the tie, Friday the lot, leaving Saturday to repair the Rogallo and Sunday to set off for accident no 2.

Accident no 2 (C) is the reverse of accident no 1, and it need hardly be



painful at all. You have become so scared of starting to run with the nose too low that you now start to run with it too high. The thing has now become a drogue, and is hopelessly stalled.

You leave the ground for a moment, and sink back to it at an alarming rate. Your legs strike the hillside and you try desperately to run still harder. You progress down the hill in a series of grasshopper leaps, each landing more audibly thumping than the last. If you keep your legs down and don't execute any of these landings on your behind (which could hurt your spine), you walk away from accident no 2, which produces you in fairly good heart on the next weekend for accident no 3.

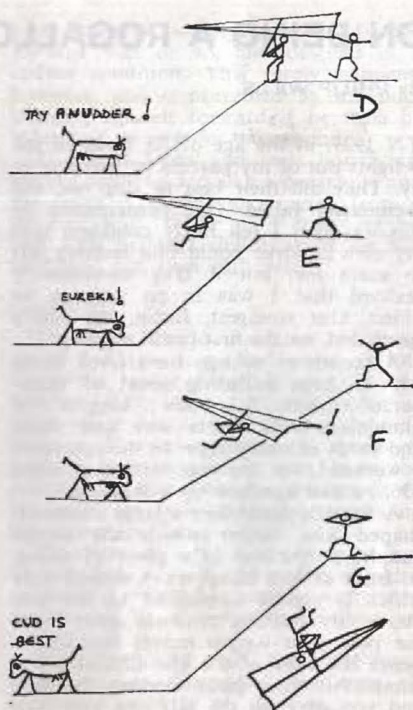
By this time you have realised that it is really much easier and safer (or less dangerous) to take off from the flat top of the hill, where you start on an even keel, and the wind will be strong enough to enable you to leave the ground after only two or three gentle trots. This you do, and it works (D, E).

To your surprise, however, you find that in a 12mph wind, with you flying at 15mph, you are only moving forward in the air at a slow walking speed, and the consequence of this does not occur to you until too late. For if you turn more than a few degrees, so little that you may not even notice it as you peer anxiously forward, (though to your nervous friends standing on the hill behind you it is all too clear) the very slight cross-wind component produces an alarming amount of drift, and you are carried sideways and backwards into the hill (which of course you cannot see because it is behind you).

The leeward trailing edge of the kite strikes the hillside at, say, one mile an hour, and the whole affair is blown over on to its back. For a moment you don't know what is going on, for you are to your surprise standing again on the ground and the rope on which you have been dangling has gone loose. But then it tightens abruptly and you are whipped over after it like a stone on the end of a sling (F, G).

Although anything might be broken on accident no 3, it happened to someone else (twice running) before it could happen to Justin, and the damage was fortunately confined to the Rogallo.

There is, however, a boring variation.



Accident 3B happens when you are standing up facing into wind and even before leaving the ground. There is a slight change of wind direction, due to a gust or whatever. The into-wind wing then lifts uncontrollably, the other tip digs into the ground, and the subsequent gyration is the same (probably slightly less so) than in accident no 3 proper. This accident is mitigated by someone holding a wing-tip firmly as long as he can.

Variations of these mishaps and subsequent repairs led to a moment when we could assess the cost of under five minutes flying at around £10 in material alone, so don't take to it on the grounds that it is not expensive per hour of achieved flight. Or that pride will be the dominant emotion infusing the parental breasts as your pathetically waving and insubstantial legs pass over their heads.

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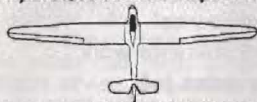
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ITFORD AFTER FIFTY YEARS

By A. E. SLATER

"GLIDING: the first 50 years" was the title of the programme put out by Southdown Gliding Club for its display on September 3 to celebrate the 50th anniversary of the first British gliding contest.

That contest was held from October 16 to 21, 1922; the *Daily Mail* sponsored it and the Royal Aero Club organised it. Itford Hill, the chosen site, is at the western end of a long line of Downs whose highest point is at Firle Beacon, the Southdown Club's present site.

The astonishing thing was that, prior to the meeting, hardly anybody in aviation, much less the general public, seemed to have the slightest idea how slope-soaring could be done. Two months earlier, German pilots had made simple slope-soaring flights of one, two and three hours; yet stories went around that the Germans smeared sensitising ointments on their cheeks to detect "currents", and that the German site, the Wasserkuppe, had some unique features that produced "currents" which were not to be found elsewhere.

By the merest good luck, a northerly or northeasterly wind blew up the Itford-Firle escarpment throughout that week. If it had been southerly, no soaring would have been done, and nearly everyone in aviation would, I am convinced, have said that this only proved the uniqueness of the Wasserkuppe region.

Well, 1922 Itford was successful: Ten pilots soared for a total of 9½ hours—among them Maneyrol of France, who put up a world duration record of 3 hours 21 minutes. Yet it did not lead to any more soaring in Britain for over seven years. People said that slope-soaring was boring.

Then, in 1929, came news of long distances being flown across country in Germany by Robert Kronfeld and others, using cloud lift. This was considered by no means boring, so in December that year the British Gliding Association was formed, and another Itford meeting was held in June, 1930, at which Kronfeld flew 50 miles along the South Downs,

there being, by more good luck, again a northerly wind.

Ten years ago, the 40th anniversary of Itford 1922 was celebrated by a reunion at the Kronfeld Club; two of the original pilots, Gordon England and Rex Stocken, came, and several others didn't quite make it.

And now comes the 50th anniversary, celebrated (though six weeks early for convenience) by a magnificent show put on by the Southdown Club. Again, two of the 1922 pilots turned up—this time Gordon England and John Jeyes; also Clarence Winchester, who entered a machine but did not fly it. Among other "veterans" of British Gliding were two believed to be in their nineties: Mr Volk, whose Volk Cup is still awarded annually, and Lord Gage, who owns the site and has given permission for every gliding activity on it from 1922 onwards.

Owners of "veteran" gliders were invited too, and two classes were envisaged—before and after 1925. But nobody could raise a glider of earlier date than 1937, though the earliest design was that of the Grunau Baby in 1932. So two classes of "Vintage" gliders were instituted instead: up to 1939 and from 1940 to 1952.

The resulting "Vintage" glider competition was the outstanding event of the meeting, and once again, by the greatest good luck, a strong NE wind blew and enabled most of them to soar along the Firle-Alfriston beat.

While they were doing so, two brave hang-glider pilots, flying Rogallo types, took off from well below the top and were quickly carried up well above the hill, but their forward airspeed was not enough to prevent them being blown back into the sink, and they had to make awkward landings behind the crest. (A reminiscence: In 1922 I watched each launch from directly behind the glider, assuming that any loss of control would be due to a sudden side-gust; in 1972 I watched the hang-gliders from one side, on the assumption that, if anything went wrong, they would come down directly

downwind of the launch point.)

Many of the vintage gliders soared beautifully, inducing much nostalgia among those onlookers who had not seen such a sight for 10 or 20 years; the Minimoa, with its gull wings, looked particularly pleasing.

On the ground, too, was a real quasi-veteran: A full-sized replica of Sir George Cayley's largest model glider, the original of which was produced in 1853, shortly before the world's first manned glider flight. Also remaining on the ground was a third hang-glider of different type which did not look very safe to the knowledgeable and, to their satisfaction, its owner made no attempt to fly it.

Another group of aircraft was that of radio-controlled gliders, which soared aerobatically with much verve.

The vintage gliders had to be rigged within an hour, chiefly to let the great crowd of spectators see how it was done; then they had to demonstrate a "normal and sensible flight". But, apart from these two conditions, the real contest took the form of a "concours d'elegance", for which two silver cups were offered by the BGA and were presented by Lord Gage.

Winner in the pre-war class was the Minimoa, built in 1937, rebuilt by Ken Fripp, and entered by John Coxon. Highly commended was the Rhönbussard, also built in 1937, entered by Graham Saw and M. L. Beach, who had prepared it with much care.

The later group, being in pretty good condition to start with, was more difficult to judge for elegance; the prize was awarded by the judges unanimously to the Olympia 1, called "Jacob's Ladder" and entered by P. J. Walker.

A list of entries is given below, showing type, date of construction, and entrant.

Class 1925-1939

Minimoa, 1937, J. Coxon; Gull 1, 1937, T. Smallwood; Rhönbussard, 1937, G. Saw; Petrel, 1938-9, R. Davidson; Viking 1, 1938-9, L. Glover; Kite 1, 1939, E. A. Hull; Grunau Baby 2b, 1939, P. Bourne.

Class 1940-1952

Weihe, 1943, R. D. Brister; Olympia 1, 1947, P. J. Walker; Goevier, 1948, K. C. Crack; Olympia 1, 1947, P. A. Doyle; Slingsby Sky, 1951, P. L. Cyster; Tutor, 1946, Hodgson, Kitchen & Kingswood.

PLATYPUS SCRIBBLES AGAIN



MORE OUT-AND-RETURNS

IT really is staggering. No sooner had my worn-out quill been rested in the inkhorn, the parchment dried with white sand and the Platypus seal impressed upon it, the naked messenger despatched hotfoot with the manuscript in a cleft stick towards the rumbling presses of S&G, than do all my prophetic insights find dramatic confirmation! (What on earth is the old idiot mauling on about now? Can't he explain before the men in the white coats arrive?)

Well, what it is all about is the profound if incomprehensible article in the

last S&G in which we said that glider performance certainly is not showing diminishing returns and that if out-and-return records were taken as a fairer criterion than the downwind dash, performances were getting better at a very healthy rate.

I only had performances in Britain to go by, with the kind help of BGA statistics (though I felt sure that the story was equally valid elsewhere). Anyhow, within days the world out-and-return record is trampled and torn to bits, not once but four times with flights of 1,003, 1,023, 1,045 and 1,093 kilometres in rapid succession (see p458).

The interesting thing about these flights is that they used wave or hill lift rather than the orthodox circle-glide-circle-glide process which, even with good lift and modern gliders means an awful lot of time wasted going nowhere. The last three flights were fairly low-level beats along the Allegheny Mountains. Since there is little shortage of enormously long mountain ranges (though sadly not here) the record could stretch quite a way further, not even limited by daylight hours.

The people I feel sorry for, besides ourselves of course, are the New Zealanders, who will eventually run out of land when gliding distance records become the monopoly of great continents.

Because of the special nature of these out-and-return records I am beginning to wonder whether this is after all the fairest measure of progress in glider performance as distinct from progress in sheer low cunning (or high cunning) of pilots. Perhaps there ought to be a world *triangular* distance record, not for the sake of pilots, of course, but for us statisticians. Now let me see . . . ("There goes the old buzzard again; give him a bent slide rule and a sheaf of manufacturers' polar curves and he'll prove anything. Well, it keeps him out of our thermals, etc, etc.")

KAMIKAZE HOURS

Talking about figures, you ought to read a book called "How to lie with statistics" by Darrell Huff. The fact is that most people mislead themselves or others with figures by accident rather than design.

For instance, some while ago I saw a graph which purported to show the accident rate among pilots of different levels of experience (S&G April, 1970, p145). When I showed this graph—which was factually accurate—to different individuals, each one took the graph to mean that the most accident-prone people were pilots of between 100 and 200 hours' experience. What they had *not* noticed was that the only reason the 100-200 hour group looked like a squadron of Kamikazes was that the less experienced groups had been split up into *much smaller* bands, under 3 hours, 3-6 hours,

20-30 hours and so on. If the 100-200 hour group had likewise been split up into 100-110, 110-120 hours and so on, the bars indicating numbers of accidents would each have been about one-tenth of the height that was shown.

Even so, although that would have reduced the misleading impression, we would still be short of the real picture we needed, since we don't know how many launches or hours are done by *all* pilots of different degrees of experience. We only know about the prangers and have no totals on which to percentage them. The charts can't tell us whether, for instance, the early solo pilot does £10 worth of damage for every 100 launches and the 200-hour man only £5 (or £50, on the basis of fewer but bigger bangs). There aren't any sources I know of that tell us these basic statistics, so most of the conclusions we draw are common-sense rather than scientific deduction. But since we cannot be scientific, we must take care not to mislead ourselves that we are being so by drawing graphs that look scientific when they are not. So there.

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BALLAD

A glider driver bold was he,
A maiden unsuspecting she,
He landed one day near her home,
Demanding tea and telephone.



And then her heart it gave a bound,
To see him there safe on the ground,
So handsome gay and debonair,
The answer to that maiden's prayer.



What followed here is sad to tell,
He drove away as darkness fell,
And tho' devotion he did swear,
He soon forgot that maiden fair.



Dear Sir, our client wishes us,
To say that tho' she wants no fuss,
500 smackers more or less,
Will keep this matter from the press.



Her dainty heart it skipped a beat,
Steep turns at five and twenty feet,
The trees were very, very tall,
The field was very, very small.



They dallied there for many hours,
Among the birds and bees and flowers,
And when at last the trailer came,
Alas she'd lost her maiden name.



Till after many moons there came,
A letter headed with the name,
Of Swindle, Swindle, Son & Sinn,
Solicitors of Lincolns Inn.



The moral here is plain to see,
The ordinary flying fee,
Is less expensive than you thought,
Compared with other forms of sport.

GLIDING—COMPETITIONS AND CLOUD FLYING

By HELMUT REICHMANN

CLOUD flying is without doubt an important part of gliding. There is an unparalleled beauty available to the glider pilot through the splendid possibilities it opens up. The man who is only allowed to fly below cloudbase must appear to the pilot who is permitted to cloud-fly—quite rightly—to be merely a partial pilot.

Convection does not stop at cloud base; in fact the opposite happens for the condensation results in increased lift. There are, even today, some meteorological phenomena which cannot be explained and are relatively unexplored; for instance, the existence of thermal waves above the convection layer, effects similar to ridge lift along the sides of some clouds, which happen with wind changes at different height levels, etc. In the case of record attempts, cloud flying can be very profitable indeed.

In short, the aim should be to retain cloud flying in gliding wherever this is at present possible, and to obtain at least partial permission for it in those countries where at present it is not allowed.

Of course, cloud flying is not without its dangers, as was unfortunately made only too clear at Vrsac. Hans Voss of East Germany had 30m/sec showing on his variometer in a cu-nim. This means more than 100km/h vertical climb. Neither the powerful airbrakes of the Cobra, nor any other manoeuvring of the controls brought the needle down. It is not surprising that in such a "vertical storm" hailstones formed of such a size that the leading edge, canopy, fuselage and elevator were seriously damaged by the impact (see S&G, October, p398).

Voss celebrated his 'second' birthday on this day while Hungarian Varkozi could not give an account of his experiences... Everyone at Vrsac who flew in cloud on this day or on days with similar weather could have had the same thing happen to him—and it was so on almost every day. Hardly any one of us would have had the crazy idea to expose himself to such extremes of instability (whole

thunderstorms building up within 15 minutes) unless, and unless only, it was because of a competition, especially with a world title at stake. Turbulence, lightning strike, cloudbase dropping down, particularly in areas of heavy rain and strong downdraughts, are all further atmospheric dangers in moist unstable weather conditions.

A glider pilot should be expected to be experienced and responsible enough to avoid such clouds and to forego blind flying on such days. This he can only do provided the pressures of a competition are not making him put courage before reason, thus giving less responsible pilots an advantage. When indeed, as actually was the case, there is no possibility of maintaining separation—five different radio frequencies being used in all the languages of the world, the maps issued being inaccurate so that pinpointing of a position was nearly impossible—why, then, one is left with the impression that pilots' lives are being treated with unpardonable negligence. It is a pity that, in spite of clear warnings, men's lives have been lost before something will now, it is hoped, be done to change things at international level.

At Vrsac whole gaggles of gliders disappeared into cloud. On the final day, when cloudbase was at about 800m, there was one cloud about 3km away from the site inside which height was gained for crossing the start line; then one popped into it again and out the

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other side. Considering that cloud flying was not permitted within 10km of the site all the pilots who did this, which I put at one-third of the competitors, should have been disqualified. Restrictions which cannot be enforced are useless. It is just a matter of luck that on this day only two gliders collided.

In Great Britain up to the present time, competitions have been held which include cloud flying, but under rules which are exactly set out. And one has to acknowledge the British people stick precisely to the rules even when they cannot be found out! But what is comparatively safe there is not necessarily so elsewhere, and in fact is not so.

The main rules are: Cloud flying within a 5km radius of the site is banned; before entering cloud pilots must change to the cloud flying radio frequency and after giving their position as accurately as possible must ask if any other pilot is already inside the cloud. If so, a minimum separation of 150m is to be maintained (altimeter setting being on QNH), and they must continue to listen and call on that frequency until clear of cloud. When the forecast indicates that the

weather may develop into dangerous thunderstorms then cloud flying for that day is forbidden.

Under these rules the dangers are considerably reduced—so long as one can speak English well enough and has the guarantee that every pilot obeys the rules! The regulation has, however, some important disadvantages from the sporting point of view. First, luck unfortunately plays a part in every gliding competition, and this is made worse with cloud flying. When that last thermal, found by chance, does not stop at cloud-base but can be taken to perhaps 8,000m this will upset the scoring to such an extent that it is no longer a case of comparing the skill of the pilots.

Secondly, when several pilots get to the bottom of a cloud at the same time some of them just have to wait, and so they may suffer by losing points although they are not in any way at fault.

Thirdly, the weighing up of the Met situation during a flight—an important part of competition flying—is avoided by any pilots who happen to be near a cloud inside which someone else is climbing well, because he is obliged to call out his heights over the radio. It is just bad luck for those who are not nearby.

Speaking in general terms, I consider that on days when the weather conditions are marginal it is better to have no cloud flying and no score at all rather than a score achieved by the luck of blind flying in cloud.

On account of the risk of collision, which cannot be fully excluded however many precautions are taken, it would be a better decision not to allow cloud flying in competitions. Thus the authorities could have no reason to impose a complete ban on cloud flying as the result of a collision in cloud.

Conclusions:

1) Cloud flying, apart from the beauty it can give, has possibilities for gaining new knowledge and high performances. It should wherever possible be retained and encouraged.

2) Cloud flying is from the sporting point of view unsuitable for contest flying.

3) At international competitions the responsibility for cloud flying cannot be undertaken as no security against collisions exist.

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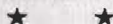
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Our Christmas Card for 1972 is a reproduction of the colour cover from the last December issue of S&G featuring two gliders thermalling in a candle flame. The size of this attractive card is 6"x5" and the price is 50p for a packet of ten cards and envelopes. Postage and packing 8p for the first packet and 5p for each additional packet.



New this year! A limited number of 1973 calendars are being produced by BGA and feature cut-away black and white technical drawings of 6 current British sailplanes. The models illustrated are Sigma, Torva, Kestrel, T61A, BG135 and KH1. The calendars are spiral bound, approximately 16"x19" and priced at £1 each plus 10p for postage and packing.



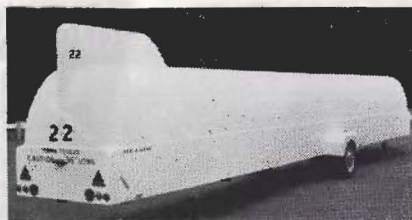
Jonathan Livingstone Seagull — the American best seller by Richard Bach is now available from BGA at £1.50 plus 20p postage and packing. This wonderful story makes an ideal Xmas present for adults and children regardless of whether or not they are soaring enthusiasts.



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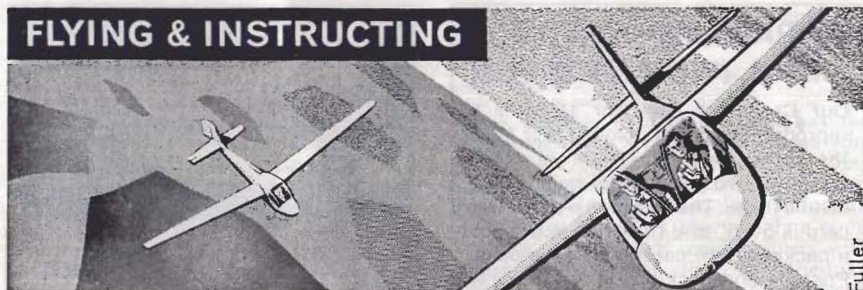
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TEACHING AEROTOWING

Some advice for instructors and beginners

By DEREK PIGGOTT

IT SHOULD be an axiom of all flying instruction that a student should never be taught a method of overcoming a problem which requires bad flying techniques.

But it appears that some quite experienced instructors are still attempting to convince their students that the best way to keep behind the towing aircraft is by using the rudder. Only recently I flew with a somewhat bewildered student who had just spent a week on a course where all four of his course instructors had emphasised this method. This seemed contrary to all he had read and been told before and it is not surprising that he was in a state of bewilderment. After all, his instructors on the course were all fully categorised and included at least one British Record holder.

Something is wrong when two totally different techniques are advocated by instructors without a word of explanation.

Aerotowing is probably one of the more difficult exercises to teach successfully and perhaps some instructors try too hard to give advice which will result in a miracle cure for the problems which are usually overcome by a little more practice.

The first essential is for the instructor himself to be competent. He must be confident that he can rescue any extreme situation that the student may get him into. After the student has had some

practice, the instructor will want to be able to leave the student to try to rescue himself. It is unnerving for the student if the instructor shows signs of being scared himself! A useful test of competence is to try moving quickly from position to position or, better still, get another instructor to put the aircraft to extreme positions for you to recover. (Don't forget to tell the tug pilot before the flight!) An instructor should also be able to prevent a serious snatch and the risk of a rope break when recovering from a position with a big bow in the rope. All this should be possible without blaspheming or the use of excited exclamations.

If all the training is by aerotow it is easy to be overkeen to get the student to do the launch as early as practical. However it does require a fair degree of handling skill and no attempt should be made until the basic co-ordination of the controls has become established.

Many experienced instructors leave the towing until near the end of training knowing that by then it will take only five or six tows to reach a good standard. Like most exercises in gliding, very little can be learned by the student following through on the controls or by just watching the instructor. It is practical experience, trial and error which really enables us to learn and become competent.

The average near-solo student and the person with a few hours of basic training on a motor glider should be ready to start aerotowing and should not need to be driven round the sky by the instructor as is often done.

Most of the problems seem to be due to the weight and inertia of our present-day two-seaters. Certainly they don't occur on the solo machines, and in the "good old days" up to the advent of the Eagle and Capstan it was policy to send off quite inexperienced solo pilots on their first ever aerotow on the Olympia, etc. Of course a careful briefing and ideal smooth and clear conditions were essential, but hundreds of pilots were converted this way without difficulties.

When a two-seater is used a good standard has to be achieved before it is safe to send the student solo. We found that it was easier to send them off in the Olympia than to ruin their morale in a T-21B or Eagle and have to do a large number of tows before they had mastered the art.

I am not advocating going back to the "good old days" but merely trying to point out that aerotowing cannot be all that difficult. Perhaps our instruction is not very effective.

The take-off itself, unless there is an appreciable cross-wind, can always be done by the student although on the first one or two attempts the instructor will want to be ready to take over or help during the climb out until there is enough height to give a margin of safety in the event of a rope break.

Instructors should note that whereas some gliders such as the Olympia and Skylark tow perfectly satisfactorily on the normal winch launching hook, whenever a nose hook is fitted it should be used. On the K-7 and, we have found, K-13, it is not always possible to maintain control of the aerotowing on the rear hook and on these types a broken release spring in the nose hook should make the glider unserviceable for aerotowing. In collaboration with Ray Stafford Allen, the BGA Chief Technical Officer, Lasham has fitted all their K-7's, K-8's and K-13 with external release springs which are easier to replace, less liable to break and require less force to release. This followed several incidents when girl pilots found that the forces

required to open the tow hooks was more than they could apply.

One advantage of dual instruction on aerotowing is that it is not necessary to brief the student on all aspects of aerotowing before the first attempt. A few well chosen words are usually of more use than a thorough briefing. The detail can be filled in on later tows. Most students do have their little problems on the first one or two aerotows and the instructor should always explain that this is normal and that aerotowing is a knack which is usually acquired after three or four tows. Otherwise they tend to get rather despondent at their first efforts.

On the vital actions: The trimmer is set further forward to help prevent the tendency for the glider to climb. Make absolutely sure that the airbrakes are locked correctly since you jeopardise the tug pilot as well as yourself if they come open on the launch.

The acceleration on aerotow is rather slow and therefore it is safe to start with the stick well back to help the nose skid off the ground as soon as possible. When the glider leaves the ground stop it climbing and fly level with the top of the tug. This will require more and more forward movement to hold the glider from climbing as the speed increases. Keep the tug just below you all the time. Just after the tug leaves the ground it usually flies level to gain speed. Watch for the moment when it starts to climb and move yourself up to keep him just below the horizon. Otherwise you will suddenly find yourself below the tug in his wake and in difficulties keeping level. If there is a horizon, keep the tug just below the horizon for 90-150hp tugs, or just above, or as required for higher powered tugs.

Because of the higher speed on tow, the controls are all heavier and more sensitive than normal so make small positive movements. In making corrections up or down do not attempt to get back into the correct position in one go, try to move a few feet at a time. For example if you are getting high, make a very tiny movement forward and then a tiny check movement back to stop the correction after a few feet. Then make further corrections until you are back into position.

If you try to move back in one move you will usually end up going from too

high to too low. Always move down slowly or the glider will accelerate and tend to catch up with the tug. This will leave the rope with a large bow in it.

Moving up, the load in the rope is increased and if the rope is jerked tight as you pull up it may break. Therefore move up or down gradually, a little at a time. If you are too low and the rope has become slack wait until just after it has tightened before starting to pull up. If the rope does get very slack, do not try to tighten it up. Hold your position and let it tighten itself. The rope will not go slack in reasonably smooth air unless you get too high and move down too quickly. (Most students get into problems if they try to relieve the slack on the rope and it is usually better to take over if the bow is a bad one).

Just below the tug lies a region of turbulent air, the wake and slipstream from the tug and its propeller. It is difficult to keep good control in this region so try to avoid getting below the tug and get up out of it as soon as possible.

Try to keep in the correct position and make small corrections promptly to stop getting too far out of position. There are three basic methods of positioning behind the tug. The tug can be kept in constant position in relation to the horizon, (for most tugs just on or just below

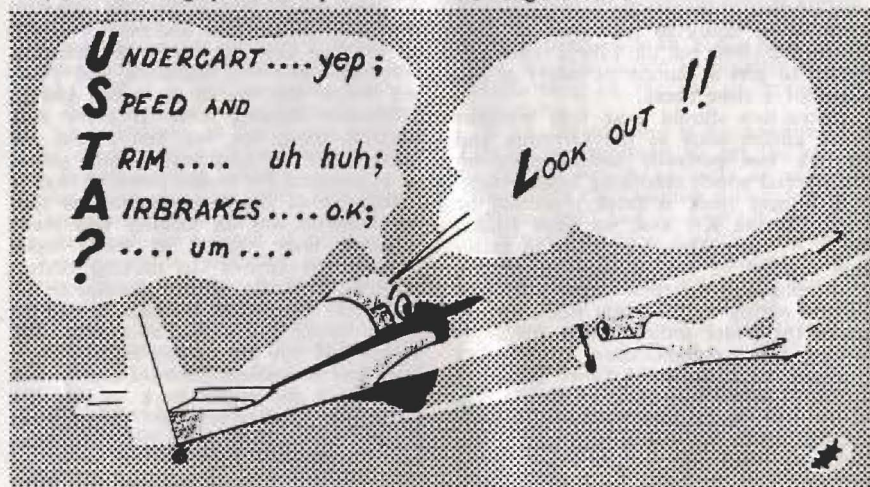
the horizon). This is a simple method on a clear day.

In poor visibility, the correct position can be recognised by the view of the tug. For tugs with tail wheel undercarriages this is usually the view of the tug as it sits on the ground at the end of the rope just before take off. For example, with a Super Cub the tailplane cuts across the junction of the wing and undercarriage struts.

But a better solution, suggested in the American book *Joy of Soaring*, is to attempt to keep the tug in a constant position just above the nose of the glider. This helps to prevent over-controlling because only a very small change of attitude moves the position of the tug in relation to the nose a large amount, and starts a correction which is much more gradual than with other methods.

Once the position of the tug has been found by one of the other methods it is easy to eliminate any difficulties in the up and down positioning by this method.

Quite a good aid to beginners is a thin vertical sight line down the canopy with a cross mark for easy reference. The vertical line needs to be kept at right angles to the tug wings and helps the beginner to detect small angles of bank while holding the tug in position vertically. After a few tows, the line is no longer needed.



Pre-landing check thoughts

Most students have difficulties in keeping behind the tug without swinging from side-to-side violently.

Initially the glider moves out to one side because the wing has dropped. Unless the stick and rudder are used together the aileron drag will yaw the glider even further to the side before the bank begins to turn the glider towards the central position. But the pull of the rope is also helping this swing back so that it tends to happen rather suddenly. A few seconds later the glider has gone across to a position even further out on the other side. In fact, each attempt to get to the correct position tends to end in a violent swing over to the other side.

It is worth considering in a little more detail what happens as we attempt to correct this swinging.

Suppose that the glider is out to the left hand side of the tug and a gentle banking turn is made to the right to bring the glider back. If the wings are brought level after a few seconds when the glider is almost behind the tug, the glider is then flying straight but is still aimed to the right. This results in the glider flying out to the other side instead of keeping station.

In order to make the correction from the left hand side to end up behind and in line with the tug, a gentle S-turn is required. First a co-ordinated, gentle right turn is needed but this must be changed to a gentle left turn as the glider approaches the correct position. Finally, the wings must be brought level using the stick and rudder. The timing of these corrections is not easy for the beginner and as a result any attempt to get back into line quickly almost always results in swinging from side to side.

The error in direction caused by just applying a little bank and then bringing the wings level may not cause trouble for very gradual corrections. For the beginner, the first essential is to stop the oscillation.

Swinging from side-to-side can be stopped by just bringing the wings level and stabilising the position with the glider out to one side. Just bring the wings level, correct any error in positioning vertically but do not try to get back into the middle position. It does no real harm to sit out to one side and if the wings are level the glider will tend

to move back into the correct position on its own. If necessary a very small banking movement can be made using the stick and rudder normally but this should be followed by a small momentary banking movement the other way almost before the position of the tug starts to be affected.

The cause of moving out to one side is almost invariably a small angle of bank and any attempt to stop this by rudder alone can lead to difficulties with the glider slipping out further in spite of the rudder. The correct solution is neat co-ordinated flying and attempts to rudder back into position will only be successful for very small corrections and on some types which have strong lateral stability. It is not a cure all!

Inexperienced pilots often forget the rudder altogether during their attempts to keep in position. This results in constant weaving. It is these pilots who improve if advised to use the rudder alone. Concentrating on the rudder there is a chance that some rudder will be used and that the major cause of the problem—lack of co-ordination—will be corrected. This should be explained to the student.

In reality it is doubtful if anyone tows really successfully by rudder alone and it would certainly result in higher drag than correctly co-ordinated flying. It also tends to create problems in ordinary flight when the habit of using the rudder to initiate moves is obviously a serious error.

On the K-7, K-13, Eagle and Bocian in particular, the over balance or change of rudder loads in slipping and skidding flight adds to the student's problems. The student often thinks that these effects are the instructor on the rudder control and instead of opposing the movement of the rudder against his feet and correcting the slip, he allows it to go on. This can be very confusing and on these types it is essential to give a demonstration of the feeling of the rudder being moved by the airflow or the rudder loads changing in the slips and skids so that it can be recognised and corrected. Of course the instructor must keep his big feet off the rudder unless he is actually taking over to correct a bad situation as they also upset the normal feel and cause confusion.

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Summing up—make small corrections to stop the tug getting out of position. Do not attempt to move back into position up or down on one move. Keep slightly above the tug all the time.

If you start moving out to one side or swinging from side to side do not attempt to get back into the middle position. Just bring the wings level and sit to one side to stabilise the situation. Do not over-control—remember the controls are much more powerful and heavier than at normal flying speeds.

Most beginners find that after three or four tows they get the knack of spotting what is happening quickly and responding to hold the tow plane in position. Once the knack of timing the corrections is acquired, the tows become easy.

Instructors should remember that it is concentrated hard work on aerotow. Always take over completely for at least half a minute in the middle of each early tow to allow the student to look around and relax. Otherwise you can expect the tow to get worse as the student tires. On early tows always emphasise that releasing off aerotow is not like the top of a wire launch.

Never lower the nose before release. In the war, on heavy gliders, we were taught to slacken the rope before release. But this was because the rope ends had very solid plugs to fit into the release in the leading edges of the wings on either side of the fuselage. On release under tension the plugs could swing together into the cockpit on the Horsa and this made it a good idea to relax the rope by getting a little high and then lowering the nose before release.

However this is *not* a good idea with the very clean gliders we fly. If you do this you may find that after release the rope end is thrashing about just near your nose. In fact we smashed a canopy this way some years ago and others have had the towrope over the wing.

It is also unwise to try to put an extra load on the rope to make it more obvious to the tug pilot when you have released. Firstly you may overdo it and pull his tail up, or alternatively you may either break the rope or find that under the extra load it is difficult to release at all. Releasing under *extra* tension is usually the cause of those knots in the rope near the glider end.

If you have been towing a glider when the pilot has opened the airbrakes and pulled up into a climbing turn instead of releasing the rope, you will have very clear ideas on how the release should be taught. Except in emergency, get into the normal position and pull the release twice hard. Only when the rope is *seen* to be released, pull up into a climbing turn left or right, look for the airfield and then retrim the glider. Do not lower the nose or follow the tug after release; pull up and off to one side clear of the rope.

These notes were not intended to be a whole treatise on aerotowing but may help beginners and instructors who have problems.

Remember that all the difficulties are solved by a little practice and that almost every beginner doubts his ability to learn to do it. The knack of seeing the movements and correcting them quickly comes after a very few launches and gimmicks like using the rudder do only little to help and may cause endless problems at a later date.

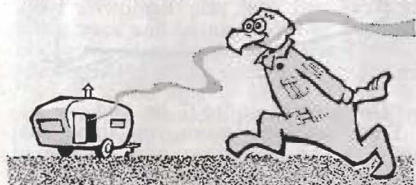
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The Talents Of Church Broughton



By MARION TOFT

IN the beginning, when everyone was queuing for his quota of eyes, a chap in our club was handed a pair of hawks eyes by mistake. As a result, he is always the first to spot anything flying. One day, when he was homing on the smell of



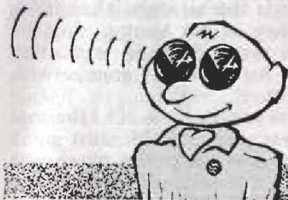
coffee coming from my caravan, I thought I would make him work for his rations. A few moments earlier, I had heard over the radio in my husband's car a crackling, distant voice say, "Chalky to Church Broughton base. Circling at 4,000ft cloudbase over Darley Moor. About to enter cloud."

"Now then," I thought, "not even Hawkeyes could spot that." Darley Moor is at least five miles from our airfield. So I asked him, all innocent eyes and smiles, "Seen the Libelle lately?"

He tore his eyes from the coffee cups and, mouth drooling, scanned the sky. He was searching the vast hemisphere of heaven for a white dot which might be in a cloud miles away, but I didn't

tell him that. Suddenly his eyes flickered. He was staring towards the south, and since Darley Moor is to the north I put my hand over my mouth so that the grin didn't show.

And then, as though an X-ray had triggered some mechanism in his brain, he swivelled on his heel through exactly 180 degrees and lined up with the track to Darley Moor. His eyes slowly traversed the sky, up and down, side to side, methodically like a radar scanner. Click.



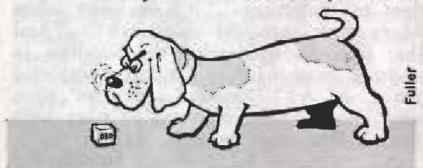
They stopped, trained to a spot at infinity. "There it is," he said. "About five miles away towards Darley Moor. Just about to enter that anvil-shaped cloud."

I seized a pair of binoculars and focused them on infinity. A white glider swam briefly round the field of view, flickered and was gone, swallowed up by an enormous cu-nim.

"Coffee?" said Hawkeyes.

"It's yours."

Talking about coffee, there is another chap in our club who can scent coffee from 5,000ft. The only other person I know who can smell as well is our Basset hound, Fred. (With apologies to Graham, but I imagine that 90% of Basset hounds in the country are called Fred.) He has



Brennig James

Wit, Savant, Sportsman, Poet (Poet! you must be joking? Ed.) Would you believe composer of obscene limericks? (No, and get on with it, Ed.) How about Vendor of Boomerangs to the Antipodes? (I give up, Ed.) salutes his fellow pilots and wishes them a Merry Christmas

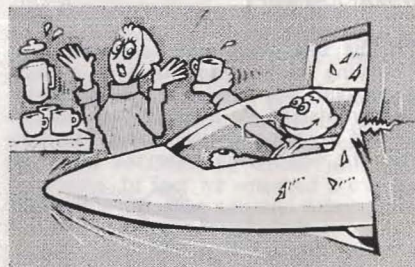
been known to track down a concealed cube of meat from 50 paces. He invariably smells hares before he sees them. The procedure is this: Trotting across a field, he stops in his tracks, raises his nose like a periscope and twitches the black end violently; his tail is lifted and wagged in symmetry. Then, with a businesslike "Woof", he gallops towards the scent of hare, with nose down and (I think) eyes closed. The only difficulty now is that Fred's VNE is 10kts, while the hare is already at a comfortable cruising speed of 50kts. Never the twain shall meet.

Now this fellow Fred at our gliding club has a similar technique. He may be DI'ing an aircraft, or chatting to a mate, or even strapping himself into a cockpit. But as soon as I start to pour out the coffee, he stops in his tracks, lifts his nose and, twitching it, turns until he is pointing towards the caravan. Then, with the resonant bay of the hunting dog, he lopes towards the coffee and is waiting with the 3p in his hand as I emerge with the loaded tray.

Once, he was soaring in a 10kt thermal at 5,000ft over the airfield. Just as I started to pour out the coffee, there was a flurry of air, the sort you get when a thermal leaves the ground. It must have wafted the coffee scent straight up to Fred in his Libelle, because at that precise moment he opened his airbrakes and dived. Now, Libelles are notorious for being difficult to stop because of their clean lines. You can't land them on a

sixpence like a K-13. But Fred landed it so accurately that he didn't even have to get out of the cockpit to take his coffee.

He touched down at the end of the runway, taxied straight up to the caravan and sat there, wings quivering, and a grin on his face. He also had 3p in his hand.



"Did I smell coffee?" he said.

Does anything make you think that coffee is an important part of life at Church Broughton? No kidding, if I so much as help to retrieve a glider, by the time I get back someone is waiting by the caravan, 3p in his hand, saying "Is there any coffee?" Once, I went to the winch to learn how to launch gliders. When I came back, an hour later, a queue formed beside the caravan in 10 seconds flat. All asking for coffee.

I am fast coming to the conclusion that, while some people can see like hawks, some can smell like Basset hounds, and others fly like birds, my talent is in wielding the kettle and cups.

ON GLIDING FOR THE BIRDS

By RHODA PARTRIDGE

THERE's one thing that's certain about women flying gliders: There aren't many of them. Ugly cries of "Thank heaven for that!" "Reduce a fleet to matchwood." "Remember when Mary flew into the windsock?" "And that time Molly landed the Swallow in a dung heap when we'd just completed the C of A?" "Gliders are boys' toys, girls shouldn't be allowed to play with them." (I'm quoting you, Ralph).

All right, so it's a man's world. But

you have to admit, reluctantly, that there are some women who fly really beautifully and, conversely, I occasionally meet a man who has similar flying experience and who is as inept as I am.

So why are there so few women who fly gliders? Two reasons—finance and child rearing. Very few girls are well enough paid to run a car and fly gliders. During the child bearing and rearing period it's almost impossible for them to organise their lives to fit gliding in. After

child rearing they are often exhausted, stuck in a rut, and broke. Their only hope is a kind rich husband who is a keen pilot himself and who will encourage his wife to fly. Not thick on the ground. I was lucky enough to find a way to finance my gliding; it's not the sort of thing a non-gliding husband is going to pay for.

If a woman does manage to fly she has a lot of disadvantages, both physical and emotional. Less nerve than a man, on the whole. Weak, soft fingers for awkward nuts and bolts. Less strength for rigging. Unused to using tools.

Decision-making is more difficult because a woman gets into the habit of sitting back and letting father or husband or boy friend make the decisions. I notice this when I'm flying cross-country. I feel I ought to be able to say "Darling, do you think I should . . ." It feels really strange having to decide for myself.

But the worst disadvantage of all is the menstrual cycle. It's a bit much to expect a shy instructor to ask the lady pilot he's about to send solo if she is in a state of premenstrual tension, but it can be really serious. It varies from woman to woman. Studies of women in car smashes, shop lifting, carving up their husbands and battering their babies show that a hair-raisingly high proportion have been in a state of pre-menstrual tension. From my experience one can get away with flying if one is in regular (daily if possible) practice. But the combination of pre-menstrual tension and being out of practice provide the ingredients of a really nasty crunch.

Women have just two advantages. Better insulation means that we stand up to cold well and we have more accommodating bladders.

No wonder gliding is a man's world. With so much stacked against her, why does a woman even try to enter it? There are a number of reasons. Only one of them, to my mind, is good.

The worst reason is that she wants to prove to herself and her men that she is as brave, dashing and tough as they are.

Another reason is that she is looking for a husband. A perfectly legitimate reason, this. Looking for a husband is a serious and important pursuit and, at first sight, gliding, with so many men around, could look like a rich seam.

Beware. There are snags. You don't want to get hold of one who is badly hooked. A young, rich, handsome one, only lightly hooked, is what you're after.

Here is a simple rule-of-thumb test for determining the seriousness of his addiction. If you can lure him away from a gliding site when its soarable he's only lightly hooked. If, on the other hand, you can't shift him even when it's clamped, he's badly hooked. Better look elsewhere, unless he is so delicious that you've got to have him, in which case you must resign yourself to playing second fiddle to a glider. Don't try and get him to keep you company on a soarable day. He'll exhibit withdrawal symptoms. Heavy sighs and gloomy gazing at the sky. Brilliant conversational openings like "My God, darling, look at that lenticular!" If you are hooked too, it's OK, you can hang blissfully around together in the clamp.

More reasons why women fly gliders: To please husband or boy friend. This can be dangerous because she may push herself beyond her limits to gain his approval. Lots of minor reasons, like doing something different, impressing friends and neighbours (though heaven knows why they should be impressed. Ski-ing doesn't impress them, and that's much more dangerous).

The one good reason for a woman to fly gliders is because she's crazy about it. It's a passion, a love, a delight. Even though she gets cold, frightened, tired and frustrated it's all worth while because it's such bliss.

I mentioned our two physical advantages. We have some emotional ones too and they all stem from one delightful source. Male chivalry. It's astonishing how kind men pilots are to women who really love flying. I don't just mean the tender care with which they strap us in. I mean the advice, the fettleing, the encouragement, the rigging, the beer, etc, etc.

For me it has been one of the nicest things about gliding. I'm a pestilential nuisance. Always standing hopelessly about saying "Please will you help me rig, blow up my tyre, adjust my wheel brake, fettle my trailer, fix my vario, retrieve me, etc, etc." You shrug despairingly, but you really are kind. Thank you gentlemen!

THE BGA MOTOR GLIDER SYMPOSIUM

By ANN WELCH

THE purpose of the BGA Motor Glider Symposium, held at Lasham from September 22 to 24, was to compare notes on what motor glider operators had learnt over the last year or so, and to try to find out what would be needed from next generation aircraft. Thirty-one owners and operators came, most of them to fly the Scheibe SF-28 Tandem Falke. This aircraft very nearly did not arrive as although southern England was clear, Christian and Gabi Gad took three days to reach us from Munich, held up by bad weather.

Some delegates had already gone home when Christian managed to get through late on the Saturday, but with Bill Scull starting demonstration flying at 07.30 on Sunday, the aircraft was flown non-stop, except for refuelling, until dusk. Nearly 30 pilots tried it out, many choosing the rear, instructor's, seat in order to assess the aircraft for its qualities as a trainer. Compared with the Falke the SF-28 had advantages on every point, except for the seating for those who prefer side-by-side.

The demonstrator was fitted with a 60hp Limbach VW engine, feathering propeller (with two additional positions for climb and cruise), electric starter, and cabin heater. The take-off and climb was somewhat better than that of the standard Falke, but any improvement on this count is greatly appreciated, especially for those rare, hot, still days. The handling was good, with controls better harmonised and more responsive. Approaching the stall the aircraft remained easily controllable, and, depending on the rate at which the stall was approached, would either sit and sink in a nose-up attitude, or drop its nose in a conventional manner. Visibility from either seat is very good.

The electric starter really made in-flight re-starts simple, although at present there are no engine controls in the rear cock-

pit. For training it is essential that the instructor can stop and start the engine himself, and some arrangement for doing this, with the instructor being able to re-start the engine even with the student's switch at off, is necessary. If a feathering propeller is fitted on a school aircraft the instructor will need to be able to control this, too, from the rear seat. However, there is a lot to be said for having an ordinary fixed pitch prop for basic training.

There is no doubt that an appreciable part of the success of the standard Falke as a trainer is its simplicity. There is nothing for the student to concentrate on except learning to fly. Increasing the number of controls, radios, procedures, etc, in any aircraft means that the primary need of the student to obtain a sound basic flying background risks becoming obscured.

Comparison flying between the Tandem and standard Falkes, on a spontaneously taken occasion, indicated that at low (normal training) speeds there was little difference in performance between the standard Falke with fixed pitch prop and the Tandem prop-feathered. At 100km/h the difference in performance was marked, and at 150km/h the standard Falke lost out completely.

It would seem, therefore, that for routine school work there is little or nothing to be gained by having a feathering prop, and certainly quite a lot of money to be saved in staying fixed pitch. If a good deal of soaring training is contemplated the feathering prop would obviously be a worthwhile investment. The cabin heater, again, would be fine for longish soaring or simulated soaring flights but could be regarded as an unnecessary luxury for school work.

All the VW Falkes have one really excellent characteristic: They are quiet. This lack of irritating noise has done a

great deal to assist in the painless introduction of motor gliders into the training scene.

FRANKLIN FALKE

Also at Lasham, after a delayed arrival because of fog in the north, was the Franklin-engined Falke, brought by George Burton. This is an experimental project of Slingsby's, understood to be not intended for the British market. The Franklin engine gave the aircraft a much-improved take-off and climb, although it is considerably heavier and this was reflected in the increased climb and approach speeds. It had an electric starter but fixed pitch prop.

For single-seater motor gliders the problem is that there is still no really suitable engine. On noise alone the Hirth would be unacceptable as a regular feature of gliding club flying. Ian Strachan gave a most convincing demonstration of operating the fold-away engine on the SF-27M loaned by Peter Ross, starting and retracting it without trouble at only a few hundred feet; but unfortunately it is too noisy.

Although the appearance of a quiet, efficient and light-weight engine would result in more single-seater motor gliders, the main interest in motor gliders is for training. The Tandem Falke should fill school needs for some years to come, with the standard Falke for those operators who prefer side-by-side seating.

However, there is already a need for an altogether higher performance trainer to help with the conversion of the many relatively inexperienced pilots who are now buying fast glass ships. But it needs to be an aircraft with the characteristics and controls of a slippery ship and not sibling to a light-weight long-winged touring aeroplane. A good advanced training motor glider is almost certain to be a more economic proposition than a high performance two-seater glider, because it will more easily be able to achieve greater utilisation in return for its capital cost.

During the two working sessions of the Symposium the subjects dealt with were training (Bill Scull), the economics of Falke operations (Geoffrey Thomas), BGA and CAA (Roy Tellow), maintenance (Dick Stratton) and on-field repairs

(Derek Piggott), plus exchange of ideas and information from delegates. After 3,500 hours of Falke operations Derek had collected, and showed, a number of "Exhibits A" together with practical hints on avoiding recurrences. It was apparent from the resulting contributions that all defects, however seemingly unimportant, should be reported to the BGA Technical Committee who would circulate other operators without delay.

On the training side there was considerable discussion on use of the engine following the self-launch phase of the flight when teaching glider pilots. Some instructors stopped the engine at, say, 2,000ft, and did not re-start it during the flight. Others kept it on at varying power all or almost all of the time. Yet others did a mixture of both. In the end, the consensus of opinion was that it did not matter much that the engine was on or not provided that the instructor was properly teaching the disciplines essential for the safe operation of a glider. Certainly in the earlier stages the student would be less aware of the engine when it was quietly idling than when the instructor was heaving at the starting cord in order to continue the flight. It was felt that how an instructor used the engine on any lesson was a matter that should be left to him to deal with in the best interests of the student.

There is no doubt that the motor glider as a trainer for glider pilots has come to stay, its worth having been thoroughly demonstrated. What now needs to be done is to consider the next steps—how best to look after the increased numbers of early solo pilots that the motor glider has produced, and how subsequently to convert these pilots to the fast glass ships that they will almost certainly buy.

Finally, I would like to thank all those who came so far or who gave up so much of their time to contribute to the usefulness of the Symposium.

AS OTHER EYES...

"REPORTS of the world gliding championships in Yugoslavia refer to 'a glider with a 60hp engine'. Any moment now, someone will invent a filleted fish with bones in it."—*Reveille*, July 22, 1972.

LADDER SCORES WELL DOWN ON LAST YEAR

CHRIS LOVELL has again won the National Ladder, with 3,862 points scored from four flights in Surrey & Hants club gliders. Mike Garrod (London) was second and Mike Costin (Coventry) third. Fourth and fifth places were taken by pilots who made particularly outstanding flights during the year: Alan Vincent (Essex) with the only 500km Diamond triangle achieved during the year (in a K-6E) and Mike Field, with his record-breaking climb to 42,520ft asl.

The number of participating pilots and the number of flights were down on last year, but a total of 16 clubs were represented, four more than in 1971-72. Scores were well down due to the indifferent soaring season; last year's highest was 6,309 points.

Early entries for the 1972-73 period should be forwarded to M. P. Garrod, 71 Corwell Lane, Hillingdon, Middlesex, by January 3, 1973.

Leading pilots	Club	Pts.	No of flts
1 C. D. Lovell	Surrey & Hants	3862*	4
2 M. P. Garrod	London	3287	4
3 M. Costin	Coventry	3179	4
4 A. A. Vincent	Essex	2985	3
5 M. Field	Airways	2768*	1
6 R. A. Sandford	Bristol & Glos	2681	4
7 P. S. Collins	Cranfield	2536	4
8 B. Rood	Coventry	2124	4
9 T. A. M. Bradbury	Bristol & Glos	2025	3
10 L. Beer	Thames Valley	2007	4
11 P. L. Sears	Cambridge U	1957*	4
12 M. D. Till	London	1736	4

*Denotes flights in club gliders

WYCOMBE AIR PARK VINTAGE RALLY

NINE gliders were represented at the annual veteran and vintage car, motor-cycle, aeroplane and glider rally held at Wycombe Air Park on September 24. For the first time since 1938, two Minimoas could be seen side by side in Britain. During the air display, flying demonstrations were given by the Rhönbussard and SG-38. On static display were a Tutor, Gull 1, Kite 1, Goevier and Weihe. The Weihe was built in Sweden in 1950 for Paul MacCready of the USA to fly in the world championships, held in that country that year. Most of the machines flew before and

after the display. Although overcast with a north-east wind, thermal lift was available.

BRITISH COMPETITIONS DIARY, 1973

THE following dates and venues for gliding competitions in Britain have been announced at the time of going to press:

NATIONALS

Sport/Club Class, Coventry Gliding Club at Husbands Bosworth, May 26 to June 3; *Open/Standard Class*, two weeks, Lasham Gliding Society, Lasham, August 18 to September 2. The *Daily Telegraph* European Gliding Competition is being held concurrently with this event.

REGIONALS

Dunstable, week commencing June 9; *Booker*, week commencing June 23; *Dorset*, (at Compton Abbas) week commencing July 7; *Western* (at Nympsfield), week commencing July 21; *Northern* (at Sutton Bank), week commencing August 4; *Junior Interservices* (at Bicester), week commencing May 4.

VINTAGE GLIDER RALLY

A meeting for old gliders is to be held at Husbands Bosworth from May 28 for a week. Tasks may be set during the period, which coincides with the Sport/Club Class Nationals and a traction engine rally to be held at the same site. Pilots who would be interested in bringing their vintage gliders to this meeting should write to C. Wills, Huntercombe End Farm, Nettlebed, Oxon, telephone Nettlebed 650 or 486.

AWARDS FOR SERVICES TO GLIDING

RAY BRIGDEN, one of the founders of the Southdown Club, has been awarded the FAI Tissandier Diploma for 1971 for continuing and sustained service to British club gliding for over 20 years. Frank Irving has been awarded the United Service and Royal Aero Club Silver Medal for 1971 in recognition of his capacity as chairman of the BGA technical committee from which he has presided over the technical affairs of British gliding for more than 20 years.

NATIONALS ENTRY LIST 1973

THE following list will be used to determine the priority of entry to the four National Competitions in 1973, should applications for these competitions be over-subscribed. This list has been compiled by the same rules as have been in use since 1970, with minor modifications. It is appreciated that these rules have not been published since 1970, and efforts are now being made to revise and publish them early in 1973.

The present list has been compiled from the handicapped results of the four 1972 National Competitions, together with the 1972 Entry List. This list has

been combined with the Heats Promotions List made up from the results of the five 1972 Regional Competitions, together with the Sport Class of the Junior Inter-Services competition. Since the Western and Wycombe Regionals flew the same number of entries (giving equal weighting to the same position from each competition), precedence has been given to the Western Regionals which yielded the greater number of competition days. The results of the 1972 *Daily Telegraph* competition have not been used.

Any pilot who believes his position on the list to be incorrect is asked to write to the BGA, giving details of the competitions in which he competed in 1972, his competition number and full name.

No. Name

1 Hood, L. S.	51 Newall, R. W. B.	103 Keogh, B.
2 Garrod, M. P.	52 Rollings, C.	104 Aldous, R. F.
3 Delafield, J.	53 Glossop, J. D. J.	105 Bunker, R.
4 Lec, D. G.	54 Kiely, K.	106 Evans, J. A.
5 Cardiff, J. D.	55 Jeffries, J. R.	107 Brooke, M. E.
6 Orme, H.	56 Meddings, E.	108 Lombard, W. C.
7 Pozerskis, P.	57 James, D. B.	109 Woods, L.
8 Brown, H. F.	58 Sharman, R. C.	110 Colvert, T. M.
9 Fitchett, B.	59 Jones, R.	111 Strachan, I. W.
10 Zealley, T. S.	60 Harrison, K. A.	112 Jerzycki, E.
11 Tanner, L. E. N.	61 Wood, M. J.	113 Gill, C. J.
12 Dobson, B. F.	62 Withall, C. L.	114 Gay, M.
13 Cousins, R.	63 Southwood, M.	115 Duthy-James, C.
14 Camp, G. W. G.	64 Stevenson, J. N.	116 Smith, M. J.
15 White, S. A.	65 Chinn, G. M.	117 Goozee, P. K.
16 Goldsborough, J. B.	66 Cooper, R. H.	118 Robertson, D. J.
17 McLuckie, R.	67 Vann, E.	119 Ramsden, P.
18 Williamson, J. S.	68 Feakes, R.	120 Kahn, W. A. H.
19 Day, C. G.	69 Zotov, D. V.	121 Krzystek, T. J.
20 Greaves, C. M.	70 Goodman, C. W. S.	122 Belbin, E. R.
21 Lyndon, R. J.	71 Oulds, T.	123 Elsom, M. L.
22 Hanson, D. F.	72 Watson, A. J.	124 Graham, J.
23 Atkinson, G. B.	73 Shephard, E. G.	125 Von Gwinner, O.
24 Ellis, C. A. P.	74 Gaunt, T. R. F.	126 Waller, R. S.
25 Goodhart, H. C. N.	75 Nicholas, R.	127 Terret, R.
26 Aldridge, K.	76 Foot, C. C.	128 Seth-Smith, M. P.
27 Sandford, R. A.	77 Paul, I.	129 Saw, G.
28 Trenchard, P.	78 Cockburn, D.	130 Wynch, J. W.
29 Ince, D. H. G.	79 Breen, A. G.	131 Fox, J. A.
30 Brownlow, B.	80 Austin, D. C.	132 Hale, R. J.
31 Burton, G. E.	81 Elliot, E. G.	133 Biggs, R.
32 Foot, R. A.	82 Farmer, A. T.	134 Boyle, C. A.
33 Grenet, P.	83 Johns, H.	135 Willbie, R.
34 Kronfeld, J. R. W.	84 Piggott, A. D.	136 Smith, R. J.
35 Lysakowski, E. R.	85 Sheppard, F. S.	137 Barry, B. A.
36 Waller, C. J. N.	86 Dickson, W. W.	138 Carrow, D. D.
37 Hogg, A. J.	87 Wood, R. A.	139 Fairman, M. C.
38 Knipe, F.	88 Burns, Anne	140 Clemo, R. W.
39 Wishart, R.	89 Tull, V. F. G.	141 Watson, Patricia
40 Smoker, J. L.	90 Brindle, G. F.	142 Cook, P. G.
41 Saundby, R. P.	91 Bridson, D. S.	143 Marlow, T.
42 Bowden, D.	92 Loveland, A. S.	144 Wheeler, J. H.
43 Warminger, A. H.	93 St. Pierre, A. H. G.	145 Clark, J. R.
44 Przewlocki, J.	94 Davies, W.	146 Simpson, C. R.
45 Gough, A. W.	95 Ellis, J. J.	147 Munday, D. F.
46 Allen, D. K.	96 Welsh, J. H.	148 Gaunt, N.
47 Burton, A. J.	97 Wills, C.	149 Haynes, K. W.
48 Rouse, J. E.	98 Cranfield, N.	150 Stewart, S. A.
49 Vennard, D. A.	99 Smith, G. E. M.	151 Sinms, J. A.
50 Winning, E.	100 Jarvis, H. R.	152 Taylor, J. C.
	101 Livesav, M. H.	153 Lilburn, D. W.
	102 Monteith, J. R.	154 Wilkinson, K. G.

PROVISIONAL HANDICAP LIST FOR 1973

(The definitive list will be published in the 1973 Contest Handbook)

THE Skylark 3 and K-6CR are taken as "Datum Gliders" at 100% and all other figures are in inverse proportion to cross-country speed extracted from an "average thermal", compared to the speed of the datum gliders.

The "average thermal" is strong in the middle and weak at the outside. Compensation for thermalling performance is made by feeding the minimum sink point of the glider's performance curve into a graph which gives an achieved rate of climb. For example, a Foka's speed at min sink is rather high, leading to an achieved rate of climb of 2kts from the "average thermal". A K-8, in contrast, has a much lower speed for min sink and so gets right into the middle of the thermal, achieving nearly 3kts.

These corrected climb figures are applied to the standard formula for cross-country speed, these speeds compared with that of the datum gliders and rounded off to the nearest even percentage for the list of handicaps. A full explanation was given in S&G, 1967, page 459.

H'cap

%	Sailplane type
64	Sigma*
74	ASW-12*, Kestrel 19*, Nimbus 2 (20m)
78	Kestrel 17*
80	BS-1, Diamant 18
84	Cirrus, Phoebus 17, HP-14 (18m), SHK
86	Diamant 16.5, KH-1
88	Standard Libelle, ASW-15, Standard Cirrus, LS-1, Motor Cirrus*, Phoebus 15*, Cobra 15
90	Dart 17, Foka 5, Torva Sprite*
94	K-6E
96	Olympia 419, Foka 4, Vasama, SF-27M
98	Dart 15, Skylark 4, Pirat
100	K-6CR, Skylark 3 (Datum gliders), Olympia 403
102	Olympia 463, M-10Cs, Fauvette, K-14*, BG-135
106	K-8, Jaskolka
108	Skylark 2, SF-26

- 110 K-13, Blanik, Eagle, Bocian
- 112 Sky, Weihe
- 114 Mucha Standard, Capstan, K-7, K-2
- 116 SFS-31 Milan*
- 124 Meise, Olympia 2, Kranich
- 128 ASK-16*, Tandem Falke*
- 144 RF-5B Sperber (17m)*
- 150 SF-25B Falke

NOTES:

(1) Asterisks * signify handicaps based on maker's figures. Later information may influence the Handicapping Committee otherwise.

(2) Handicaps apply in BGA Contests at all AUW and CG positions cleared in the glider's C of A.

(3) Comments should be sent to the BGA for the Handicapping Committee. Changes will only be made as a result of tangible performance evidence such as polar curves, 'tested points' from calibrated glides, or well conducted formation runs with known types. Figures are required of min sink and a high speed point at 70-75kts (130-140km/h).

BRUNT TROPHY, 1972

ENTRIES for the Brunt Trophy (awarded for the best gain of height achieved by a student member of a British university gliding club) for the year ending September 30, 1972, should be sent to either the Captain, Imperial College Gliding Club, Imperial College Union, Prince Consort Street, London, SW7, or A. J. Stone, Emmanuel College, Cambridge, by December 31. Claimants may be required to produce (1) a barograph chart and calibration chart (a certificate of gain of height signed by a Senior Official Observer will be acceptable) and (2) a certificate signed by a senior member of the pilot's university stating that he or she was a registered graduate or undergraduate during the academic year 1971-1972.

CHRISTMAS COMPETITION

READERS are invited to identify 12 well-known gliding personalities from their "C" certificate photographs reproduced on p501. Although we had hoped



A



B



C



D



E



F



G



H



I



J



K



L

to be able to offer the BGA's Std Libelle as first prize, that was not to be. Neither was our second choice—a holiday for pilot, two crew, glider and trailer in the sunny resort of Vrsac, Yugoslavia. Instead, the lucky winner will be able to brighten his or her winter evenings with Norman Ellison's *British Gliders and Sailplanes*.

Entries must arrive at the BGA office by first post Monday, December 18, and envelopes must be marked "S&G Christmas Competition". Please don't put anything else in those envelopes; they won't be opened until that date. The first correct—or nearest correct—entry opened will be declared winner. The next six

correct—or nearest correct—entries will receive as consolation prizes copies of Philip Wills's classic *Where No Birds Fly*. We regret that members of the BGA office staff may not compete.

BGA AGM, DINNER AND DANCE

THE annual general meeting of the British Gliding Association, and the dinner and dance, will be held at The Belfry, Wishaw, Warwickshire on Saturday, March 10, 1973. Further details from Marjorie Hobby, 256 Crowmere Road, Shrewsbury, telephone Shrewsbury 4131.

VAT EXPLAINED AT EGM

A LUCID exposition of the principles of VAT was given by a representative of HM Customs and Excise at the Extraordinary General Meeting of the BGA, held at the Kronfeld Club on November 10. It was emphasised that, for the purpose of VAT, gliding clubs were regarded as retailers providing, in the main, goods and services subject to the 10% standard VAT charge.

There were, however, a number of areas of gliding club activity in which the representative could not give definite answers; these areas would be investigated further.

Other items on the agenda were:

1) *Membership fees* A proposal to increase the associate membership fee to £2 per annum was postponed to the March AGM in order to keep within the spirit of the present prices and wages freeze. John Large, BGA treasurer, warned the meeting that an increase in capitation fee was also likely to be proposed at the AGM.

2) *CFI's on multi-club sites* An agenda proposal to specify that there must only be one gliding CFI on a site irrespective of the number of clubs operating from that site had been dropped, it was explained at the meeting.

3) *Hang gliders* Frank Irving outlined the outcome of a special sub-committee set up by the BGA to investigate whether the BGA should seek to control hang gliding in Britain. The sub-committee had come to the conclusion—which the Executive Committee had accepted—that the hang glider movement should be encouraged to form its own organisation. The difficulties of a body controlling such an activity—where it was possible for an individual to leap off any hill, free from the necessity of having the extensive back-up facilities which gliding required—were emphasised.

One of the difficulties concerning hang gliders lay in the matter of definition. BGA chairman Chris Simpson suggested that whereas a glider could regain a flying attitude from whatever position it was placed in, a hang glider had a point of no return from which it fell like a stone. "There, perhaps, we may find our definition," Mr Simpson said.

It was also emphasised that hang gliding should not take place from BGA

sites; no hang glider at present has a BGA C of A. It was suggested from the floor that Geoff McBroom, who is manufacturing hang gliders, should produce a set of handling notes.

There were about 40 attendees.

BRITISH TEAM AND MANAGER FOR AUSTRALIA

THE team of four pilots to represent Britain in the 1974 World Gliding Championships, to be held at Waikerie, South Australia, in January, 1974 (see p508) heralds the return to international competition after some years of John Williamson. He last flew for Britain in 1968, when he finished 22nd in the Standard Class.

Also flying for Britain once again is John Delafield, who came 7th in the Open Class in 1970.

The other two team members flew at Vrsac: George Burton and Bernard Fitchett. Burton and Delafield will be flying in the Open Class in Australia, and Fitchett and Williamson in the Standard. Nick Goodhart, who came 4th in the Open Class at Vrsac, is first reserve, and John Cardiff second.

The pilots were selected by a vote taken by 20 leading British competition pilots. Roger Barrett has been elected by the pilots as team manager.

Barrett, as well as being an active glider pilot, is also one of the mainstays of the British Balloon and Airship Club, and edits the club's magazine, *The Aero-stat*. He has had considerable experience of the organisational side of gliding. A one-time chairman of the BGA Flying Committee, he has also been responsible for the organisation of national championships held at Dunstable, and for some successful air displays held by the club in the late '60s.

RECORD HOMOLOGATION

THE following British National and United Kingdom records have been homologated by the Executive Committee: British National absolute altitude. Mike Field, 9-5-72, Skylark 4, 13,050m; British National gain of height, Mike Field, 9-5-72, Skylark 4, 12,700m; United Kingdom absolute altitude, Mike Field, 9-5-72, Skylark 4, 13,050m; United Kingdom gain of height, Mike Field, 9-5-72, Skylark 4, 12,700m.

NEW INSTRUCTORS' COMMITTEE CHAIRMAN

ROGER NEAVES has resigned as chairman of the Instructors' Committee due to pressure of work, and is replaced in that capacity by Group Captain Don Spottiswood.

GLIDING CERTIFICATES

DIAMOND HEIGHT

No	Name	Club	1972
3/147	J. M. Anstey	Midland	27.5
3/148	A. B. Milne	SGU	22.10
3/149	R. E. Cross	Surrey/Hants	20.10

DIAMOND GOAL

No	Name	Club	1972
2/430	A. M. Southwood	Essex	19.8
2/431	A. C. Stewart	Finnish AA	10.6
2/432	J. Butler	in USA	2.7

GOLD C DISTANCE

Name	Club	1972
A. M. Southwood	Essex	19.8
J. Butler	in USA	2.7

GOLD C HEIGHT

Name	Club	1972
D. A. Ross	SGU	22.3
E. MacDonald	Essex	24.8
C. A. Boyle	Crusaders	27.8

T. Jackson	Surrey/Hants	20.10
P. W. Gardner	Surrey/Hants	20.10
J. Grehan	Surrey/Hants	20.10
G. K. Smith	SGU	20.10
S. J. Easton	Norwich	25.10

GOLD C COMPLETE

No	Name	Club	1972
330	J. Butler	in USA	2.7
331	P. W. Gardner	Surrey/Hants	20.10
332	G. K. Smith	SGU	20.10
333	S. J. Easton	Norwich	25.10

SILVER C

No	Name	Club	1972
3252	D. H. Wall	Surrey/Hants	1.9
3253	R. P. M. Richards	Essex/Suffolk	10.9
3254	A. Beckton	Thames Valley	11.8
3255	C. Jaques	Mendips	10.8
3256	R. Bishop	Worcester	11.8
3257	T. A. Baggott	Dorset	31.8
3258	H. K. Harwood	Crusaders	24.8
3259	D. N. Coy	Surrey/Hants	11.8
3260	W. A. Fraser	Surrey/Hants	10.9
3261	B. D. Huband	Swindon	10.9
3262	J. Hughesman	Surrey/Hants	11.9
3263	D. J. Vardon	Airways	11.8
3264	R. Fort	Yorkshire	10.9
3265	A. W. Gillett	Bristol/Glos	3.6
3266	A. Lindsay	Cairngorm	24.8
3267	J. L. Janson	Cornish	10.8
3268	G. C. Courtney	Midland	10.9
3269	J. Westerman	Yorkshire	20.8
3270	P. G. Smith	Imp College	10.9
3271	S. Cervantes	Bristol/Glos	19.8
3272	J. M. M. Centry	Imp College	26.9
3273	J. R. C. Morgan	Kestrel	16.9

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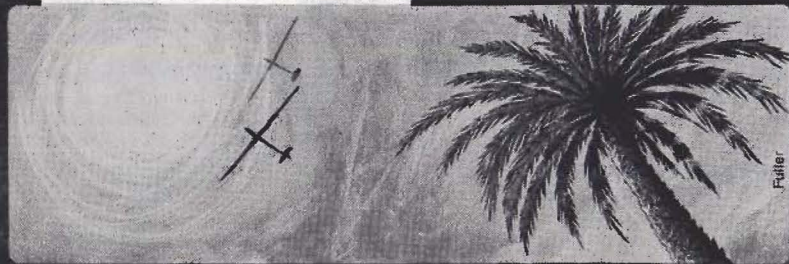
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OVERSEAS NEWS



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

A MEETING OF MINDS AT MIT

By F. G. IRVING

FOR many decades, certain European countries have recognised that our sport generates a deal of very respectable intellectual activity. In late October, 1972, a similar recognition occurred on the most splendid international scale, in the form of a Symposium on the Technology and Science of Motorless Flight held at the Massachusetts Institute of Technology. The meeting was the brain-child of the MIT Soaring Association and enjoyed the support of NASA—also OSTIV, said the initial invitation, but one suspected that the latter's support was entirely moral, whereas NASA's was very real.

So, from October 18 through 21, as they say, the participants collected in the Kresge Auditorium and treated one another to their latest Great Thoughts. Most of the famous names from the Western world turned up, including Kuettner, Toutenhoofd, Morelli, MacCready, Zacher, Althaus, Eppler, Wortmann, *et al.* (This is just a selection, in programme order.) The British contingent, incited by Nick Goodhart, contributed at least its fair share, with papers by John Simpson, James Milford, Ian Strachan, Howard Torode, George

Whitfield, Nick Goodhart and Frank Irving.

One great advantage of the programming was that the various topics were considered seriatim so, at the risk of becoming satiated with science and torpid with technology, keen chaps could hear all the papers. There were seven sessions: Soaring Meteorology, Instrumentation, Structural Concepts and Materials, Self-Launching Sailplanes, Performance Testing, and Aerodynamics and Design. These comprised a total of about 33 papers, many of great interest, some of considerable obscurity and the inevitable few which seemed to have only the most tenuous association with soaring.

It is quite impossible to review all of them, or even all the interesting ones, but a few points of interest were John Simpson's beautiful water-tank pictures, Piero Morelli's elegant extruded structures, Howard Torode's detailed exposé of flight-testing, George Whitfield's "black box" (actually assorted boxes in various colours), the ingenious control-surface hinge of Eppler and Althaus and the characteristically lucid review of airfoil design by "Fix" Wortmann. We also had some very elegant pictures of helical trailing vortices behind a model glider in a water tank by Bill Phillips, Nick explaining why variable span was less advantageous than variable chord, and some very funny-looking wing sections from Douglas Lien. Altogether, the printed papers made an impressive

volume some 1½ inches thick, and that was by no means all of them. (The complete proceedings should be available later, in the form of a NASA Contractor's Report).

It is probably too early to assess significant trends and impressions but here goes:

(1) Wing section design is not dead. A lot of thought is being applied to so-called "High-Endurance" sections, providing good two-dimensional L/D ratios at very high lift coefficients. The application is, however, none too clear.

(2) The Torode/Whitfield techniques, with their emphasis on accurate flying, recording and analysis, have brought performance testing to a degree of excellence not generally pursued elsewhere (save, one should add, in Paul Bilke's domain; he was unfortunately absent).

(4) On a quasi-political note, this sort of meeting, held after the end of the soaring season, is much more satisfactory than an OSTIV Congress held concurrently with World Gliding Championships. The latter effectively prevents the attendance of those pilots who think as well as fly.

As if all this talking and listening wasn't enough, we also had "Workshops", where the authors of papers in related fields met together under a chairman to identify priorities for Motorless Flight Research. These were sponsored by NASA, personified by Bill Phillips, and the hope is that NASA will be able to contribute to such research, doubtless seeking topics likely to provide useful-fall-out for NASA.

We (Aerodynamics and Design) had A. J. Smith as chairman, and contemplated proposals for highly-computerised design processes, variable geometry, more aerofoil design, investigations of turning flight, artificial stability, solar-powered aircraft and other such exotica. Occasionally, the American desire to grapple with semantics left the Europeans looking a little blank.

It was all a huge success. MIT's gracious campus could hardly have been a better location; the hospitality, both official and personal, was magnificent; and the organisation was so good that one hardly noticed it. Jim Nash-Webber and Alexander Nedzel did a first-rate job, as also did the various administrative

helpers, secretaries and chairmen. This, it is hoped, is only the first of such symposia. Future organisers will be hard put to it to maintain the standard set by MITSA.

Nautical postscript After it was all over, Sam Francis arranged an afternoon of sailing in Buzzard's Bay, appropriately enough, on the good ship "Swamp Yankee", Master under God one Van Clark. He showed singular faith in his erudite crew by apparently assuming that all were familiar with driving 40ft yawls. So we had the unprecedented spectacle of a vessel under sail with Piero Morelli at the helm, "Fix" Wortmann as tactician ("you are stalling the genoa!"), Dieter Althaus as assistant hoister of the spinnaker jib and A.J. as cabin boy. The latter did a splendid job of heating soup at 20° heel. Thankfully, there were no wrecks and nobody drowned. It was a marvellous afternoon.

WHAT WENT WRONG IN GHANA

IN 1963 a National Aero Club was formed by President Nkrumah for the purpose of fostering gliding, ballooning, private power-flying, parachuting and aero-modelling. A gliding school was established at Afienya, 10 miles east of Accra, with fine buildings, a large hangar and a fleet of gliders. It was alongside a large airfield which also served as a landing field for large aircraft. Hanna Reitsch from Germany was installed as chief, with a Ghanaian assistant, and the staff included two German instructors, two Ghanaians trained in Germany, and a winch instructor.

John Aboagye, who describes its sub-

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sequent history in *Wings over Africa*, writes: "Among some of the objectives of the school were to create a sense of airmindedness in Ghanaian youth, to instil into them a spirit of fearlessness and to promote a spirit of self-help."

Then, in 1966, Nkrumah was deposed, and the Ghanaian Air Force took over the school and trained its cadets there. All went well until October 1971, when two organisations came and took over part of the premises: The National Service Corps and the National Youth Council. The NSC aim is "to undertake voluntary self-help projects" and the NYC conducts youth leadership training. These two wanted to nab the best part of the buildings. To them, Mr Aboagye writes, "gliding is a very dangerous hobby which should not be entertained by the youth of this country. They, therefore, do not see any reason for the continued existence of the school. They agreed that such a dangerous and non-profitable hobby should give way to more serious and profitable state enterprises."

The two bodies therefore started to use

political influence to oust the gliding school. The school authorities complained to their departmental head at each stage, but were repeatedly overruled because "the order came from a higher authority". Then they got the hangar for a "workshop for the practical training of youth", and the gliding school had to pack up its fleet of a Swallow, T-21B, K-8, Bergfalke and two K-7's "in a hot, congested building".

Then the airfield was sabotaged by ploughing up the winch run "to demonstrate practical agriculture to the youth", instead of better soil elsewhere on the airfield near a stream. Finally, after the Ghanaian political coup in January, 1972, the National Service Corps was disbanded and the National Youth Council got the lot.

But Mr Aboagye concludes on a hopeful note: "The authorities are now discussing these issues in order to remedy the situation. Considerable damage has already been done to gliding in Ghana. There is a ray of hope of its revival, but a great battle has to be fought to achieve success".

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FRENCH MOUNTAIN SOARING CONTEST

A RECORD number of participants attended the seventh "Championnat International de Vol à Voile en Montagne" at Vinon in early July: 31 Standard and 10 Open Class, including Humphry Dimock from England with a Kestrel 19. Other foreign visitors were six Germans and two each from Belgium, Switzerland and Austria. Leading final results were:

Standard Class

1 Peter (Germany)	LS-1	5209
2 Abeille (France)	LS-1	5129
3=Tavernier (France)	Std Cirrus	5044
3=Delbarre (France)	LS-1	5044

Open Class

1 Balay (France)	Phoebus C	4661
2 Sander (Belgium)	Libelle	4526
3 Kapfer (Germany)	Kestrel 17	4507

Humphry Dimock won in the Open Class on the first contest day, July 2, with 52km/h on a 188km out-and-return; six others completed the course. The Standard Class had the same task; 15 completed it and Peter of Germany won at 57km/h. A strong NW wind made the task difficult, says the reporter in *Aviasport*.

But, alas, on the next day's Open Class task, a 252km triangle, Humphry damaged his Kestrel in landing at the second turning-point and was thereafter out of the contest, his total score up to that point being 1,247.

Four more contest days were flown, bringing the total to six. Weather on the remaining days prevented any more tasks being flown, though some were set and then cancelled.

It may be noted that the Standard Class winners flew consistently faster on every task day. Was this because the Standard Class was three times as large and thus included a greater range of skills? Or does mountain soaring favour nimble machines of small span—which was the philosophy behind the design of the 9.7 metre span H-17 in 1935?

Ten of the leading French pilots in this contest have been selected to fly in the 1973 French Nationals. In addition, *Aviasport* describes four more "Championnats Eliminatoires" held for the same purpose at Ramorantin, Moulins, Issoudun and a local one for the Air Force.

The Editor, M. Battarel, complains that, with the Angers meeting, this makes only six, with 160 pilots all told, whereas two years ago there were eight, with 176 pilots. He calls this situation stagnation, where there should be growth.

NEW AUSTRIAN MAGAZINE

AT Aigen in Ennstal, when a NW wind blows across the Alps following the passage of a trough, a strato-cumulus cover may form which shows little or no sign of waves. But H. Engeler took Harro Wödl's advice and put a barograph aboard his glider before taking off. Sure enough, in the late afternoon a big lenticular cloud formed high up and he climbed at 3.5m/sec to 5,000m. Excellent photographs taken by the pilot of a hole in the strato-cumulus below and the big lenticular are published in *Flugsportzeitung*.

This is a new Austrian magazine dealing with gliding, parachuting, aeromodelling and private flying (including helicopters). It is being produced almost single-handed by Karl Merger at St Pölten, west of Vienna, an enthusiast whose normal job is typesetting and related activities. Starting at the end of last year, he has been bringing out an issue every five weeks, and no 8 has 40 pages, including 10 on the World Gliding Championships at Vrsac, where he was, of course, present. He has been losing money on it so far, but at the present rate of increase the circulation should eventually make ends meet.

The price is 160 Austrian Schillings per year (about 55 to the £) or 200 Schillings including postage, from Postfach 398, A 300 St Pölten, Austria.

AUSTRALIAN 1973 NATIONALS TO BE HELD AT WAIKERIE

THE Australian National Gliding Championships will be held at Waikerie, South Australia, from January 3 to 12, and will be divided into Open, Standard and Sports classes. January 1 and 2 are set aside as practice days. Details from The Secretary, PO Box 55, Willaston, SA5118.

AUSTRALIAN WORLD CHAMPIONSHIPS DATES CONFIRMED

THE 14th World Gliding Championships will be held at Waikerie, South Australia, in January, 1974, it was confirmed at the meeting of CIVV on November 3. The championships itself will be held from January 12 to 27, and the practice period is from January 6 to 11.

Entry fees will be A\$500 per aircraft plus A\$125 per team member for the period covering January 5 to 28.

About 50 gliders will be available in Australia for hire, it was reported.

Cloud flying by gliders is currently against the law in Australia, and, therefore, will not be permitted in the championships. No decision was taken at the meeting on the subject of cloud flying in future world championships generally.

Regulations and information will be circulated to national aero clubs in January, 1973, for ratification at the CIVV meeting on March 16, at which meeting the scoring system to be used will also be ratified.

THE VRSAC ACCIDENTS

Reports of the accidents at the World Championships at Vrsac were produced at the meeting. During the flight in which Varkozi of Hungary was killed, his Cobra 15 had reached 9,000m, following which the barograph had shown a normal flight path down to a height of a little over 2,100m. At this point, the descent rate increased to 11m/sec, accelerating to 30m/sec, decelerating temporarily at about 800m to 26m, then accelerating to 50m/sec at which point it is assumed that it hit the ground. The Cobra wreckage was missing no parts, and there was no sign that the pilot had struggled or attempted to leave the aircraft by parachute. The enquiry offered no reason for the fatal dive.

No blame was attached to either pilot involved in the mid-air collision on the last day. "It was apparently not possible to say how the gliders hit," Ann Welch reports, "except that it appeared that the Nimbus was higher than the LS-1 at the

time. Innes partially collapsed his parachute to exit quickly from the cloud, and although this had fully deployed, the parachute retained a swinging movement which resulted in Innes's broken leg on contact with the ground. There were some 20 gliders in the immediate vicinity at the time.

MOTOR GLIDERS AND WORLD CHAMPIONSHIPS

It was agreed that before motor gliders should be accepted in world championships, there should be at least two international motor glider competitions, with a requirement that at least six countries took part. The title would be the FAI International Motor Glider Competition, and the German Aero Club was prepared to organise it. Meanwhile, the next Burg Feuerstein competition and meeting would be held from May 26 to June 5, 1973, and foreign entries would be welcome.

AIRSPACE

It was reported that the council of the FAI (which covers all aspects of sport aviation, including gliding) has decided to set up a commission on airspace with the following structure: 1) President, from within the FAI itself; 2) First tier, comprising the president or representatives of each of the commissions; 3) Second tier, experts on airspace matters representing each commission.

John Ellis, chairman of the BGA Airspace Committee, reports that a preliminary meeting of representatives of six countries interested in airspace matters was held in Paris at the same time as the CIVV meeting with a view to ultimately selecting and briefing the gliding representative. Some tentative decisions were arrived at.

There should be an exchange of information by the experts on airspace in each country. There should be an exchange of views of the gliding associations on the right-of-way rules—it was agreed that the present ones were out of date. It was also decided that the minimum requirements of commercial aviation be investigated and that a "catalogue of gliding requirements" be compiled. The participating countries were Great Britain, West Germany, Yugoslavia, The Netherlands, France and Sweden.

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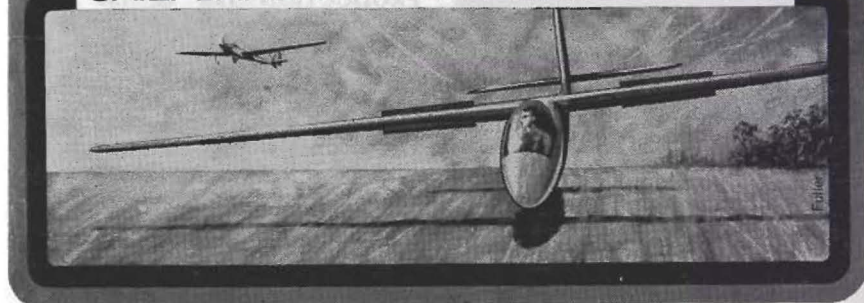
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SAILPLANE & MOTOR GLIDER NEWS



SB-10—29m SAILPLANE

THE 26/29m two-seater SB-10 built over a period of two years and 12,000hrs by members of the Akaflieg Braunschweig took to the air for its maiden flight on July 22.

It is a further development of the 22m single-seater SB-9. According to *Luftsport* the most effective possibility to reduce induced drag lies in increasing the aspect ratio. This increase would on a similar span result in reduced wing chord and Reynolds number, which consequently enlarges the profile drag. The only way out is not to reduce the wing area but instead increase the aspect ratio and wing area. Furthermore an aircraft with a very large wing area produces only a small part in the total drag (harmful drag comes largely from the fuselage).

The wing of the SB-10 is a 5-piece affair to give 29m span or 26m in a 3-piece configuration. The centre-section, fuselage and tail empennage are new designs whereas the outer wing panels have been taken from the SB-9.

The pilot Helmut Treiber flew it first at 26m and then at 29m span and was impressed with its good rate of roll

qualities which were comparable to that of a 20m span aircraft.

Obviously the test flying programme is not yet completed but apparently there are no major snags and the minor ones can no doubt be solved in due course.

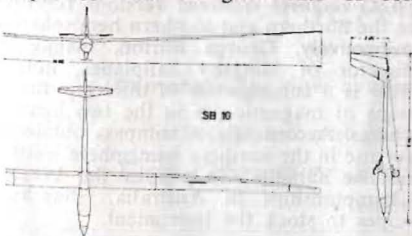
Technical data	5-piece	3-piece wing
Span (m)	29	26
Wing section, FX62-K-153 centre; FX62-K-131 mid-wing FX60-126 outer.		
Wing area (m ²)	22.95	21.81
Wing loading (kg/m ²)	29-39	30-41
Aspect ratio	36.6	31
Empty weight (kg)	577	569
All up weight (kg)	897	989
Pay load (incl 100kg w/ballast)	320	320
Minimum sink at 75km/h (m/sec)	0.41	0.43
Stalling speed (km/h)	65	69
Maximum speed (km/h)	200	200
Glide ratio at 90km/h	53:1	51:1

AUSTRALIAN DESIGN COMPETITION — TWO FINALISTS

A TOTAL of 19 submissions for the Australian design competition for a 13-metre glider (see S&G, Oct-Nov 1970, p430, and Feb-Mar 1971, p74) had been received from eight countries by the closing date.

Of these, two entries have been selected as finalists and the winner will be announced after more specific information from the designers has been considered.

The prototype of the winning sailplane will be constructed by Riley Aeronautics Pty of Australia and presented to the designer together with the first prize of A\$1,000 donated by the Royal Aeronautical Society (Australian branch) (*Australian Gliding*, November, 1972).





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PILATUS PRODUCTION

PRODUCTION rate of the Pilatus glider is to be increased next year due to increased demand. Ten have been delivered and about another 50 have been ordered, Pilatus Aircraft Ltd states. Joint British agents are Yorkshire Sailplanes Ltd, Ripon, and Southern Soaring, Compton Abbas.

BLANIK PRICE INCREASED

THE price of the L-13 Blanik two-seater has been increased to £2,675 plus £135 duty, the British agent, Peter Clifford Aviation Ltd, states. The manufacturer, Omnipol, emphasises that in spite of rumours, the Blanik will continue to be produced.

EQUIPMENT NEWS

OXYGEN MASKS — WARNING

A NUMBER of ex-service pressure demand oxygen regulators, type A12A, are in use in civilian gliding clubs and pilots should be careful that the mask used with this regulator is compatible. Type H masks are unsuitable. Types J, P, Q and R are appropriate. The mask must fit well and be tightly applied to the face.

TOWING EQUIPMENT AVAILABLE

A RANGE of towing brackets and equipment is available from B. Dixon-Bate Ltd, Chester CH3 5NA, telephone 0244-24034.

SWISS 'RED BEAD' COMPASS

THE Swiss compass used by Klaus Holighaus at Vrsac (see S&G, October, p422) requires different versions for use in the northern and southern hemispheres respectively, George Burton, managing director of Slingsby Sailplanes, notes. This is a consequence of differing directions of magnetic dip in the two hemispheres. Accordingly, a compass obtained for use in the northern hemisphere would not be suitable for use in the World Championships in Australia. Slingsbys hopes to stock the instrument.

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BOOK REVIEWS

The Dream of Flight. By CLIVE HART. Published by Faber & Faber, London, 1972, price £5.00. Obtainable from the BGA.

THE history of ideas about flying, and attempts to fly, before 1600AD usually receives only scant mention, if any, in books on the history of aviation. This erudite book fills the gap well, as the author has been to immense trouble in looking up a vast number of sources in many countries. He also reproduces a large number of historical pictures and drawings, some of them requiring an intricate discussion on whether they illustrate a genuine attempt at aviation or not.

The first chapter shows that the earliest recorded attempts at aviation were dominated by two sets of incorrect ideas. In one, the modern jocular phrase "add lightness" was taken seriously, as lightness was regarded as a positive quality—not just the absence of heaviness—and, to make a contraption fly, you had to load it up with light materials.

The second set concerned the layers of the atmosphere, and was astonishingly near the mark: The lowest layer was "warmed by the reflection of the sun's beams", the middle region was "cold and uninviting", containing "watery vapours" (hence the clouds); while the upper region was warmed by celestial bodies—a good description of the ionosphere, except that the ancients believed that it started just above the mountain tops. Furthermore, anything possessing a particular quality was attracted to regions possessing that quality, and hot air rises, it was thought, because it seeks this hot upper layer.

There are chapters on dragon-like windsocks, kites, mechanical birds, winged men, parachutes and windmills, and the longest of all is on Leonardo da Vinci who, among other things, appears to have been the only man in the world to notice that birds could gain height while gliding in circles. But even he could not guess why, any more than Lilienthal could four centuries later. Yet, surprisingly, this chapter shows that Leonardo understood the principle of slope-soaring, just as Lilienthal did, and it is good to see that soaring flight is well understood by the author.

This most learned book may help to solve the problem of why, throughout all those centuries, nobody thought of making a glider.

Handbook of Aviation Meteorology. Second Edition. Published by HM Stationery Office, London, 1971. Price £2.10.

NEARLY all the revisions which bring the old 1960 edition of this book up to date are concerned with those aspects of meteorology which affect soaring flight.

The section on "Vertical Currents in the Atmosphere" has been extended by the inclusion of two more diagrams of lee waves in addition to the single one by Scorer given in the earlier edition. (The pre-war book by Sutcliffe, which these two superseded, had no wave diagram.) The two new diagrams each show rotors, stationary in one, but "streaming down-wind" in the other, which is Föhrchott's. Another change from 1960 concerns flow over slopes and cliffs, facing both upwind and downwind; above a certain limiting wind speed a stationary eddy is replaced by turbulent eddies carried along by the wind, and this limiting speed has been reduced from 20kts in 1960 to 15kts in 1971. But the book still does not disclose the position at which you are expected to measure the wind speed—how far up the hill and how high above ground.

There are new diagrams of the air flow in thunderstorms and, not unexpectedly, new material about high altitude flight. The book covers practically the whole of meteorology, and flying conditions over the whole earth; in fact, it appears to be

intended primarily for airline pilots but caters also for other types of aviators. The latter, especially, are apt to get into trouble over mountainous districts, and need to have drummed into them rather more advice than they are given here, especially if they are of the type which says: "All I want to know is how high I have to go to get above all this troublesome mountain-flow stuff which I just can't understand." (Even this book actually has the words "... adequate clearance should be allowed to avoid the effect of possible downcurrents. . . .") The book has something about deviations from the wind direction caused by valleys, etc, *before* it comes to the up and down flows over mountains. The experiences of the Mount Everest fliers of 1933 showed that pilots who know nothing of the subject should have one thing, and one thing only, drummed into them: that there is a downcurrent in the lee of a mountain. Any attempt to tell them more at that stage would only confuse them. One member of that expedition actually expected a downcurrent to windward of Everest! As to waves, which were not heard of at that time, but now seem to deserve next priority after the leeward downcurrent, the meagre advice given in this book needs to be supplemented by that given in a Civil Aviation Circular issued a few years ago (see S&G Feb, 1965, p25).

By and large, this is a book for aviators who feel they would like to acquire a thorough knowledge of meteorology instead of just the minimum smattering required to keep out of mischief.

Experiments and Experiences at Aachen and Itford in 1921 and 1922. By JOHN JEYES. Obtainable from the author at Holly Lodge, Boughton, Northampton. Price £1.50.

MR JEYES flew in the 1922 contest at Itford Hill with a low-wing monoplane he had brought from Aachen in Germany. He describes in seven large pages how he obtained it at Aachen University, the people he met there (eg, von Karman and W. Klemperer), how Handley Page helped him to get it to England and the flights he made at Itford. There are three photos of the machine (two in flight) and a three-view drawing, and one of a telegram from Handley Page. He has had it privately printed—hence the charge—but it is of much historical interest.

Die Geschichte des Segelfluges: 60 Jahre Wasserkuppe. By GEORG BRÜTTING. Published by Motorbuch Verlag, Stuttgart. Price, DM20.

GLIDING began on the Wasserkuppe in 1911 with flights of up to 500 yards. In 1912 a party from Darmstadt took several gliders there with the conviction, Brüting says, that the Wasserkuppe slopes were specially suitable for gliding and sailing flight (Segelflug). How did they know soaring was possible? Had they heard of Orville Wright's flight of 9½ minutes the year before?

The accounts of pre-1920 gliding are rather sketchy but the annual contests from 1920 onwards are described in detail. A great many names are given of those who organised them or took part, or both; but all had a part in the development of soaring flight, and deserve to have their names put on record.

The facts about Friedrich Harth's 21-minute record of 1921 are made clear. History books have treated it as if its only outstanding feature was that it beat Orville Wright's record of 1911. In fact, it was the only duration record not done by slope-soaring, for Harth used gust energy by means of an all-moving wing, as Brüting says, adding that on that day, September 13, Harth first flew for over six minutes in a wind of 22 to 26mph. Then the winds picked up and, starting at 8.30, he flew for 21 minutes 57 seconds, rising to 500ft, but then crashed, from approximately half that height, not because of any difficulty in gust-soaring but "offenbar" (obviously) because of a broken control. Brüting says the ground was level. J. B. Weiss ("Gliding and Soaring Flight", 1923), apparently from German sources, gives a slope of six degrees—still not enough for slope-soaring.

Brüting explains how, and by whom, the various techniques of soaring were advanced, giving diagrams. At the 1928 contest—the first one I attended—flights of

up to 72km were made, he says, with the help of thermal lift; but he gives no evidence that they did so deliberately, except for Robert Kronfeld, who made an out-and-return flight by deliberately flying below clouds.

Brütting makes clear the crucial point at which the idea of soaring flight as an end in itself was saved for posterity. It was around 1924-25 when the soaring pioneers, having flown in the war, returned to aeroplanes when they became available. The remedy was to establish a gliding school to create a new generation of pilots devoted to soaring; and here Fritz Stamer developed the method of solo training which held sway for so long.

There are many photographs, some of the early gliders but mostly portraits, including world champions. This is the sort of history book to which the term "definitive" applies.

The Conquest of the Air. By FRANK HOWARD and BILL GUNSTON. Published by Elek, London. Price £7.50.

THIS is a finely produced history book with an enormous quantity of illustrations. The pre-aeroplane years are extensively covered including, of course, the earliest gliders. Frank Howard's text in the first half is not merely descriptive, but analyses the ideas in the various inventors' minds which lay behind their advances in design. Lighter-than-air comes into this section, too.

This half, which ends with helicopters, is entitled "The Individual". In the second half, "The Colossus", Bill Gunston takes over, and the lone inventor gives way to the team, roughly speaking. It carries us through to the beginnings of space flight. Modern sailplanes get a single paragraph stating that they are beautiful and that they use thermals. It is, in fact, a history of aerial transport and correctly does not include motor-gliders. It does, however, include man-powered flight, but troop-carrying gliders are excluded though much space is given to military aeroplanes.

Anyway, if you have got the money to buy the book, the magnificent collection of photographs, some in colour, will ensure that it is well spent.

A. E. SLATER

JANE CONTINUES SAILPLANE COVERAGE

THE 1972-1973 edition of *Jane's All the World's Aircraft* includes the now usual section on sailplanes; this time augmented with a number of motor gliders as well as projects in hand by the various Akaflieg Universities in Germany.

Although nothing we have not heard of already is mentioned, there is a GA drawing of the Glasflügel 701 19m side-by-side two-seater with a claimed glide ratio of 44:1.

As it is now over 10 years ago since *The World's Sailplanes Vol 2* was published, Jane's has bridged the void and provided the continuity of what is new in the sailplane world.

The 1972-1973 volume (approx 800pp) can be obtained from Sampson Low, Marston & Co Ltd, London, price £12.95.

R.H.

IN LIEU OF REVIEW

THE following recently-issued books are being stocked by the British Gliding Association, and in lieu of reviews we offer a few notes:

Jane's Historical Aircraft from 1902 to 1916. Fred T. Jane introduced the publication which became *Jane's All The World's Aircraft* in 1909. By 1917, developments in the field had grown to the extent that it was felt that the history of aviation was by then long enough, and important enough, to warrant a special section in this annual reference book. The present 96p book, published by MacDonalds at £1.95, is a facsimile reprint of this historical section of the 1917 *Jane*. Photographs of 150 aircraft form the mainstay of the book and other features include introductions and

an aeronautical dictionary in which, incidentally, "aerodonetics" means the science of soaring flight. Thoroughly recommended for anybody interested in early aviation.

Jonathan Livingstone Seagull, by Richard Bach. Anyone who read this fantasy when it first appeared in *Soaring* (and reprinted in S&G, February 1969, p37) will be devoid of a soul if they do not immediately rush out and buy this enlarged book version, profusely illustrated by photographs by Russell Munson. How often have you stood by the shore, watched the gulls soaring and wished you were up there with them? This 96p book is perhaps the nearest you'll ever get, and in this first British edition from Turnstone Press Ltd makes surely the ideal Christmas present at £1.50.

Worlds Apart, edited by George Locke, Cornmarket Reprints, 192 pages, £2.50. Frankly, this embarrasses me. I happened to show it to Barry Rolfe, the BGA secretary, and he thought it would be a good one for the BGA to stock. There's no gliding in it, however—it consists of a facsimile reprinting of a number of Victorian and Edwardian science fiction stories using the interplanetary theme taken from the magazines of the period, complete with the original illustrations. Flying of a sort comes into many of the stories, although the principles in all but one have nothing to do with aerodynamics (anti-gravity forces, anti-gravity metals and so on). The exception is "The Strange Case of Alan Moraine" of 1912 in which a lone aviator seeking altitude records is captured by winged beings from a disc-shaped space craft and carted off to their home planet. One cannot, in all modesty, say more than that the intention of the book is to show how our ancestors pictured spaceflight.

G.L.

CORRESPONDENCE

TRIMMING FOR TAKE-OFF

Dear Sir,

Re Rodney Witter's article "Trimming for Take-Off", (S&G, October, p370). While not disagreeing with any of his conclusions I feel he has missed the most important reason for trimming forward for a winch launch (not necessarily fully forward). In the event of a break near the ground a landing is of course imminent, probably with no time to retrim. I consider it is most important to have the aircraft trimmed for landing. If trim is set neutral the speed could well have a tendency to fall off with disastrous consequences. I always brief pupils: For a winch launch trim ready for an early landing.

Most pupils have no hesitation in lowering the nose quite firmly after a break, in fact it usually takes several seconds for the dust, grass and other debris to settle.

Lewes, Sussex.

JIM TUCKER

MOTOR GLIDING

Dear Sir,

I have been following the developments in this field with great interest, but continue to sit on the fence as I have not yet found the right solution.

It seems to me that the engine-in-front solution is not satisfactory for two reasons: (1) The forward view is spoiled, and the sight (and burble noise) of the stationary propeller is a constant and irritating reminder that one is in an aeroplane not a glider; (2) The weight in the nose brings the C.G. so far forward that a low wing position becomes necessary—greatly restricting downward and rearward vision.

Only the SF-27M-type solution seems right. But here I have a serious personal gripe. Being 6ft 4in tall and weighing 225lbs I cannot fit into it! Now if one is going to abandon purism and ultra efficiency for a practical compromise with comfort and convenience surely one should follow this through by providing a cockpit of unusually generous dimensions? The ever-growing body of frustrated large pilots demand it!

Another objection I have to many of the present designs concerns the hideous non-retracting wing-mounted "pogo sticks". Surely it cannot be beyond the wit of man to devise a more aesthetic solution to the taxiing problem?

My final suggestion is this: The present concept of motor-gliding seems to be restricted solely to that which provides full aeroplane performance. A much less stringent, and consequently cheaper, concept would be only to provide sufficient power to get you back to base when you finally fall out of the thermals—launching taking place in the usual way.

The power required to keep a glider in the air is considerably less than that required for a satisfactory take-off from grass. For instance the new Polish "Jantar", written up in the last issue, would require only 3½hp at 60mph (assuming a theoretical 100% propeller efficiency). Allowing for propeller inefficiencies and engine drag, and a slight margin for gaining altitude, 8/10hp geared to the right prop should do the trick—for example the 26hp fitted on the SF-27M.

MGs could then be offered in two alternative packages—"aeroplane-powered" and "retrieve-powered"—which, coupled with larger cockpits, should help to widen the market for the basic concept.

London.

R. D. MORRELL

GLIDER PRICES

Dear Sir,

Your correspondent J. C. Davies in your October-November (p437) issue must be kidding himself. Does he not know how prices have risen since 1969? A sailing dinghy will cost about 50% more than in 1969. Has he priced a mini car lately? Costs of skilled labour have risen by 50% and materials are considerably increased. "Gipsy 135" is priced very competitively, and at £2,300 is extremely good value for money.

I am glad that you printed the letter from J. L. Sellars in the same issue, he has put the situation very neatly and I hope J. C. Davies has read it.

We are trying to get into production with our basic glider in the hope that we can expand and compete with the almost total domination of foreign manufacturers.

Next year will see VAT in operation; we are preparing a request for exemption and I should be glad of any support that the gliding movement can give.

Birmingham Guild.

L. B. SUTER

UK & USA COSTS COMPARED

Dear Sir,

Your small note "UK & USA costs compared" in the June/July 1972 issue (p199) is not really very fair and accurate, as it compares UK club costs with USA commercial operator costs, which are quite high by USA standards.* USA club costs are much lower and in fact seem comparable with UK.

For example, the Douglas Soaring Club (of which I'm a member) operating at El Mirage has dues (ie, subscriptions) of \$12 per month (approx £5); this covers unlimited flying; tows are provided by the commercial operator at their normal rates (currently \$5.50, approx £2.30, for 2,000ft). The club has 30 members (and a waiting list) and owns three gliders: Schweizer 2-32, 1-26 and a 1-34. Flights are limited to one hour if another member is waiting to fly; as several members, like myself, own their own glass birds, there is not too much waiting. Some members manage to fly over 10 hours per month, so you can see the cost per hour is quite reasonable.

Incidentally, at El Mirage soaring is possible all months of the year. Some of the strongest lift occurs in unstable winter conditions; the probability of a good day is greater in the (hotter) summer when air masses are less unstable but temperatures exceed 100°F.

Long Beach, Calif.

J. L. T. WILLIAMS

*PS—Commercial operators may not draw attention to clubs; renting is more profitable than towing.

J.L.T.W.

FOR SALE

KITE 1. With instruments and trailer. As original. Major C of A just completed. £400. Trailer a bit tatty. Apply to Gerry Kemp or Jim Beck, Ripon 3360.

TUTOR GLIDER — perfect condition. No Log Book — offers to Denny Wilson, Kingussie, Inverness-shire.

SCHEIBE FALKE new engine, 300hrs gone. C of A expires 30/12/72. Price £3,100. Lasham Gliding Society, Alton, Hants.

SKYLARK 3B, full panel, including Elect. Vario, Art. Horizon, 2 compasses, **GOOD TRAILER**. £1,700 ono. Apply P. Ramsden, Tel. Tadcaster 2694.

THE REGAL EAGLE, 20 metre span, high performance two seat glider. Complete with two full panels of instruments and trailer. £1,500 ono. **SLINGSBYS**.

FRANKLIN FALKE fitted with 65hp **FRANKLIN ENGINE**, used only for certification purposes. 1500 hour overhaul life, electric start. Complete £4,200 ono. **SLINGSBYS**.

ALPHA RADIOS, **ALPHA 10** and **ALPHA 100/360** at pre sinking pound prices. **SLINGSBYS**.

SKYLARK 3 immaculate condition. Just resprayed. Panel includes A/H, C of A valid to March 1973. Fully automated trailer. £1,700 ono. Phone Stratford, 2650 day or 5939 evening.

CIRRUS (open class) with excellent trailer, can be seen Husbands Bosworth. Denis Heathcote 0533-25171 (bus.) or Wigston 6659.

SKYLARK 4 with trailer. Full instruments, radio and parachute available, or basic instruments if preferred. Snow, c/o S.G.U., Portmoak.

SKYLARK 3B/f mods, Dart canopy, servo tabs, good trailer, full panel, new batteries, radio, groundset, etc. £1,650 ono. Comp. No. 73. View Husbands Bosworth. Tel. Leamington Spa 20443 or 29275.

PYE CAMBRIDGE ground set £65. Murphy Air Set £45. Both recently overhauled. Swadlincote 7069.

OLYMPIA 463 Comp. No. 301 with full panel and easy load trailer. All in excellent condition. Offered for sale January 1973. View Camphill. E. C. Neighbour, Boath Hall Cottage, Charlestown Road, Manchester 9. 061-740 8122 Home, 061-236 3377 ext. 7431 Office.

QUARTER share Dart 15, instruments, trailer, radios, oxygen, parachute, barograph, £600. Based at Booker, Giles, 4 High Beeches Close, Marlow, Bucks.

PHOEBUS C with virtually new Speedwell trailer and GQ 737 parachute, £3,700 ono. **SKYLARK 4** with trailer £1,695. Maybe seen at Lasham. Contact Richard Brisbane, 01-440 6965.

LIBELLE trailer 26' lightweight, low profile, £360. 27' trailer metal clad with fittings for **COBRA**, £400. Telephone Bourne End 23458.

OPEN CLASS CIRRUS with instruments and fully fitted trailer. Tel: Burton Latimer 2963.

BEAGLE AIRDALE, built 1963, 360 Narco radio VOR. Bendix ADF. Fitted with Towing Hook. Modified engine—800 hours. £2,950 ono. Contact Ron Brewer of J. S. Brewer & Sons Ltd., Truro, Cornwall. Phone Truro 2050/3540.

K-6E white wings/fuselage, coral on the underside, 250 launches, light-weight trailer, based Dunstable. Prompt delivery, £2,500 ono. R. F. Pollard, 4 Spenser Road, Harpenden, Herts. Tel. 4367.

PYE "Ranger" groundset, both frequencies, good working order, £25. "Radac" magnetic roof aerial, £6. Write Harwood care BGA.

WINCH — ex barrage balloon — V8 motor with 3,000 ft. plus of good cable all in sound working order on four sound wheels less battery. £350 — Jefferson, Hill Wicket, Childs Ercall, Market Drayton, Salop.

TRAILER BARGAINS — Two ex-dem glider trailers available at 20% off. One 27' 6" for £317 (Cobra fittings £69 if required), one 32' 10" for £343 (Kestrel fittings if required). Landsman's (Co-Ownership) Ltd., Buckden, Huntingdon, PE18 9UJ. Telephone: Huntingdon 810 287.

PYE CAMBRIDGE for sale, 2 channels, 129.9 and 130.4. £65. Dunstable 67700.

WANTED

WANTED: old gliding books, plans, magazines — in particular, pre-war Sailplane and Glider. Write with offer — Box No. SG 389.

VOLUMES or set of the Sailplane and Glider. Gilkes, Eye Hospital, Brighton.

WANTED — single or two seater glider for new syndicate. All replies in confidence will be considered and answered only if the fullest details of condition, location, equipment, instruments, etc., together with photograph are sent in the first instance to Box No. SG 390.

DART 17r required. Details to Lee, Aldham, Colchester. Telephone Colchester 210528.

WANTED for hire for Winter months Blanik, K-13 or similar. Telephone Bolton, Lancs. 21877.

SKYLARK 3, OLYMPIA 463 or similar, with trailer wanted early 1973. Box No. SG 391.

WANTED. T-21, T-31, Cadet or Tutor, state price and condition, all replies answered. D. W. Savage, The School, Greystone, Carmyllie. Tel. Carmyllie 265.

T-21/SEDBERG. State condition and price, (damaged glider considered). Immediate inspection and decision. Telephone C. Thomas, Leamington Spa 20443 or 29275 evenings.

WANTED. DART 17r. 7 Amberley Close, Downend, Bristol. Phone after 6pm. Bristol 651630.

INSURANCE

We are experts in glider and aircraft insurance. Let us quote you the lowest rates with the most reliable companies. Write to Brian Gudgin,

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SITUATIONS VACANT

COURSE INSTRUCTOR required by Derbyshire and Lancashire Gliding Club, May-September, 1973. Applications to Mr. R. A. Hare, 70 Newman Road, Rotherham, Yorkshire.

VACANCIES

at the LONDON GLIDING CLUB

DEPUTY CFI. Applicants must have full BGA cat. and PPL. Permanent position with accommodation is offered. Salary to be negotiated in accordance with experience.

ASSISTANT INSTRUCTOR. Applicants must have full BGA cat. PPL desirable but not essential. Preference will be given to applicants seeking a permanent position but seasonal employment considered. Salary in accordance with experience.

Write with details of experience to

**The Manager,
London Gliding Club,
Dunstable Downs,
Dunstable, Beds.**

COURSE INSTRUCTOR wanted for 1973 Summer Courses at Essex Gliding Club, North Weald Airfield. Full rating required, preferably experienced with autotow/pulley launching. Details from Secretary, 92 Haynes Park Court, Hornchurch, Essex.

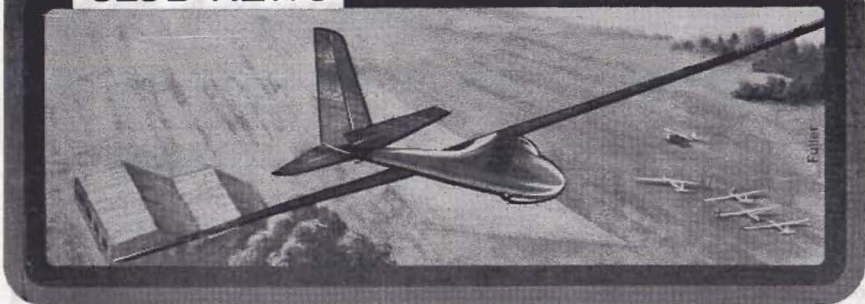
COURSE instructors, full BGA or assistant rating, and tug pilots required for 1973 summer season. Apply giving full details and dates available, to Manager, Worcestershire Gliding Club, Bidford on Avon, Worcestershire.

FINANCE

FINANCE for your glider purchases. Advances made on your present glider. Peterborough & Fenlands Finance Limited, 15 Broadway, Peterborough. Telephone 66191.

It will, of course, be understood that the British Gliding Association cannot accept responsibility for the claims made by advertisers in "Sailplane and Gliding".

CLUB NEWS



THE Club News reports generally tend to confirm what we in our office (even though isolated from real-life contact with gliders) have long suspected—that 1972 was a poor soaring season. On the credit side, it is encouraging to read of the activities and successes of the newer clubs.

Copy and photographs for the February/March issue should reach the Editor, S&G, British Gliding Association, Artillery Mansions, 75 Victoria Street, London, SW1, telephone 01-799 7548, not later than December 4.

Copy and photographs for the April/May issue should be sent to the Editor not later than February 14.

October 18, 1972

AQUILA (Civil Service)—awaiting hangar planning permission

DESPITE the difficulties of de-rigging each evening (planning permission for our hangar has still not arrived) it is most encouraging to note that our launch rate has increased during the past year, although in common with most clubs restricted to week-end flying, bad weather has caused a slight drop in number of hours flown. A recent addition to our equipment is a twin-drum diesel winch.

Twenty members visited Camphill in September. Although winds were calm for most of the week, most members tried their hands at ridge soaring on the Friday. Our thanks to the Derby and Lancs club for the use of their facilities, and a very enjoyable week.

Back at Hinton-in-the-Hedges the members who could not go to Camphill did some sterling work on the winch, which resulted in our obtaining some very good launches.

All members sympathise with our CFI on his abortive Gold triangle. However, although the flight may not have been outstanding the retrieve certainly was and indirectly proved that lady members can de-rig T-21s by lamplight.

E.A.C.

BLACKPOOL & FYLDE—on becoming a hill-club

WE HAVE bought a hydraulic digger, a tipping lorry and a caterpillar bulldozer which have made our earth-moving operations quick and enjoyable. Our treasurer is happy to have equipment to sell later, rather than bills for hire of gear plus drivers, so it is only our safety officer who is slightly worried. We have excavated our hangar base from a slight slope and produced useful fill for the field. The hangar kit is due for delivery, and we might even have assembled it before you read this report.

We have done a little flying on the hill to prove that the lift is still there, and to give some instructors a look at the local landmarks. Bill Scull brought the Falke to Samlesbury, and we arranged for an east wind at only 8kts. This gave us our first chance to try this face, and in a marginal wind strength. Bill gave most of the instructors a flight to the hill and we soared below hilltop height with Bill giving encouragement and most welcome advice. We even switched the fan off when we had found the best bits of hill face, then did dummy approaches over our new site, then climbed to winch launch height to glide back into the hill

lift. The essential manoeuvres close to the steep slopes were most exhilarating, and the confidence we gained was very valuable.

While the east wind blew we proved it again with the Fauvette, and then we had some good soaring on the north-west face. Despite the temporary restriction to 800 yards of winch run we had no difficulty reaching the hill lift which was sure and strong, and we found we could climb away from 300ft below the summit even in very light winds. To combat over-confidence, one pilot showed how to lose sight of the landing ground, and pioneered a small field a mile away.

We have firmly decided to move all our gear at the end of October, even if the flying will be restricted and we can't use the hangar. We will hold a bonfire, barbecue and barn dance on November 4 to christen our clubhouse. With dim lights it will look most arty and primitive, but at least it will force us to get the toilets installed and the kitchen working. How much better than having your clubhouse at another airfield 20 miles away!

K.E.

CFI'S NOTE

The preliminary flying to date has demonstrated that the hill section is soarable effectively from east through south to north-west wind directions. Wind strengths as low as 10kts enable ridge-top height to be exceeded by 200ft on average, which is extremely encouraging.

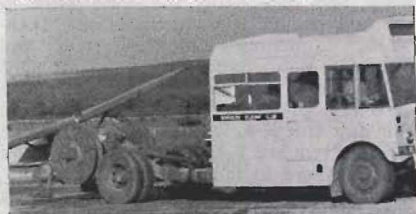
The change in operations and the re-training programme is bound to be extensive, especially bearing in mind our large flat airfield experience. In view of the anticipated complications it is with regret that limits will have to be applied to visiting pilots. It is considered better to publish the basic rules of acceptance in order that people are not disappointed, but anyone is welcome to come and look at the site and our operations.

The following rule of acceptance will be applicable until further notice is given in S&G Club News: Pilots with or without their own aircraft cannot be accepted unless they have, as a minimum, a full Silver C, 50 hours hill soaring and P1 hours in excess of 150. Pilots who meet or exceed these requirements will be expected to have a site check.

D.S.

BORDERS (Milfield)—progress

OUR last news predicted a new winch, a new instructor from within the club and a new two-seater. The first, based on an old bus, has been completed by the unassisted hands of Alan Urwin, and uses piano wire and large drogue chutes. With a choice of eight speeds, we can achieve at times 1,600ft. It is mobile; we tie the ends down at the launch-point and drive the winch to its operating point to lay out the two cables.



Our new instructor is Jimmy Hogarth, but we have not obtained a new two-seater. Since we now have so few under-training members, we have instead bought a delightful Skylark 3.

Charlie Donaldson has done more to keep us flying this year than anybody. A regular visitor from Portmoak, he has set a high standard of both knowledge and safety in the club, and we owe our thanks to him.

During this first year of regular operations, we have enjoyed thermals, wave (not much, but it's there), sea breeze (but we didn't realise it at the time) and we have found that the hill works well in N-NW winds. Next year's target: A serviceable trailer for the T-21, exploration of Chillingham ridge, at least four Silver C's, some Gold heights and another instructor out of the club. But now—down to the job of C's of A.

C.B.G.

BRISTOL & GLOUCESTERSHIRE—Shobdon expedition

THE club made a very successful weekend visit to Shobdon over October 20-23, every day providing wave soaring in winds from north round to west. On the Friday the advance party reached 6,500ft in a northerly wind, using thermal up to 4,000ft and then wave. Saturday's maximum height of 9,300ft was achieved by

Stuart Waller and Bill Coombs in their K-13.

This machine had another exciting flight on the following day. Chris Hughes and Nick O'Brien took off and were towed through a thickening cloud sheet to 6,500ft, but found no lift and descended through it again, emerging 12 miles downwind at Hay, where they proceeded to soar a small ridge until the crew and trailer arrived. They then latched on to wave in improving conditions, and flew along the same wave in the now-backed wind to Shobdon. Meanwhile, launching had re-started, and pundits Ron Sandford and Howard Johns got to 12,000ft and 10,500ft and a club K-8 pilot reached 5,000ft. Later in the day the K-8 was at it again; Mike Cleaver reached 8,420ft, but had to leave 2kt lift there to land before dark.

This was the first noteworthy flying since Silver distances had been won by Santiago Cervantes and Don Chatterton in August.

No. 417 syndicate are proud to announce the arrival of their new baby Libelle, and are busy making a carrycot. Dart 409's trailer has also been rebuilt following the ravages of last winter's gales.

Pete Bray has taken over as deputy CFI from Geoff McBroom, who has retired because of other commitments.

We now have several large coils of thick plastic water pipe sitting quietly outside the hangar and waiting for somebody to dig a trench and bury it! We hope to get this started before the weather gets too cold.

Our club news ends on a sad note: Lt Col Donald Tapp passed away at the end of August. He had been a member of other clubs, including Dunstable, before he joined us in 1956, and was to be seen at the club most weekends from then on. Though he was unable to fly solo following an ear infection two years ago, he remained a safe and active pilot well into his seventies. Visitors to our competitions will remember him as one of the stewards, and the Kite 2 tail adorning the Bar used to belong to him until another pilot broke it. All club members, particularly his partners in 33 syndicate, will miss his presence and love of flying.

M.J.C.

C.I.T. (Cranfield) — 300km triangle in Olympia 2

THE past season has seen a significant upsurge of cross-country flying out of Cranfield and several successful forays into competition. Our flight of the year must go to tug pilot Peter Collins. To prove that his 300km triangle of five weeks earlier was no fluke, he repeated the course on August 11 in the club Olympia 2a. This was only his fourth cross-country and was only undertaken with a view to landing in a field (he hasn't done a field landing yet!). The club would like to hear of anybody who has done a 300km closed-circuit in an Oly 2 since the fact is unheard of in our locality.

On the lighter side CFI Howard Torode supplied glider aerobatics for a display laid on by Cranfield ATC for the International Model Pylon Racing meet held here over bank holiday weekend.

The number of sailplanes operating out of Cranfield has increased considerably, several members having ventured into private ownership. Even so, competition for the club K-6 is keen and a

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second high performance club ship will have to be found, or our members will start getting killed in the rush next season.

Please remember when passing Cranfield that it is an operating civil airfield and basically PPO during working hours. However, there is usually someone on the ground to welcome glider pilots producing tidy circuits outside working hours.

R.T.

CAMBRIDGE UNIVERSITY — tailless Skylark

OUR diesel winch has performed excellently this summer thanks to Harry Boal and his engineers and to Charles Perkins and his winch drivers. Plans are going ahead to improve our aerotowing facilities before next summer so that we can launch the ever increasing number of sailplanes based here. Most of the cross-country flying in club gliders this year has been unintentional. However, the Olympia has carried two more pilots on their Silver C distance flights.

Several club pilots visited Zell-am-See this summer. Although the thermal conditions were not outstanding, Tony Maitland used the wave to climb to 28,500ft on one day and on another he flew 300km to Innsbruck and back in wave. In June the club Skylark 4 was inappropriately used to harvest a Cambridgeshire wheat field. Luckily only the tailplane was destroyed. We are very grateful to "41" syndicate at the Midland club who lent us their tailplane for the fortnight in June when we visited the Long Mynd. How they should log the 33 hours that their tailplane flew with our fuselage is a mystery.

P.K.

COTSWOLD — impressive statistics

DESPITE the summer (?) the Cotswold club has had a very eventful year. Shame to say we lost the task week with the Worcestershire club at Bickmarsh for the second year running. Once again the event was decided on two tasks and we are slow starters (that's our story!). However, we tried hard to make up for this and entered the Western Regionals as a club, for the first time.

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Telephone: Retford 2841

Despite the poor pundit weather, lesser mortals in the club have produced some very impressive statistics. We have so far this season had 14 first solos, eight Bronze C's, three Silver C's complete and two Gold legs. Percy Martin, our new CFI this season, has had a good start to his career.

Club members are now planning end-of-season and winter forays to Portmoak and Shobdon. We are also hoping for better luck with our ridge site on Cleeve Hill than we had last year. Last winter, on about the only day the wind was blowing in the appropriate direction, members could not get the winch past the entrance gate in the blinding blizzard!

J.D.H.

COVENTRY — membership exceeds 300

THIS year has possibly been the worst soaring season at HB. However, we did experience something of an Indian Summer with several cross-countries being made in late September. We held another club competition and the Bocian syndicate suffered one of the longest ever retrieves when it was found to have landed in a field behind a pub. There has been a great increase in the *ab-initio* members and membership is fast rising to well above the 300 mark. Our congratulations to two more instructors—Sid Gilmore and John Osbourne.

Several gliders went from HB to the Southdown club to the Veteran and Vintage Rally and the Olympia 1 "Jacob's Ladder" won the Concours d'Elegance.

More mundane achievements include repairing the drains (at last), refitting the

club kitchen with a deep-freeze, completion of a new parachute cupboard and a revolutionary new battery charger.

Some new gliders have already been ordered, including the BG-135, destined to arrive sometime in the new year.

To brighten up our dull lives at HB, we have been honoured recently with visits from glider pilots from all over the globe, taking back (we hope) pleasant memories of British gliding.

V.G.

DERBYSHIRE & LANCASHIRE— shades of Colditz

OUR courses were again well attended, some being overbooked. The Aquila club took us over again for a week at the end of September, enjoying themselves and their flying, and a group from Bedford arrived during October but unfortunately, the weather did not provide for them.

Our flying fees were raised again on October 1 to 37½p for a winch launch and £1.50 per hour. This was a high percentage increase but is still cheaper than most of the bigger clubs, and we are still one of the very few clubs with a clubhouse, clubroom, messroom, bar, showers, bath, flush toilets and bunk rooms—all centrally-heated.

The Army invaded us at the end of the summer to build us two new grass runways across the airfield. So far they have built a compound to house their equipment—shades of Colditz—and have ruined the members' car park, but they still insist they know what they are doing. We, however, are wondering what will happen when they attack the field itself.

We thank all those who have visited us during 1972 and say to those who do not yet know us: Why not make a note in your brand new shiny diaries to drop in and join the "fundits" during 1973? Give us a bit of notice and leave the rest to us. We assure you a warm welcome.

P.H.

DEVON & SOMERSET—careful costing

TWO items of note have to be reported in this issue—the unfortunate collapse of the undercarriage of the tug aircraft while taxiing and the good news of the

purchase of a Dart 15 for the club fleet. This brings our club aircraft to a total of four—two two-seaters and two solo machines. The private owners' assembly has been increased by a Skylark 2 and a third Grunau, the latter having virtually been rebuilt by Colin and Mary Weeks over a period of years. This makes 15 privately owned aircraft ranging from Std Cirrus to Grunau.

We are now tidying up the records for the AGM and await the financial repercussions of our operations during the year. Like most clubs we are casting an anxious eye on the possible effects of Value Added Tax which comes into operation on April 1. The clubhouse committee have been experimenting with a microwave oven, pre-cooked meals and the economics of a drink vending machine. The latter shows better prospects of proving profitable than the meals which need careful costing before we decide. With the prevailing wind seemingly determined to blow from the East rather than the West we offer a cordial invitation to the many clubs upwind of us to "drift in" and sample the facilities at North Hill.

A.E.R.H.

DONCASTER & DISTRICT—a good old downwind dash

WE are pleased to report plenty of activity on the flying side. The club now has 150 flying members, a large clubhouse with workshop facilities, and a rather crowded hangar. The club fleet is at present one Motor Falke, one K-13, one Olympia 460, two Swallows and launching is by a hired Condor or winch. An additional "hot ship" is being sought to relieve pressure on the single-seater list.

The airfield is amicably shared by the Doncaster Aero Club, and our present system of operating light aircraft and gliders together seems to work quite nicely.

Exploratory work for the M18 is taking place at present on the airfield, but if all goes as planned, our operations should not be greatly affected.

On a cracking day on September 10 a race to Skegness was quickly organised. There is still nothing like a good old downwind dash to set the pulse of the

coarse soaring pilot beating! "Big Jack" Sharples was declared winner in his Skylark 2B and Tony Moon a close second in his K-6.

George Burton gave a talk on the World Championships on October 7, in the clubhouse, which was well received by a packed audience.

The club has lost the services of instructor Bob Plane, who has emigrated to South Africa. We wish him "good soaring".

D.J.W.

DORSET—second task week successful

OUR second task week, from August 19, offered much better opportunities for all taking part than the first one, and provided some keen competition. With two visiting teams, a total of 10 gliders attempted the tasks which were set by different instructors each day. The top-scoring glider was "Silvo", an Oly 2B ably piloted by Harry Wolf and Mike Bryan who made the most of the days when conditions suited it. Ted Andrews and Norman Ayres flying their K-6 came second while H. Beckton and K. Stanley, visiting from Booker with their Pirat, were placed 3rd. During the week 10 Bronze times were recorded by club members, also one Silver distance and two Silver height claims were made, one of these in a Tutor which the owner Derek Murray, visiting Dorset from the Peterborough club flew with considerable skill all the week. Winsor Lewis made his Silver height in the club Swallow but missed his 5 hours by 10 minutes in the same machine.

Lawrence Rice has now joined the ranks of assistant instructors at the club.

Although the launch rate has improved since our last report due to the successful task week and better weather, it is still down on last year's total for this time of year and a good autumn is everyone's hope at the moment.

M.L.B.

ESSEX—500km triangle in a K-6

DESPITE the appalling weather conditions, particularly evident at North Weald during the weekends, we have managed,

through the tremendous efforts of our CFI, Graham Martin, and our launching team, to obtain a near record number of launches. But more important we have been able to increase the efficiency and therefore the profitability of our launching. The main contributing factor has undoubtedly been the re-introduction of the reverse pulley launching system which appears now to be at the fine-art stage of running efficiency.

Our most note-worthy flying achievement of the year was undoubtedly that of Alan Vincent, who managed a 500km triangle in his K-6E. We understand that this is the first time that such a flight has been made in a K-6E in this country. This particular machine has also done two Gold heights this year while piloted by our club secretary, C. Nicholas, and his fellow syndicate member, F. Sage.

Coupled with several Gold achievements we have Silver and Bronze legs too numerous to mention, with the possible exception of the flight made by Dr R. Hayden in a Skylark 4 achieving Silver distance, height and duration in one flight. We understand from the BGA that he is only the second person to achieve this feat since acceptable.

P.F. McE.

INKPEN—open day success

WITH the purchase of new winch cable and better weather our launch rate improved, only to be hit a few weeks later by a lack of pupils. To rectify this position an "Open Day" was held on September 30, which proved very popular, with an attendance of about 500 people. We managed to give air experience flights to over 50 with a fair proportion of these joining the club as full members. It is hoped that these new pupils will enable the club to thrive during the coming winter season. Our thanks go to all who gave some excellent flying displays during the afternoon. Activities continued with a bonfire, barbeque and booze up for club members and their guests, and judging by the lack of activity the following morning, a good time was had by all.

Congratulations go to the five members to go solo in the past two months. Ralph Jones did very well in *The Daily Tele-*

graph competition, coming fourth, only nine points behind the leader.

Bath & Wilts club joined us during August bank holiday, and although the weather was not startling, most were glad to be able to fly as their own field was closed during this weekend. Our thanks go to Bill Davis, who allowed some of our pupils to fly in the Bocian when our T-21 had to be taken out of action for a short time.

On the private owner side, we have lost a Skylark 4, which is now over the sea in Ireland, and Ron Wright has parted with his Dart 17R. Against this, Anthony Stansfeld is flying both with ourselves and our Army neighbours at Upavon, in his new Std Libelle.

We now all await the winter north winds to see how the club manages to utilise the ridge in normal club flying, and are starting to think about a second club two-seater of a higher performance than the T-21.

I.R.C.

LINCOLNSHIRE—counting the cost

AT Bardney we are counting the cost of a generally poor soaring season and the loss of one Bergfalke 2 and damage to the other through accidents. At the moment we are reduced to operating our original T-21, and Eon Baby, thanks to the generosity of its syndicate.

In an effort to reduce stranded cable wear and costs, a monster piano wire winch is under construction by Charlie Jennings and Jim Aitkin.

Congratulations to Rod Brister who gained all three Silver legs in his Weihe while on a week's visit to Saltby, also to our secretary Tony Mawer on finishing his Silver by keeping his eye on the site from the Gull for five hours—well he was the duty instructor!

J.R.S.

LONDON—Kestrels and a Rogallo

EVEN though we have had remarkably dry weather during the late summer and early autumn, there have been no flights achieved for a Gold C. The *Daily Telegraph* contest coincided with some good days, including one with the breaking of the 200km record, but even this did not last for long. John Cardiff did well in

this contest to finish third in the Standard Class against tough opponents, while the club chairman in his new Kestrel 19 finished fifth in the Open.

Two more Kestrel's will be arriving on site before long, and also a Kestrel 17. An ASW-17 is also ordered, but some time is likely to elapse before it materialises. Back down the scale, a second two-seater Goevier has been acquired by Ken Crack, adding to our privately owned two-seater fleet of two T-21's, the Shorts Nimbus and the Dunstable Kestrel. The Minimoa has been flying too, conjuring up pre-war days. Right down the bottom of the glide ratio scale, John Cardiff has acquired a Rogallo hang wing glider. He has done a number of short flights, with minor physical damage, and the glider has since been undergoing fabric mods which had been responsible for difficulties in pitch manoeuvres. The progress of this venture will be watched with considerable interest.

Although Geoff Naylor left during the summer, he is still helping out part time with instructing. Painting however, is now his primary objective, and one of his excellent works now graces the Club's dining room. Thank you, Geoff. Mike Till has also been helping with part time instruction, and Don Gerrard is back with us after an absence of about two months in the summer.

M.P.G.

MIDLAND—launching record broken

ON the whole a not very exciting season with more than the usual quota of frustration at week-ends. This was the year we revived our long neglected task week-ends. The weather was poor and tasks were set on only three of a possible eight days. Nevertheless, the flying provided excellent experience for some early cross-country pilots, and for Bronze C pilots who flew as P2 in the two-seaters. We are determined to keep the task week-ends alive next year.

The BG-135 had a "fly-it-and-find-out" session of about a week on the Mynd. It was flown by the CFI, the chairman and sundry others, and in company with other club aircraft. All were impressed by the performance and handling, and after due deliberation the committee has

placed an order. We look forward to delivery early in 1973.

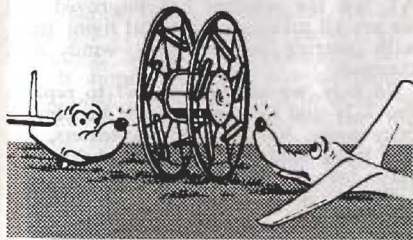
The trailer-park is becoming congested. The yellow Foka is back on the site, Glass Broomstick is here; and Gordon Herringshaw recently acquired a K-6E. Other syndicates are mooted.

A 13-year old club record went this year when 150 launches were packed into one (mid-week) day. One winch. One drum. One retrieve winch.

W.J.T.

NORFOLK—new launching device?

THERE was this huge, rocket-propelled wheel affair parked by the clubhouse, and nearby was a certain Fordson delivery van complete with portholes. "Dad's Army" was on location, defending their secret weapon on the wide open spaces of Tibenham airfield.



We hope that they had more success than we have had this year, for we have little to mention by way of gliding achievement; in fact we are still waiting for the 1972 soaring season to begin. However, with negotiations under way for a Conдор tug, we hope for better things next year. The National Coach spent a week-end with us and checked out Eric Titman for SLMGPPL.

C.E.H.

NORTHUMBRIA—highest accident rate ever

THIS year we have experienced our highest accident rate ever. Damage to persons have been two backs in separate heavy landing accidents involving a Skylark 2 and a T-31; and multiple fractures in a near write-off of a 463 in August. This latter pilot is likely to be in hospital well into the New Year. Minor aircraft damage has been repaired on site, major

repairs have been affected by Jack Ramsden of Wesley Sailplanes. We have nothing but the highest praise for the very high standard of workmanship and finish achieved by this one-man business.

This was our first year of seven days a week operations. Though the public courses did not attract as many as we had hoped, a large proportion of course members eventually joined the club to swell membership to an all time peak.

The National Coal Board is willing to sell the four acres of land on which the hangar, clubhouse, trailer park, car park and fuel tanks are sited and there is the possibility of further extending this area when local open cast mining operations are completed. The army has also agreed to return to the site and double the width of our aerotow strip which at present is a rather congested two wingspans wide.

Negotiations with Newcastle Airport have continued and appear to be reaching a satisfactory conclusion with a local agreement that unless prior permission is obtained we keep out of a box 14 miles long, two miles wide and 5,000ft high lying along the Tyne to the north of the site. Their traffic routes are altered to pass further to the east of our site. The "forbidden box" is strictly a local agreement and is in no way binding on the gliders launched from other sites.

J.R.G.

OXFORD—soaring fees up

THE committee has reluctantly decided to increase soaring fees from 60p to £1 per hour. This was made necessary by the increased site rent. Launch fees stay at 30p. The splendid new club-built Tost winch is now in full, smooth operation with heights of 1,500ft being regularly obtained.

We have just finished the first year's operation of a club ladder. This was narrowly won by David Liddbury; Jane Randle was second and Peter Brooks third. The bad weekend weather prevented a whole-hearted participation by club aircraft. In fact no cross-countries in club aircraft were flown at weekends.

With the onset of autumn, thoughts are turning to wave flying and several aircraft will be travelling to Shobdon when the west wind blows.

J.R.

SCOTTISH GLIDING UNION— chairman and secretary retire

AT the AGM held in August, T. Docherty and J. Hempseed, club chairman and secretary respectively, both retired from office. The SGU's thanks go to them for the tremendous amount of work done by them both while in office.

The SGU held the second "At Home Day" of the year in early September. We were not quite so lucky with the weather this time. The flying had to be stopped abruptly at 17.00hrs, due to the arrival of the "haar" (east coast fog).

The club has purchased T. Docherty's Super Cub, so that this tug will now remain at Portmoak. For summer, 1973, we plan to have more launching facilities available on weekdays, so that members and visitors will be able to get a launch, without having to wait for cables not required by the courses.

The first weekend of the "Lasham Invasion" was a good one. On both Saturday and Sunday, there was wave to several thousand feet. Several of our visitors had their first experience of this type of soaring. Many discovered that while enjoying the wave, it is very easy to get caught out and suddenly find oneself above a complete cloud cover. Many times that weekend, a plaintive call came over the radio: "Is there a gap over the airfield?" Most often, there was not. The slot that had been open during the ascent had closed. The result was either that the pilot stayed up above until a slot opened, or came down through the nearest available gap and landed out.

K.E.B.

SHROPSHIRE—Sleep proving very soarable

IN a newly established group, developments take place rapidly and our last notes were out of date almost as soon as they had been written. We now have six gliders based at Sleep with others possibly coming.

Sleep is proving to be a very soarable site and out of 19 possible (ie weekend) days so far available for flying, we have been able to fly on 17 and have soared on 13, the average flight time being 45 minutes. The generally anticyclonic weather has inhibited wave activity up to

the time of writing (end of September) but the waves will no doubt come in their season. We hope shortly to be able to extend the airfield D/F facility to 130.4 MHz so that gliders returning from waves above cloud will be able to obtain a bearing.

It is pleasing to be able to report that after two months of operating gliders and light aircraft from the same airfield we have not found any snags and both groups are well pleased with the arrangement. There is a healthy exchange of information between glider and aeroplane pilots with the latter taking up gliding (and tugging) and one glider pilot has already obtained a PPL.

I.P.

SOUTHDOWN—weather improved at last

AT last the weather has improved and we are all making up for lost flying time, with soaring in northerly winds and thermals.

In July, we acquired a K-7 to replace the T-21 and have all felt the benefits of once again having two two-seaters, the K-7 being used for *ab-initio* and the K-13 for advanced training.

We have had several visitors from other clubs, following our successful 50th anniversary meeting (written up elsewhere in this issue). They have enjoyed soaring our ridge and we have enjoyed their company. We hope to see more visitors on northerly weekends.

Roger Coote, Derek Eastell and Peter Gellert have recently passed Instructor courses and will be welcome additions to the rota. A suitably inscribed turnip has appeared on the notice board, souvenir of an outlanding by our CFI (Chief Field Inspector?).

K.I.P.M.

SOUTH WALES—lost launches

IN common with the rest of the country we have been trying to make amends for the non-weather which ruined the start of the season—the hundreds of launches we lost will most probably curtail some of our expansion in 1973.

But the year has not been without its events, above and off the field. Ken Gardiner took his K-6E to 11,200ft in

wave for his Gold height. He contacted from a thermal near Abergavenny (our usual wave "stamping ground"). As the season progressed, C's and Bronzes were collected by our Swallow pilots and, the occasional Silver height was also claimed.

The arrival of "Broomstick" on site now gives us total of three K-6E syndicates based at Usk and raises the number of private aircraft to five (with a promise of a resurrected Skylark 2 in the very near future).

Your scribe and Andrew David have managed to survive the trauma of the "clockwork mouse" and its keeper, John Heath, in order to swell the ranks of our club instructors.

Recently a Tug syndicate has made moves to purchase a suitable aircraft to provide aerotow facilities at Usk, but as yet no "fan" has materialised on site—the search continues unabated. We are also looking for a replacement for our beloved T-21 which we lost recently. Has anybody a "Sedbarge" we can haggle for?

It is hoped to have our clubhouse operational by November 5 in order to provide a comfortable haven for the coming winter. We now possess a telephone to replace our previous smoke-signal system; the number is Raglan 536.

S.P.P.T.

SURREY & HANTS—cross-country mileage half 1971's

HEAPS of nostalgia in September when we held a "21 years at Lasham" party for the Surrey Gliding Club (as it was in 1951). Traditional delights were provided including a performance of something or other by the S.O.D.S.—Surrey Operatic and Dramatic Society.

On the flying side the season never really happened. Not one Gold C or Diamond goal flight was made this year from Lasham, and only half 1971's cross-country kilometres were achieved (12,500km in club gliders). The Portmoak expedition is in full swing but with poorer weather than usual. We have flown on most days but wave is a bit scarce, the first Saturday being the best day with 11-13,000ft wave in a SE wind.

Building of the trailer for our Kestrel 19 continues apace for completion in time to collect the glider in March. Plans

are afoot to have ridge-soaring expeditions in the winter, but they are really an excuse to cover up longings for the 1973 season.

C.L.

PS: The last few days of the Portmoak trip really looked up. Diamond height was achieved by Roy Cross, who reached 21,500ft; Golds were aplenty and Alan Purnell completed a 300km declared triangle in a little over 3 hours, much of it at Diamond height level.

TRENT VALLEY—represented on local sports council

ALTHOUGH the 1972 soaring weather has been the worst in the history of the club, the frequency and duration of soaring flights has increased considerably, and Sturgate has proved to be an excellent thermal site, despite early misgivings. However, the weather did relent at the eleventh hour, when we were again able to sample a plentiful supply of 8kt thermals.

We were recently unexpectedly joined by excavators and a rock crusher, which promptly set about pulling up the tarmac on the aerodrome. Luckily they restricted their operations to the perimeter tracks, and now they have left the only inconveniences are the various mountains of stored crushed rock on one runway. We can only hope they do not return.

The club facilities are being extended to the local community, special flying evenings having been arranged for various organisations, including youth clubs, scouts, round tables, etc. We are also offering special introductory courses to youngsters in the area through the Yorkshire and Humberside Sports Council.

Thanks to the efforts of Miss P. Harris, our secretary, we are now represented on the Yorkshire and Humberside Sports Council, and are thus able to ensure the "gliding" voice is heard in this part of the country. We have already been visited by members of the Council, and have been offered grant assistance to enable the club to purchase the Blanik from a club syndicate.

The Ford D500/Jaguar mid-engined diesel launch car has made its appearance on the 'drome, and has successfully completed numerous trial launches. The

continued efforts to keep weight to a minimum have paid off in a reduced ground run, with a much wider margin of safety at the early part of the launch.

R.B.

WOLDS — ridge exploration

ALTHOUGH our best flying weather has confined itself, with almost unbelievable perversity to mid-week, our two newest instructors, Bob Fox and Eddie Room, have both cheated the weatherman to the extent of a Silver distance apiece.

Jim Smith found a westerly wind of sufficient velocity to enable him to try out the nearby Millington ridge and reports that it "works" well. If we can arrange things suitably with the farmer, this site would undoubtedly help to extend our soaring season and provide many of us with our first experience of ridge flying.

Five members have completed their Bronze C's during the summer months and it has become common to see furtive little bands of pilots trying to pretend they are elsewhere as they heave our K-7 from one or other of the carrot fields surrounding our runways.

The bar in our new clubhouse is prospering under the expert management of Heather Preston and Mick Moore. We hope that during the bleak winter days ahead they might be persuaded to declare a few dividends.

R.H.D.

SERVICE NEWS

BANNERDOWN (RAF Colerne) — clung to one cloud

IN trying to recall the events of the past, in order to put them on paper, it becomes difficult not to construct a diatribe about the weather. Nobody has done his Silver duration in thermal this year although plenty have managed it on ridges. Silver heights seem difficult to obtain; we have four pilots who have steadily worked their way through but cannot complete the Silver for lack of probably the most straightforward leg. One such pilot,

Trevor Allsopp, did rather well at the end of September when he managed his Silver distance. Trevor clung grimly on to one cloud under a doubtful overcast sky and refused to let go of it until it looked like carrying him over the sea. Fortunately the requisite 50km had been handsomely exceeded.

Our competition pilots performed very well. Both Ken Hartley and CFI Roy Gaunt carry our good wishes forward into next year's National Competitions when we know they will be trying to do even better. We hope they get the weather for it.

B.S.

CHILTERN (RAF Abingdon) — ab-initio to solo in 4 days

GLIDING here has continued with the normal indifferent weather. However, we have managed to achieve three or four Silver legs and a good many first solos, the most notable of which was George Wilson's, who with no previous flying experience, started gliding on the Friday and went solo on the Monday. Well done George!

The first-ever club syndicate has been formed and members are now awaiting the arrival of their Cobra.

We spent a most enjoyable weekend at Booker when our own airfield was "bombed" during the Battle of Britain display. Many thanks to all at Booker for making us so welcome and allowing us to claim two Silver legs while there. Booker returned the compliment the following weekend and joined us here at Abingdon. A good time was enjoyed by all. We all look forward to future liaisons between our two clubs. At the end of October we paid a return visit to Sutton Bank.

G.M.

CRUSADERS (Cyprus) — Cypriot Diamond

A DIAMOND height by CFI Len Barnes has been the main event of recent weeks, along with three Gold height climbs and six completed Silver badges to reflect our recent conditions.

The latest addition to the strip at weekends is a PA-140 Cherokee which we hire for aerotowing. Giving 4kts climb

with the K-13 two-up, we look forward to a good winter's soaring season.

AGM and annual dinner time has come around and the club will be looking back on the most successful year ever.

F.P.G.

EAST MIDLANDS (RAF Swinderby) — hosts to eight girls

WE now have at least three complete Bronze C holders, and two more solo pilots join the ranks. We had three Silver heights in one day and, at long last, the first cross-country distance—by Fred Majendra, who flew 65km to the Peterborough & Spalding club and also gained his height, on Sunday September 10.

On Monday, October 9, we were hosts to eight girls from the WRAF engaged on an Expedition Training Scheme. This was the last day of the seven-day expedition, led by Fred Majendra, our glider pilot/mountaineer. All the girls had three flights and two went solo on the tractor.

The AGM will be held on Saturday, December 9. On the night before, we are having our annual dinner and dance at the Forge Restaurant in Lincoln; tickets are £1.80 per person. All are welcome, and in particular we hope to see Cranwell, Spitalgate, Lindholme, Bardney and Sturgate.

THE BARON

KESTREL (RAF Odiham)—three weeks at Tangmere

WE have again reached the end of another summer soaring season and although the weather has not always been with us we can still boast a number of achievements.

First and foremost we must congratulate Leigh Hood, our deputy CFI, who after winning the Lasham Regionals, went on to win the Club Class during the Nationals at Dunstable. This qualified him to fly in *The Daily Telegraph* competition in which he also did very well.

We have three additions to our happy band of instructors. The first is Pete Charnell, who gained his assistant rating at Bicester in June, and we also welcome Jim Martin and John Baker who have joined the club.

During August a group from the club took the Oly 463 to the Wrekin club at

RAF Cosford, from where it was hoped to fly on ridge and in wave. The weather however, did not happen but the expedition was a great social success.

The SBAC show at Farnborough stopped the club from flying at Odiham for the first three weekends of September as usual. The club, however, moved to RAF Tangmere with one winch and flew alongside the ATC there. The three weeks were a great success due entirely to the ATC Gliding School, to whom we are very grateful. On the last weekend there, Rodi Morgan completed his Silver C with a 51km flight along the South Downs to Lewes.

The club is now planning the winter expeditions and we hope to continue pursuit of the badges on the various ridge and wave sites at home and on the continent.

H.R.J.

PORTSMOUTH (RNGSA)— expeditions

RECENT additions to our fleet are an ex-RN Tiger Moth (reputedly one of the oldest still flying) and a Falke owned by Humphry Dimock. Humphry gave a tremendous display in the Falke for the RN Air Day at Lee-on-Solent. He recently had the great misfortune of breaking the fuselage of his Kestrel as a result of a field landing during a competition in France. This was bad enough, but it happened on only the second day and while he was in the lead.

We have been very fortunate in having the use of the RN Chipmunk for towing and with the syndicate Auster we are relying more and more on aero-towing. Like most clubs we have had an indifferent soaring season but excursions to Lasham and Shobdon have provided some compensation. During two separate weeks with the Skylark 4 at Lasham four Silver legs were flown. The soaring week at Shobdon in September when a dozen members took the Capstan and Skylark 4 was more notable for the beer drinking than soaring but although the legendary wave eluded us we managed some hill and thermal soaring. It was an extremely enjoyable week and we were all very grateful to the Herefordshire Aero Club for making us so welcome.

R.F.L.

SOUTH WEST DISTRICT — new CFI

ALTHOUGH we have still not experienced any of the ideal soaring conditions of last year, many people have progressed. Seemingly unfriendly skies have produced welcome and smooth thermals, perfect conditions which have resulted in eight Bronze C legs, two solos, six conversions to the Skylark 2 and a completed Silver C.

Peter Cole has obtained a Full Category Instructors Rating, and several other instructors hope to complete theirs.

John Dabill, deputy CFI, has become CFI after Eric Drummond's resignation because of personal commitments. Projects for a weekend at a ridge site and lectures are at present being discussed.

Treasurer Wally Lombard has been posted to Germany and Bill Morgan takes his place.

J.R.A.

TWO RIVERS (RAF Laarbruch) — up to 200 launches a day

AT 4pm on Sunday, October 15, when our Station Commander, Group Captain T. G. Mathews landed, the champagne came out. He had not only just completed his first solo but also flown the club's 10,000th launch of our year.

This was despite a very poor summer for gliding and represented 100% increase over the last two years. Considering this was achieved with our one and only twin-drum Tost winch and without aero-tows the club feels justifiably proud of its effort. A measure of the quality of the weather out here is that not one five-hour Silver leg was flown in thermals this year and Silver heights were few and far between.



However, the launch rate, sometimes 200 a day, has put this club on a very firm financial footing and the experience gained during the 1,600 hours flown this year will undoubtedly be reflected next. The highlights of the year have been Pete Lane's Diamond height in Austria. Nick Nichol's win in the Germany Championships and the club expedition to the wave site at Issoire, France.

S.E.B.F.

WREKIN (RAF Cosford) — nervous wreck

OUR most recent highlight was on the August *ab-initio* course run by Chris Waller, when Jack Wright had a week out of our workshops to be one of six to solo, followed half an hour later by his daughter. Poor Jack was a nervous wreck by the end of the day.

We enjoyed having our friends from the Kestrel club visit us, and we can recommend their winch and tractor driving.

Wally Bunn must top our list of achievements with two Silver legs; a Silver duration was clocked up by "Polly" Parrot.

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