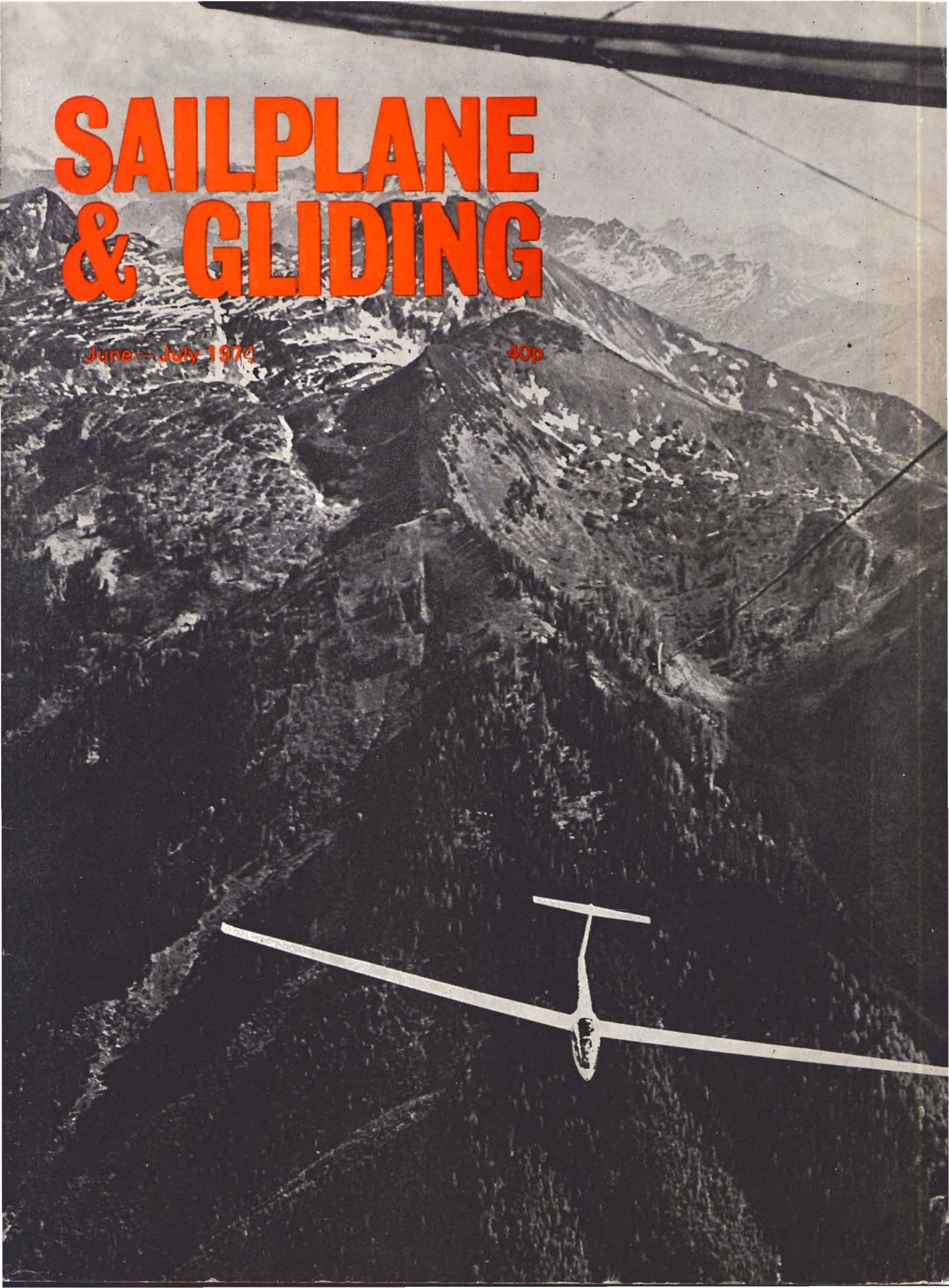
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June—July 1974 40p



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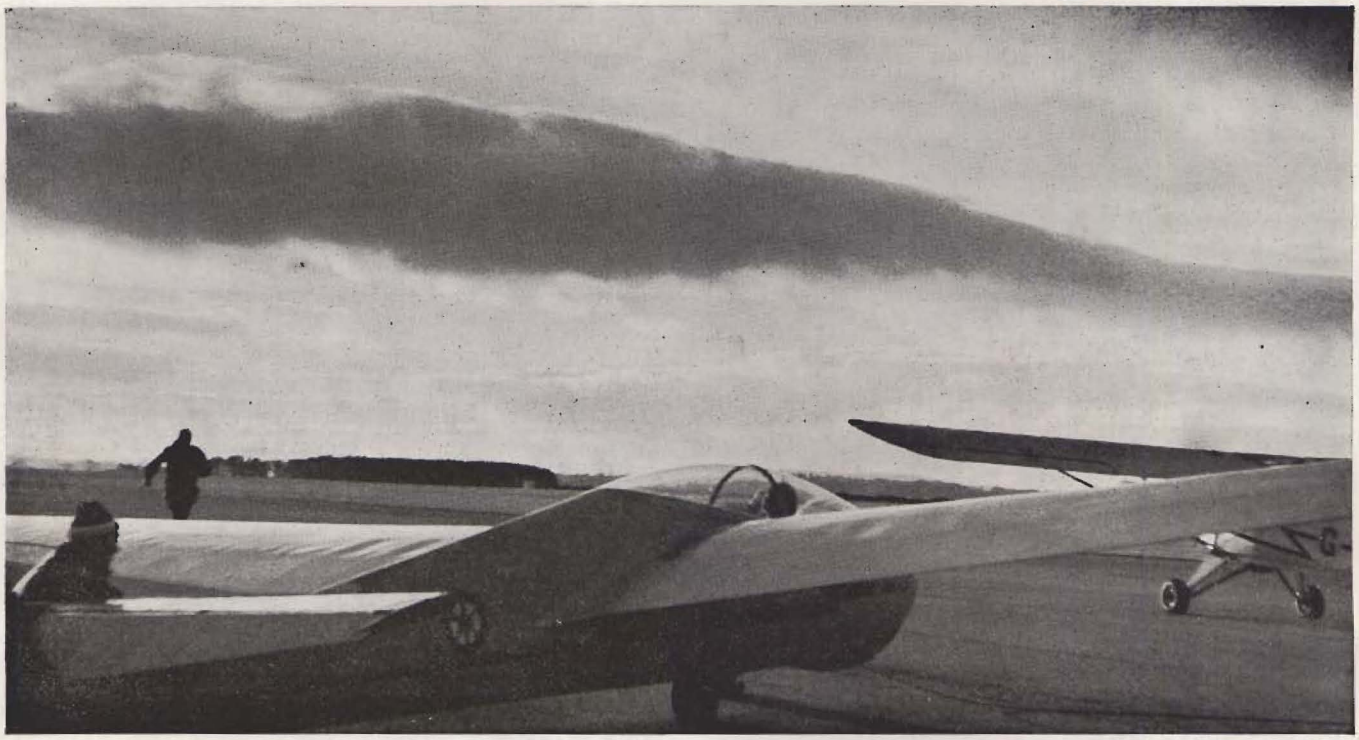
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Wave Glorious Highland Wave!

RUTH TAIT

Two or three years ago, when people first began to write and talk about the Deeside wave, we cast envious glances at Aboyne and made several expeditions over there with our gliders, never realising what wave potential was all the time sitting over our own doorstep. Then we acquired a full time tug, began to explore our own area and discovered that we too had something to write about.

A glance at the map on the opposite page will show that Milltown, on the Moray coast just north of Elgin with a flat plain to the south gradually rising to the Cairngorm foothills, is ideally situated for wave from several directions. To the south, running in a line roughly ENE-WSW are the high mountains of the Cairngorm and Grampian ranges which set up tremendous wave in south and south-west winds. Further to the west and north-west lie the north-west Highlands which again produce good waves.

Compared with such sites as Aboyne, we are a long way down-wind of the hills which instigate our waves. This means that we do not get clagged-in so much in wave conditions as a site in the hills. One or two people have also suggested that this may account for the ferocious turbulence experienced in wave conditions here; further down-wind, the waves may have more curl-over than they do nearer their originators. In weak wave conditions, we find that it is quite easy to contact wave at levels below 1000ft. My husband once went straight to 10000ft in wave from a 900ft winch launch, and others can relate similar experiences.

Being so near the sea, Milltown loses out a little in the thermal season, for a good soaring day is almost inevitably ruined by the onset of a sea breeze, and, whilst it is possible to soar the sea breeze front, it is frustrating to watch the cumulus forming an inaccessible two or three miles inland. However, this is compensated for by the fact that our summer wave is as good as our winter wave—indeed, the site record was last broken in July wave, and now stands at 23000ft.

The site at Milltown is on a disused airfield, one corner of which has been taken over for other purposes, so that, whilst it is possible to aerotow from the north-south runway in a due south wind, and from the NW-SE runway in a due SE wind, we have only one clear runway, with plenty of grass all round, and that is the NE-SW one. Last year we were joined by the ATC who run a separate launching line parallel with ours; thus, when fully operational, we have two winches, a tow car and a tug on the site. I hasten to add that they do not all launch simultaneously!

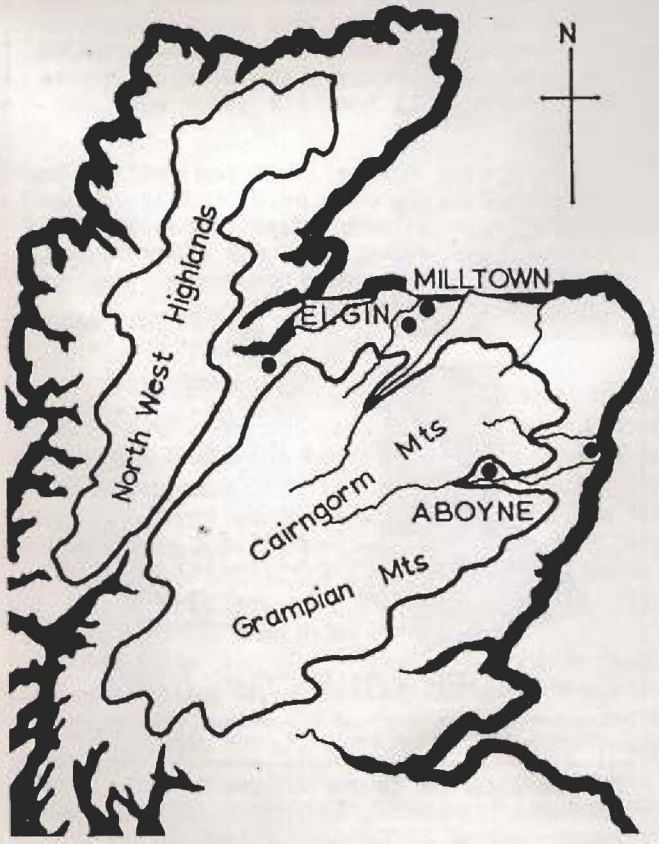
Besides the ATC, two other clubs, the RAF Fulmar Gliding Club and the Highland Gliding Club, operate together from Milltown, sharing the hangar, clubhouse, launching equipment, social occasions and the tug—an Auster owned by a syndicate of RAF and civilian members. Our flying is restricted to weekends and occasional local holidays, so many a glorious wave day passes unexploited during the week.

During the weeks before the Sunday flying ban was lifted, when every Saturday seemed ridden by storm fiends and every Sunday was beautifully, frustratingly flyable, we

had plenty of time to cast our minds back to former days, when gliders were for flying and armchairs strictly for after-dark reminiscing.

Remember that night in January when the then Fulmar Club Capstan took off on a hangar flight, was launched into wave and went to 5000ft before being forced down by the onset of darkness? Or that summer dawn in 1972 when gliders were contacting wave at 5am on the Longest Day? And that rough day in July when the Auster and the Skylark lurched over the boundary fence and staggered away upwind? The tug pilot came back to shut the Auster firmly in the hangar, but Hendry Dyce and the Skylark did not creep in until some hours later, having been to 23000ft and established a new site record. Then there was that autumn day when every glider on the site was stacked in weak wave. The memories fall thick as leaves in Vallombrosa, and 1974 opened with a flourish that will take some living up to.

By the end of January, Diamond height had been gained by Tim O'Donovan; Gold by John Burn, Ian Chisholm, Jeff Howlett, Mike O'Connell, Alasdair Raffan,



Jim Tait and Tom Rosie; and Silver by Shirley Higgins, Hank Dawson and Bob Rae.

During that month we had wave developing on every flying day, sometimes so strong that more than 17kts lift was reported and sometimes so high that records could have been broken if only a way could have been found to jump from the lower wave at 12000-20000ft to the tantalising higher wave that appears to go to 30000 or even 40000ft. We started well: with this potential, what may the rest of 1974 bring?

Photo: Bob Sharman. Map: John Glossop.

OPERATION FARGLIDE

NICK GOODHART

With the world distance record now standing at about 1460km (907 st miles) it is clear that the UK is much too small for modern gliders. The longest legs in UK are 550 st miles north-south and 350 st miles east-west, and perhaps this explains more than anything else why it is necessary to invent complications like cat's cradle and courses with turning points.

However the European mainland is, by modern glider standards, within very easy reach from Kent and if one crosses the Channel there are then hundreds of miles of good gliding country spread out over an arc from east to south. Thus, by crossing the channel, there is no reason whatever why the world distance record should not be broken with a flight originating in UK.

There are of course a number of snags in this scheme, chief of which is that Kent is entirely covered with controlled airspace, thus stopping a cloud climb before sufficient altitude has been gained to cross the Channel and still have enough height to be sure of continuing on the other side. A further point is that a cross-Channel retrieve is extremely expensive and only worth it if some really worthwhile flight has been made.

A Lot of Problems

If anything is to be done about it some sort of organisation is required, so the Chairman of the BGA agreed that the BGA would support an organised plan for overcoming the various problems and invited *The Daily Telegraph* to sponsor the scheme. Operation Farglide thus came into being but there were a lot of problems to overcome.

Airspace was the biggest problem and it was only after a long period of patient work on both sides — NATS and Operation Farglide — that a scheme was finally evolved in which the RAF at Manston very kindly offered to provide radio communication and a controller who would identify the glider and pass on an official clearance from the London Air Traffic Control Centre. The scheme requires that the glider does its climb in a designated area over SE Kent and that it reverts to VMC before reaching the Paris FIR.

The Daily Telegraph offer of sponsorship overcame the problem of cost though, naturally, they did not wish to be saddled with cross-Channel costs for a worthless short flight. The scheme was therefore based on starting from Portmoak; this means that any glider reaching SE Kent has already broken the UK distance record by a good margin. Another advantage of Portmoak is that it may be possible to start the flight in the early morning in wave, getting down to say Doncaster by the time the thermals are going well.

It might be thought that the expense of taking a glider up to Portmoak as a starting point would be excessive but by-and-large, provided a reasonably long flight is made, the retrieve crew will do twice the length of the flight regardless of the start point. Another "advantage" of Portmoak is that it will be essential for pilots with their gliders to get there the night before the attempt. Hopefully, this will reduce fumbles and the possibility of a late start, as well as ensuring a good night's sleep.

The ATC clearance system requires arrangements to predict the approximate time at which an Operation Farglide attempt will arrive in SE Kent. To ensure this a number of gliding clubs have been contacted who lie along the route from Portmoak and these have agreed to set up a communications station if and when a Farglide attempt is made. A Farglide Ops Room will be established in *The Daily Telegraph* offices to co-ordinate reports of progress from these stations and to establish ETAs in SE Kent.

Perhaps most important of all is the agreement of the Met Office at Bracknell to watch the development of the weather and give 36 hours' warning of the arrival of suitable weather. This warning will be confirmed on the morning of D–1, at which time two pilots who have agreed to be available on the day in question will set off for Portmoak with their gliders.

The Scottish Gliding Union has undertaken to organise all the arrangements at Portmoak — overnight accommodation, customs, official observer, launching, etc. — and provided the right weather actually emerges on D-Day, we should have two gliders sailing south with a spanking following wind. Depending on whether they had to wait for thermals, or managed to get away in wave, they could arrive at the Channel as early as 13:30 with the prospect of making it to the Mediterranean if the right weather goes that far.

Once a pilot has crossed the Channel his crew goes home and the Operation Farglide Ops Room takes on the responsibility of organising an air retrieve from wherever the landing place may be.

"Duty" pilots have now been arranged to cover every week up to June 30 and the whole system is operational. All that is needed is the weather. Hopefully this will turn up within the next couple of months. If it does not, arrangements will be made to continue the Operation into July and August.

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AN EXPENSIVE WEEKEND AT SHOBDON



RHODA PARTRIDGE

Rhoda photographed last year at Aboyne with Glass Broomstick immediately after her Diamond and record flight on November 7 when she took her Std Cirrus to 19700ft, a gain of 17700ft, to claim two UK feminine records for absolute and gain of height.

I was out of practice in September and I knew that I would have to cope with rotor aerotows when I went to Aboyne in October so I decided to have a weekend at Shobdon to get back into training. I had to collect my trailer from Pontycymmer where Earl Duffin has his plastics factory. Earl is developing the perfect glass-fibre trailer and Glass Broomstick and I have been his guinea-pig. I can't remember what had been the matter that time, but Earl had been fixing it.

Do you know the Welsh Valleys? They run between the mountains and the coastal plain and they run narrow and twisty. We hooked my magnificent trailer on and I made off—within 15 minutes I had the Welsh valley jammed solid from end to end. It was the unhappy juxta-position of a beautiful yellow JCB, two buses and me meeting on the double bend by the level crossing that did it. The local people loved it, they came out of their houses and shops and shouted encouragement. I had to unhitch and willing hands bore my magnificent trailer away and I wished I didn't drive barefoot, or that I'd remembered to put my shoes on before I sprang out. Just to make it all more fun a few drivers got really angry. It took ages to sort out and I drove on, red in the face and chuckling helplessly.

At Monmouth there's a T-junction after the bridge where you have to turn right. For the benefit of our foreign readers who, I know, have quaint customs, I should explain that in the UK we drive on the right side of the road, which is the left. At the T-junction there was a woman stationary in a powder blue Simca, waiting to turn left. As I turned right I hit her with my mudguard. Now Earl has built a lot of good ideas into my magnificent trailer and once upon a time he had his trailer wheel bent because it hit a post, so he has protected the wheels of my magnificent trailer by putting a savage piece of angle iron under the mudguard like an iron hand in a velvet glove. It was with this angle iron that I clouted the powder blue Simca.

Looking back I can see that I should then have put on my shoes, sprung out of my car, run across to the powder blue Simca and said to the lady "Madam, would you care to back?" But I didn't. I think it was because there was a lot of traffic about and I didn't fancy gumming up Monmouth the way I'd gummed up that Welsh valley. Instead I ground inexorably on with the angle iron gouging its way the entire length of the powder blue Simca. Then I brought the tail round and clouted it again. I parked, sprang out and ran across to the powder blue Simca (Oh hell, I've forgotten my shoes again). The lady was very upset and was wringing her

hands. "Only think," she said, "I've been driving 35 years and I've never had an accident!" "You haven't had one now," I said, "I've hit you." That comforted her and we exchanged addresses and I drove on rather thoughtfully.

Saturday was wet and sad but I did manage a two-seater site check and very much liked what I saw. Sunday was pretty hopeless too, but I decided to rig. Not so easy. Not a lot of people around because it wasn't much of a day. Finally I found two gentlemen, but they both had bad backs, which made it awkward because I'm not strong enough to manage the wing root (yes, I have tried and no I can't manage it. You don't want me to injure my back do you?)

A New Experience

Neither of them had seen a Std Cirrus rigged and we really did have a time. Sweat, tears and a good deal of blood because one of the gentlemen had the fleshy part of his hand just below the thumb between the wing root and the fuselage at the moment when I, at the tip, gave a determined push and the wing clicked in (the other wing clicked out, but that was no comfort to him). Fresh blood looks horrid on a Std Cirrus so I bandaged him up. Finally we got the bolt in and I connected the controls and went round to put on the tail. The tail lives in a most elegant saddle-thing that fits onto the fuselage and it wasn't there.

"Excuse me," I called to the two gentlemen who were walking briskly away, "have you seen my tail?" "No," they said, walking slowly back. "It was on the fuselage," I said. "I don't think it was there when you pulled the fuselage out," a gentleman said. I dashed wildly round my magnificent trailer, I peered into its empty interior. Someone must have stolen it. But that's ridiculous, who'd want to pinch my tail? We de-rigged, it was raining by then. The gentlemen were quiet but kind. I drove sadly away (one could almost say "with my tail between my legs", but it would be much better if one didn't). I saw beautiful country on the way back to Cardigan. I saw a lot of it twice because I got lost. I decided that I knew what had happened to my tail.

Next morning a phone call to Earl. "Earl, I have a sad story to tell."

"Oh Lord," said Earl, "not again." (I think he thought I wanted him to do some more work on my magnificent trailer. He needn't have worried. My magnificent trailer is now perfect.) I told my sad story and he laughed a good deal too much. He phoned back in half an hour. Yes, his men had removed the saddle-thing and stood it out of the way and that's where it still was. I'd have to come and fetch it wouldn't I?

* * *

A few weeks later I did a rather depressing sum. Repairing the powder blue Simca (I paid to save my no claim bonus) £23. Two nights bed and breakfast, temporary membership, 20mins Blanik from 2000 aerotow, petrol, about £8. One new trailer mudguard fitted and petrol to Pontycymmer to collect my tail £9. That Blanik flight cost me £2 a minute.

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Silver, Gold and Diamond in Seven Days

MICHAEL CARLTON



Mike started gliding in 1959 with the ATC and at Benson rose to the dizzy heights of an instructor with a C certificate, completing some 45hrs. From 1961 until late in '73 his interests were diverted elsewhere. His progress since his return to gliding in October last year hasn't been exactly slow — but let him tell the story. Incidentally you will be seeing Mike around the Regionals in No 522.

Bill Scull, the National Coach, my wife and I arrived at the World Gliding Championships at Waikerie in the midst of a rain squall to greet an optimistic British team whose brown skins fortunately showed that the weather might improve. After three days of caravan squatting, table tennis and visits to local wine growers, we left for Benalla in Victoria, the home of the Victoria Gliding Club, and to the welcome of Tony and Ann Hayes, late of Lasham, and Bill Simpson, deputy CFI.

My previous gliding experience having been limited to some early flights in 1959 and 1960 and a Bronze C obtained at Portmoak in the latter part of last year, you can imagine my eagerness to attempt a Silver distance in what was proving to be extremely good weather some 400 miles east of Waikerie.

On the first day I was duly checked out in a Blanik and cleared to fly the club's impressive fleet of solo aircraft. After one day's local soaring in temperatures of 28°C, indeed my first real thermals, I set forth on the third day to fly my first soaring cross-country. My briefing from Bill Simpson was pure Australian: he merely pointed in a northeasterly direction, muttering, "Albray or Corara because we can aerotow you back"! After 6¾hrs and nearly 100km the Silver was in the bag, with me still not having realised where the difficulties lay. As promised, I was towed back almost in the dark and landed some 30 minutes after sunset having completed all the Silver C requirements on my third day's gliding in Australia.

The next morning, bursting with optimism, overconfidence and enthusiasm, I converted to the Libelle and promptly sought a briefing for the task of Gold C distance and Diamond goal. The briefing was short and to the point: "Go to the north-east past Albray until you come to an airfield, that's Holbrook. Take a photo and come back".

A Very Near Miss

So Bill Scull, a local club member and I set out at about 13:00 local, in a 7-10kt wind to fly 300km out-and-return. Adopting similar principles to the day before, I struggled towards Holbrook, which I might add was almost visible after only 20 miles out, and after 4½hrs I finally arrived over my destination, taking no fewer than five photographs whilst convincing myself that 5.30 in the afternoon left me plenty of time to return. It wasn't until only 25km from the club airfield at 3500ft that the last thermal needed had disappeared. It was then that I realised that both the other aircraft were in the same predicament and we all landed on a small crop dusting strip within two minutes of each other, having all missed the magic 300 by about 25km.

After a long weekend in New Zealand I returned to Benalla and set off on the same task to Holbrook. Conditions were extremely good, although once again a trying headwind made my task a very slow one, but I was pleased to find that the "missing thermal" was present. I arrived back at Benalla with 5000ft to spare, having no trust whatsoever in the final glide computer, to land a few minutes after Bill Scull, he having also achieved the 300km and the goal.

I had flown on seven days in Australia, obtained a full Silver, the Gold distance and the Diamond goal in 35hrs, which only goes to prove that I should endeavour to complete the badges before I discover how difficult it really is.

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Radio Installations in Gliders

The following notes are intended as a guide, covering legal and airworthiness requirements, installation practice and aerial systems.

TERRY McMULLIN

1. Legal Requirements

1.1 Radio equipment must be type approved by the CAA: commercially available equipments currently approved are listed in Appendix 1. In addition, there are some commercially available equipments which meet the CAA requirements, but are not type approved because no formal application for approval has been made. It is certainly true that any VHF AM set approved by the GPO, and having a transmitter power not exceeding two watts, will satisfy the CAA requirements. (See Appendix 2.)

1.2 Radio installations must be licensed by the GPO. Application forms for licences may be obtained from the GPO Radio Regulatory Division, Waterloo Bridge House, Waterloo Road, London SE1. The forms require the applicant to state the type of equipment to be installed, and attention is drawn, therefore, to the paragraph above. If application is made for use of an equipment which is not on the type approved list, the application will be rejected.

1.3 There is no current legal requirement for a person operating a glider radio to hold any Radio Telephony Licence or Certificate. It is to be noted, however, that this is a waiver of normal aircraft practices and only applies to use of equipment on the allocated glider frequencies of 121.65, 129.9 and 130.4MHz. It is, perhaps, worth commenting that only 130.4MHz is exclusive to glider operations, the rest being shared with other users, who, incidentally, are required to hold the usual licences or certificates.

2. Airworthiness Requirements

Requirements for powered aircraft are formally stated in BCAR, section R. Some sections of that document may usefully be read across to glider installations but most requirements come under the heading of commonsense.

2.1 Mechanical Safety

There should be no loose items in the aircraft. This includes any hand-held microphone, for which proper stowage must be provided. In addition, it is commonsense that such stowage must be in a place where the press-to-transmit button cannot become semi-permanently depressed.

The above requirement is closely related to the second obvious one that there shall be no possibility of fouling the aircraft flight control systems.

The radio controls, including an on-off switch, must be readily accessible in flight.

Mountings should be sufficiently strong to retain the equipment in the event of an accident. This applies particularly to sets mounted behind the pilot's head.

2.2 Electrical Safety

Equipment run off wet batteries must have fuses of appropriate rating in the supply line. The reason for this is that in the absence of a fuse, a short circuit can easily result in a fire; furthermore, it is a sensible precaution to see that the radio circuit is separately fused from any flight instruments for reasons which should be obvious.

The fire hazard does not occur if dry batteries are used, but a fuse is recommended if batteries are shared with the flight instruments. There is also probably no fire hazard in the case of small capacity nickel cadmium batteries. As, however, this type of battery is liable to damage if over-discharged, provision of fuses for such batteries is also recommended.

3. Installations

Aerial installations represent the only major technical difficulty in most radio installations; they demand both an understanding of the problems and careful attention to detail if optimum performance is to be achieved. The three qualities a glider aerial should possess are:

1 Most of the power fed to it should be radiated;
2 Radiation should be substantially uniform in the horizontal plane around the aircraft;
3 Radiation should be vertically polarized.

The first requirement means that the aerial input impedance must be equal to the characteristic impedance of the feeder cable. Two types of aerial are in common use, namely unipoles and dipoles. A unipole has an impedance of around 50ohms, whilst a dipole is around 75ohms.

The second requirement can only be met if the aerial and its immediate surroundings are substantially free from "electrical" obstructions. These include metal structures, control rods or wires running approximately parallel to the aerial, within, say, 2ft distance from it.

The last requirement implies that the aerial itself should be approximately vertical in level flight, and also that there should not be a substantial amount of radiation from any horizontal surfaces which may be part of the aerial system.

It is seldom that an aerial installation on a small aircraft approaches the ideal in all the above qualities and compromise is necessary, requiring judgment and, desirably, measurement of the impedance characteristics. Impedance measurement is most easily done indirectly by using an instrument called a reflectometer or directional power meter. These instruments have the capability of measuring both the power fed to the aerial and also the power reflected back along the feeder cable due to an aerial mismatch: the true aerial input power is then the difference between the two values.

An instrument of this kind can be built for approximately £3 worth of components and a few hours' labour, and its use enables aerial matching adjustments to be made simply and quickly. (Ref 1 Radio Communications Handbook, published by the Radio Society of Gt Britain. Section 19.27.) Uniformity of radiation in the horizontal plane can, in principle, be measured in flight by suitable instrumentation of either the airborne receiver or a ground receiver. Such measurement, however, is really quite unnecessary unless there are strong grounds for suspecting that the installation is likely to have poor directional characteristics.

APPENDIX 1

Commercially Available Type Approved Glider Radios

Becker, Max Egon — *VHF Comm Transceiver, AR12S;* Skycrafters Inc — *VHF Comm Transceiver TRV122;* REE Telecommunications Ltd—*"Telecomm" VHF AM Portable Radiotelephone, TRT/2;* Storey, G. E. & Co — *VHF Comm Tx-Rx, TR-6701;* Murphy Aircraft Communications Ltd—*"Rambler" Portable VHF Comm Tx-Rx. MR965A;* Pye Telecommunications Ltd — *VHF Personal Radio Telephone*

"Pocketfone 70" type PF2 AMB; Pye Telecommunications Ltd — *"Bantam" VHF Comm T-RX;* GEC (Electronics) Ltd — *"Courier" VHF Comm T-Rx;* Ultra Electronics Ltd — *"Packset" Type 3A4-AG3 VHF Comm Tx-Rx* and Dittel, W., Kg — *FSG-15P;* Avionic Systems (Heathrow) Ltd — *UHF 360 Channel Transmitter-Receiver, ASH 360.*

APPENDIX 2

Performance Requirements for Glider Radios

1. **Transmitter**

1.1 Transmitter carrier power shall not exceed 2 watts

1.2 Frequency stability shall be better than .005% under all conditions of operation

1.3 Spurious emissions shall not exceed a level of 25 microwatts

1.4 Amplitude modulation shall be used

2. **Receiver**

2.1 Spurious emissions shall not exceed a level of 100 microwatts. This requirement implies use of a radio frequency amplifier stage.

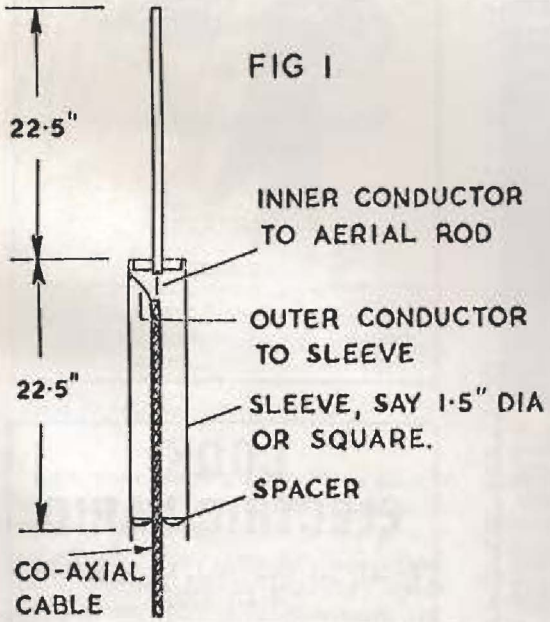


Fig 1—**Sleeve Dipole in Fin.** The aerial consists of two elements, these being a thin rod and a tube. The feeder cable runs up the inside of the tube to join its inner conductor to the base of the rod, located at the top of the tube. The outer screen of the cable is joined to the top of the tube. Input impedance to the aerial will be approximately 75ohms.

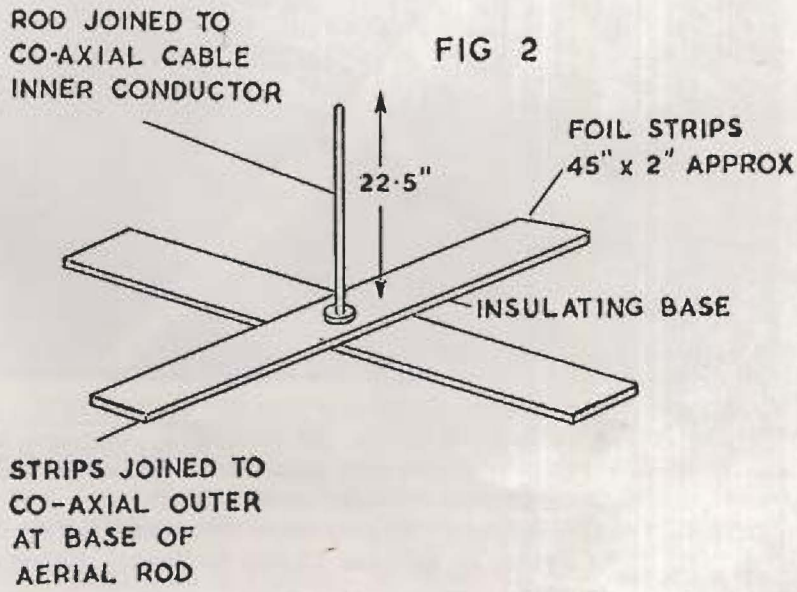


Fig 2—**Unipole.** The ideal unipole consists of a vertical rod, projecting upwards or downwards from a horizontal metal surface, the dimensions of the surface being large compared with the aerial length. An approximation to the ideal can be realised in some such manner as shown in Fig. 2 where the ideal horizontal surface has degenerated into two strips of aluminium foil or equivalent, the lengths of the arms being made approximately the same as the length of the aerial rod. This type of aerial can usually be built into the fuselage under the wing centre section: it may not be feasible to maintain the foil strips in the horizontal plane and quite large departures from the ideal can be tolerated without necessarily incurring serious losses.

Approved 360 Channel VHF For Gliders

JOHN SELLER

In addition to Class I approval for light aircraft, the CAA has recently granted approval for use in gliders and sailplanes to an all-British 360 channel VHF transmitter/receiver—the first 360 channel equipment to be so approved in the UK. The following notes provide a brief description of the development and performance of the set and its installation in a modern, high performance glider.

The development story of the ASH 360 began in 1966 when Terry McMullin decided to build on his earlier experience of constructing single-channel VHF sets for use in gliders by building a multi-channel unit. The first such sets had 90 channels and were designated type TM 90. The advent of cheap and readily obtainable 20 position rotary switches made possible the TM 360 which followed close on the heels of the TM 90.

Terry McMullin has manufactured to date about 120 TM 360s—a considerable achievement for one man working on his own, although he is quick to acknowledge the excellent co-operation afforded him by the ARB at that time.

As a result of the heavy demand for the TM 360 which Terry was never able to fully satisfy, he established an agreement with Avionic Systems (Heathrow) Limited, who have taken over production of the equipment which is now marketed in a slightly modified form as the ASH 360.

The main features of the set are the extremely low power consumption —nominally 50mA on standby and its light weight about 2½lbs. It also offers high receiver sensitivity, flexibility of microphone inputs and ample audio output power to drive a loudspeaker.

Further details may be obtained from Slingsby Sailplanes or direct from the manufacturers, Avionic Systems (Heathrow) Ltd, Viscount Way, London (Heathrow) Airport, Hounslow, Middlesex.

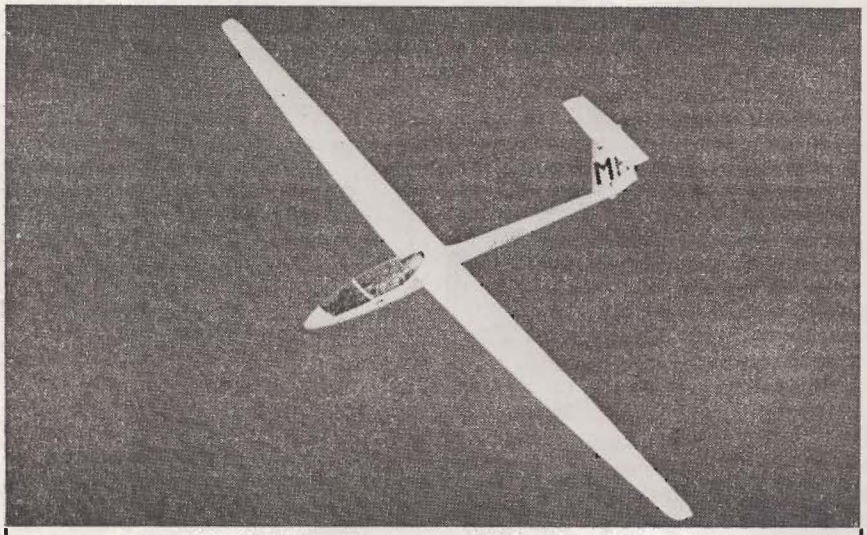
* * *

BERT PAGE

I recently had the opportunity of fitting the ASH 360 into a Kestrel 19. Unfortunately, to sit the radio into its position as per Slingsby Sailplane's draw-

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JANTAR



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ing and to maintain the specified instrument layout, ie, Horizon (Ferranti Mk 7) and PZL Vario one above the other, it was necessary to raise the instrument cowl by 5/16in. This was achieved by making up wooden battens and attaching them to the edges of the instrument cowl. The piano type hinge normally securing the panel into the aircraft was also dispensed with and replaced by a bracket riveted on to the panel face and attached to the radio carrier box.

Wiring up presented no problems, the loom being made up and secured to the existing instrument and electrical runs with hellerman straps. The loudspeaker recommended was obtained from Lectro Spares at Englefield Green. This unit was sited in one of the recesses of the barograph/battery mounting tray along with the independent power supply which is a 12v HP1, giving, I am told, about 100hrs life.

The end result of this exercise is a smart looking layout which gives a professional type appearance.

My thanks during the fitting and installation must go to the suppliers Messrs Avionic Systems for their help and advice and for the loan of their space model during the fitting operation.

JOHN HULME

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Glider - Motor Glider - C's of A and repairs

TRAILERS



True Story from Tibenham

If you read Norfolk Club News in this issue, you will find a mention of a wartime USAF building still in use as our clubhouse. There are, in fact, about eight separate rooms, providing space for kitchen, storeroom, bedrooms, etc, all interconnected by a long corridor and at the far end, a large workshop.

One summer evening, a couple of years ago, when everyone else had left the airfield, I spent an hour in the hangar trying to release the wheel of our Oly which had squeezed through the ring of the lifting-trolley. The problem seemed impossible and eventually reached that point of solitary despair when I knew I should have to admit defeat. It was then that I heard a quiet American voice beside me offering assistance and advice—and almost immediately afterwards we levered the tyre free of the trolley. He stayed awhile and talked of B-24s and Jimmy Stewart, but I neither saw him arrive nor depart, and certainly neither heard nor saw a car.

Having removed the crumpled wheel fairing, I took it to the workshop and set to work with the hammer. Minutes later I heard someone whistling a tune and obviously approaching along the corridor.

Hammer poised, I waited to greet the visitor, but the whistling passed the open door—though no-one appeared. Puzzled, I looked out along the empty corridor, then into each of the rooms before doing a circuit outside the building. Without a doubt, there was nobody else in or near the building, so I tried to convince myself that I had imagined it all and went back to the bench.

Three times I heard that whistling and three times I searched the building to no avail.

Weeks later, I was told how one night a Ju 88 followed the Liberators back to their base, shot down three in the circuit and caused two more to collide. I also heard that there was supposed to be a ridiculous tale about the ghost of one of the navigators who was known to haunt the control tower.

Like you, I don't believe in ghosts, but I hope one day that some real, living person will come to Tibenham and tell me it was he who helped with the Oly's wheel that evening.

WORDS AND DRAWINGS BY

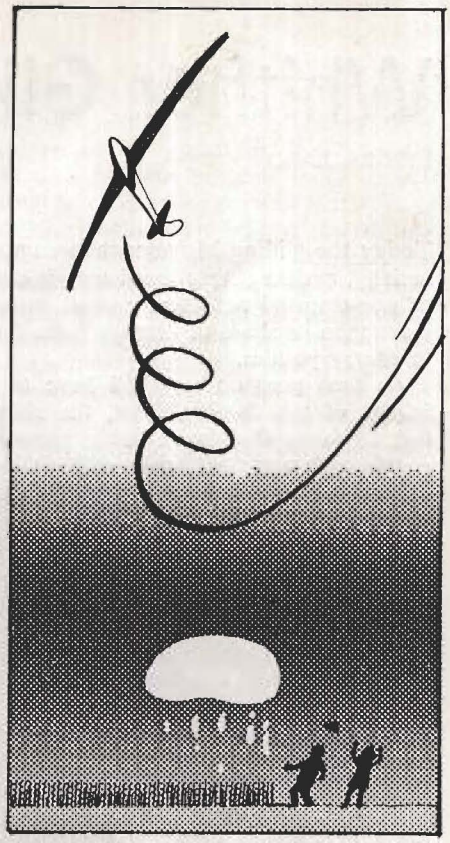
CHARLES HALL

Shaking A Bubble Loose

Extracts from *The National Geographic Magazine* **date unknown: approx 1935-1938.**

A modern sailplane flight in competition is never over until the ship is actually on the ground, and stubborn pilots, fighting to the last for a breath of breeze that would keep them in the air, discovered something.

They found that if a man dived his ship at high speed, 70mph or so, above a promising source of thermal currents such as a cornfield, banked sharply when only 1-200ft from the ground, and spiralled upward in tight climbing



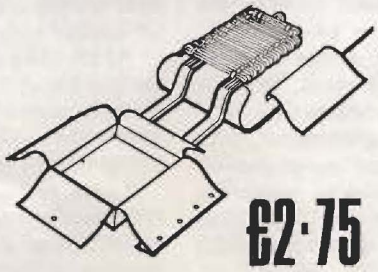
turns, a surprising thing sometimes happened. A sudden thermal current caught the ship and carried it up, up, up, to the neighbourhood of the clouds again. The swirling sweep of the 50ft wingspread, travelling at 70mph and suddenly twisting upward in corkscrew fashion, had apparently dislodged a thermal bubble which had been trembling on the verge of rising.

When the first report of this came from a pilot in Germany, most American soarers were sceptical. But they tried it and found it often worked. Meteorologists say it is entirely credible.

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Whither Gliding Now?

LYN BALLARD

Today the gliding Movement faces a crisis. As a leisure activity, even a deeply loved one, it comes within the class of non-essential activities, and as such is likely to sustain more than its share of damage from the current convulsion in energy politics.

As time goes on we shall have to face the increasing impact of two factors. First, the rising prosperity of the last 25 years that has steadily increased the numbers of people with sufficient spare cash to indulge in our rather expensive hobby is likely to come to a halt, or even reverse. If the cost of gliding continues to increase or even remains steady, we shall find that potential members are confined to a shrinking part of the top of the income scale. Many clubs will be hard put to carry on if memberships dwindle significantly.

The second problem is the direct effect that the scarcity and cost of fuel will have on our methods of launching gliders. The already expensive aerotow looks like going up by at least 50% in the near future. Winching will, of course, remain less costly, but unless one is blessed by a really large airfield and a good soaring day, it isn't a very satisfactory method for the pilot bent on soaring. Bungeying is practical at very few sites and anyway is unsuitable for modern gliders.

At one time I was involved in grappling with the economics of an aerotow operation and I was moved to investigate what happened to the airborne power that we were purchasing at such cost. This was the result.

The tug we operated was of a nominal 180hp and towing a glider of 30:1 glide angle and an all up weight of 600lbs at 55kts, a climb rate of about 6kts was achieved.

In free flight the drag force on the glider is

$$\frac{1}{30} \times 600 = 20\text{lbs}$$

∴ Horsepower dissipated by the drag in steady flight at 55kts

$$= \frac{\text{Drag force} \times \text{speed in ft/sec}}{550} = \frac{20 \times 55 \times 1.69}{550} = 3.4\text{hp}$$

This power is supplied in free flight by the glider using up its store of gravitational energy and sliding downhill. If 3.4hp were applied to the glider through a tow rope pull, or an engine in the glider, it would just balance the drag force and the glider would not lose altitude: ie level flight requires 3.4hp.

The horsepower required to give a 6kts climb

$$= \frac{\text{All up weight} \times \text{rate of climb in ft/sec}}{550} = \frac{600 \times 6 \times 1.69}{550} = 11\text{hp}$$

ie: in order to maintain its speed and climb at 6kts, the glider requires an energy input of 11 + 3.4 = 14.4hp.

On comparing this figure with the 180hp of the tug, one is inclined to suspect a misplaced decimal point, but the disparity isn't caused by any error in the arithmetic.

If one now considers the tug's power requirements, take the all up weight of the tug as 2500lbs and an engine-off glide angle of 6 : 1, then the power required to make the tug alone climb at 6kts comes to a massive 115hp. Thus the total power requirement of a tug + glider in a 6kt climb is 115 + 14.4 say 130hp.

The loss between 130hp and the nominal 180hp is mainly due to propeller losses. One may argue that different tugs and different gliders will have slightly different figures, but the main lesson of the calculation remains unaffected. That is of the 180 or so horses in the tug's engine, only about 14 are effectively driving the glider on tow.

If a mere 14 effective horsepower could be placed in the glider it would achieve the required climb without the tug and the overall energy requirements of launching would drop by about 90% from 180hp to 14hp. In the exploitation of this fact lies the gliding Movement's most effective answer to the oil sheiks.

The SF-27M has, of course, pointed the way, but designers and manufacturers seem to have directed the drive of progress towards exotics of ever increasing span and cost that have done little for the average club pilot and will be to do even less in the lean years ahead. But consider the advantages of a machine that will take-off without exterior power, fly to wherever the lift is, survive the odd unsuccessful low scrape and finally retrieve itself without needing a crew of three and a long journey in a large car. All this and a drastically lower fuel consumption than our present methods allow. Who hasn't dreamt of it? But the dream is fast becoming a necessity if gliding is to stay in business.

But how practical is the motorglider as a high performance sailplane? Well, first one must accept the need for the motor to be retractable. Even the best of feathering props will blunt the edge of a modern hot ship's performance. In practice, the 14hp that was calculated as adequate will need to be nearly doubled for the following reasons:

1 The exposed motor will cause an appreciable increase in drag.
2 Extra power will be needed if the ground run isn't to be unreasonably long.
3 Propellers operate with an efficiency of between 50% and 85%, the larger slow turning ones being the most efficient. Due to the problems of installing a large prop in a high performance glider, a fairly inefficient propeller will be inevitable and extra power is needed at the crankshaft to ensure that there is enough output power.

So one is looking for between 20 and 40hp, depending on the weight and sleekness of one's glider and absolute minimum weight. On weight grounds, the various Volkswagen derivatives must be ruled out, and it is only the high-revving, two-stroke motors that are going to have suitable power/weight characteristics.

The German firm of Hirth produce a four-cylinder two-stroke of 26hp and a twin of 40hp. Both these weigh about 90lbs with propeller and mounting. There is an 18hp twin that weighs about 45lbs and the Steyr-Puch Wankel engine of similar power and weight.

At the ultra-light end is the 9hp Stihl chainsaw engine that weighs about 25lbs and has been used in Germany on a fixed stalk to power K-6s. It is quite successful but has insufficient power to take-off. The Steyr-Puch has been used in an ASW-12 and that would take-off.

There are two definite problems with all these engines. The first arises from the fact that they all need to rotate at 5000rpm or more while the propeller is much better turning at half that speed. So a reduction drive is essential. Airscrew reduction drives have peculiar problems of their own but successful systems aren't impossible. The

noise problem demands serious attention, but the rudimentary silencers on the SF-27M are a very long way from the ultimate in what could be achieved.

After doing a great deal of research and calculation, I am more than ever convinced that the easiest path to better gliding is the use of mini-motors. To return to the two stark problems thrown at us by the fuel crisis, gliding, as it is now practised, seems to be heading only for increased problems.

The answer must be either to use no motors at all, on the ground or in the air, which means hang gliding and a return to the performance standards of the 1920s. Or, if one must use a motor, use a small one very efficiently.

It's now nearly two years since I started thinking along these lines and last spring I decided to start work on a high performance motorglider project. This is now approaching the end of the design stage. I wonder if there is anyone in the Movement who would be interested in contributing something, such as engineering knowledge, workshop facilities or cash, to the project? If so, drop me a line at The Winnings, Colwall, Malvern, Worcs.

POST WAIKERIE PARIS

ANN WELCH

The CIVV meeting on March 15 was devoted mainly to thoughts for the future following the immensely successful Championships in Australia. On these, Wally Wallington, the Director, reported that they had fortunately made a much smaller loss than anticipated, and that they hoped that everyone had enjoyed themselves (most of the other information in his report will have been given elsewhere and so is not repeated here).

The first item about the future was the Finnish proposal for the Championships to be held at Räyskälä in June 1976. In latitude 60 instead of 35, over a country of lake and forest instead of semi-desert, and with a thermal day perhaps 12 hours long, they would be very different from Waikerie. But with the current fairly standardised tasks, and to an appreciable extent standardised aircraft, it is wide differences in the soaring conditions that provides the challenge and the excitement of each new Championships. The Finns can accept 80 gliders; but there will probably be no cloud flying which, in any case, is considered of little operational advantage due to the expected high cloudbase in June.

The main concern for the future was, however, the revision of the 1971 Sporting Code; with the intention of producing a rule book which would not only be good for a further five years, but which would contain, as far as possible, thinking for the next ten. No decisions were taken at the meeting, because the purpose was to accumulate ideas and to obtain preferences on a broad scale. During this summer a draft of the new Code will be circulated to all National Aero Clubs, with decision taking the object at the October CIVV meeting.

Revision of the Code becomes necessary not just on account of wording clarifications or technical modifications to the rules but mainly as a result of the fast changing technology and dynamic progress of the sport itself. For example, we now have a situation where the performance in World Championships is more or less equal to that of world records, which are generally accepted to be the ultimate in current achievement. This situation has arisen because there is insufficient opportunity in the world record list for the great flights that are now possible, such as speed around 750 and 1000km triangles, or distance around a triangular course (the biggest 28% triangle flown holding the record).

If such opportunities existed, the pressure to obtain the Max possible performance could move somewhat away from Championships. It might then be practicable to introduce some limitation on Open Class aircraft which would help curb the cost — because new development could continue, and be paid for, by people wanting to go for world records. Everyone knows, of course, that Championship pilots will always want the best and will still spend all the money they have to get it, but some alternative to a completely Open Class — even if only a restriction on span — might at least slow down the present costly rate of obsolescence.

Following Vrsac, for instance, the big Cirrus became outdated in terms of winning, with two factories nicely in production. Following Waikerie, Kestrels suffered the same fate. This is an indulgence to progress that cannot be afforded if we want future World Championships to attract a wide and representative entry; and we do want that because running a Championships carries a big load of unalterable organisational costs. These have to be largely balanced by entry fees; so should the number of entrants diminish, the point will come when either the organisers cannot afford to hold the event, or those countries which are able to enter will have to pay a very high fee.

Because it is so important to get the World Championship Class structure right for the future (after 1978), it was decided at the CIVV meeting to send a questionnaire to manufacturers and to top pilots to obtain as much factual information as possible. This questionnaire will shortly be circulated, with the intention of having the information ready for the decision-taking CIVV meeting in the Autumn.

Although CIVV is mainly concerned, by its terms of reference, to deal with Championships and records at world level, it is essential that it does not lose touch with the fact that there are a lot of countries where such performances are just not possible for geographical and meteorological reasons. Any country can, of course, set up any local records that it wishes, but national records to FAI standards have world wide recognition. At present there is only a single schedule for both world and national records, with an additional list of Controlled National Performances for speed over a straight course for national attempts only. The suggestion has been made that the CNPs, which are of little interest today, should be discarded, and a sm ll number of additional records inserted in the national category *only*. These might be 200 and 400km triangle speed, and 300 and 500km out-and-return speed. In the *World* record list there is a strong case for discarding the 100km triangle since the performance achieved is now affected more by such factors as recognition time interval and high Vne, than by soaring ability.

So all these thoughts and much besides are for consideration this summer. We need to think about which way we want gliding to go, what sort of influence on design World Championships should have, what will be the long term effect of any changes made, etc and etc. Questionnaires and drafts will be circulated formally, but any glider pilot willing and able to devote serious thought to the future should not just leave his considered views or valuable analyses in the remote corner of his mind: tomorrow comes all too quickly.

The 1973 UK Air Traffic Census — A Review

JOHN ELLIS, Chairman, Airspace Committee

The latest Census was carried out by Software Sciences Ltd (SSL), on behalf of and in collaboration with the National Air Traffic Services (NATS), The Civil Aviation Authority (CAA) and the Ministry of Defence (MoD). It covered the 14 day period July 16 to 29, 1973 and the results were published in early 1974. The following is an attempt, from a gliding viewpoint, to summarise and comment upon, what has turned out to be a large and complicated statistical document.

To meet the requirements specified by NATS, competitive tenders to undertake a National Air Traffic Census were called for from selected consultants. SSL were awarded the contract on June 1, 1974 and immediately began the printing and preparation for distribution of the census forms. In addition to despatching census forms to all notified owners of British registered aircraft, SSL required assistance in the task of identifying all possible locations from which flying may take place to ensure that sufficient quantities of forms were on hand to meet any demand. The small staff of the BGA gave considerable assistance in this task and undertook delivery of stocks of forms to the many gliding clubs. The writer would like to acknowledge this contribution.

Since, from a civil point of view, participation was voluntary, the Census does not claim to be a complete record, however the general impression is that participation was at least as good as that during the last, 1967, exercise.

Weather. When reading the statistics, it is important to bear in mind the weather conditions that prevailed. Inclement weather nowadays has little effect on Public Transport aviation and ought to have little effect on military activities. Non-commercial power traffic is affected to a varying degree as is glider circuit flying. Glider soaring and cross-country flying is, of course, entirely dependent on reasonably good soaring weather. Summaries of the weather conditions on a daily basis are given by Area. In general, there were considerable areas of cloud and rain for the first ten days. Then there were three days of fine conditions — including the second Saturday — followed on the last day (Sunday) by widespread drizzle and low cloud.

1 By Area, into Flight Information Regions:
   (a) LONDON South of a line through 52.30N, subdivided —
      East of 0100W — AREA A1
      Between 1W and 5W — AREA A2
      West of 5W — AREA A3
   (b) PRESTON North of 52.30 to 55N,
      East of 3W — AREA B1
      West of 3W — AREA B2
   (c) SCOTTISH North of 55N,
      East of 3W — AREA C1
      West of 3W — AREA C2
2 Whether CONTROLLED or UNCONTROLLED — For Census purposes defined as follows:
   CONTROLLED — All aircraft receiving Air Traffic Service whilst within controlled airspace, on advisory routes, upper routes and in certain areas of Scotland. (Since gliders do not receive an Air Traffic Service, they do not appear in this section.)
   UNCONTROLLED — All aircraft within the remaining areas, possibly but not necessarily receiving an Air Traffic Service.
3 The final, major differentiations are made between military, civil powered aircraft, helicopters and gliders. (No further mention of helicopters will be made in this article apart from stating that they are fairly active — particularly around their bases and training areas.)

The Census is further divided into sections concerned with "Total Activity" and "Total Movements". This adds to the complication, since they are not the same thing. "Total Activity" deals entirely with "Counts" taken at 30min past each hour (H+30). Therefore an aircraft airborne between H+31 and H+29 would not be counted, whereas an aircraft airborne, for more than an hour, between H+29 to H+31 would be counted twice. The general idea of this appears to be to give a picture of recurring demands on airspace and to help comparison with previous results. "Total Movements" is straightforwardly one "Count" per movement. It is obviously necessary to include "Total Movements" as otherwise many short duration flights would be missed.

The Statistics. Gliders are divided into Military and Civil Categories. A "military" glider is not defined. The writer assumes that it means flights carried out within the Air Training Corps system, but it is just possible that RAFGSA/ARMY/RN Club gliders are considered to be "military"(?).

Total Glider *Activity* (H+30 Counts) for the 14 day period are given by Flight Category:

Club Training	3675	Others Civil	744
Club Solo	2228	All Military Categories	2090
Training: Non-Club	20		
		TOTAL	8757

Total Glider *Movements* are not divided into Flight Category but into "En Route" and "Local". (Local being defined as within 30nm—which would for example exclude such En Route flying as 100km triangles.)

The totals are: En Route 173, Local 35385.

The Census comments: "The Total number of glider flights, 35558, contrasts strongly with the 8757 H+30 Counts . . . and indicates the short duration of the great majority of local glider flights". Average durations were: En Route — 136min, Local — 14min, "the busy days for glider flights were the first Sunday and the final Saturday and Sunday — experiencing better weather than the preceding weekend — 7799 glider flights in the first weekend and 9559 on the second. The amount of gliding during the week should not be overlooked however with daily totals ranging from 946 to 3617, but of the 35558 glider flights reported, only 173 were reported leaving the local area". See writer's previous comments on weather and "Local Area" definition. The busiest gliding day was the first Sunday (July 22, Day 7) when there were 5758 glider movement reports, 45 of which were En Route — 660 of these movements were between 1500-1600 (Greenwich).

Comparison should be made with total power movements on this busiest day. "Uncontrolled" fixed-wing power totalled 2599 and "Controlled" 1731. Therefore, on this particular Sunday, gliding movements exceeded all UK power (fixed-wing) movements by 1428. This glider

"peaking" is mentioned as significant at several points in the Census. Distribution of gliding activity on this day is much as might be expected. Area A showing the greatest number followed by B and C in order. Within Area A, Area A2 (West of London) shows as the most popular by far.

Of significance is the comment that there was an almost complete absence of military controlled aircraft in the London FIR on this Sunday and an "insignificant demand" in the Preston FIR. A similar weekend trend is shown with respect to military "uncontrolled" traffic. For example, during the first weekend over 2000 reports were received from club aircraft, whilst military reports were less than 200. This point was not unexpected.

Comparison with 1967. Due to the different durations and bases, there obviously must have been difficulties in making a straight comparison between the 1973 and 1967 results. Bearing in mind the assumptions made, it would appear that there has been a "Total Activity" percentage increase of 37.7. The gliding share of that increase is 35.1% — near enough the same for all practical purposes.

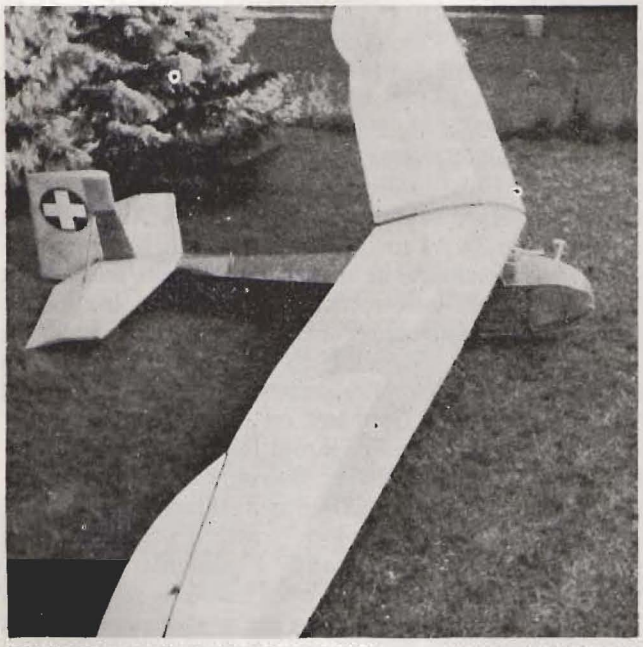
The Census publication includes 40 tables and graphs, plus maps, appendices, etc., so perforce this article has to leave out much more than it includes. One would like to discuss, for instance, the bald statement that "16.8% of H+30 reports from gliders indicated that they *were* equipped with R/T, possibly only a receiver". Or the fact that during the total period H+30 counts were made of eight gliders "En Route" and 23 "Local" above FL100. Or the hourly spread of gliding activity compared with the hourly activity of power — unfortunately there isn't time or space.

The future will show what use the Authorities can or will make of the Document which is primarily a planning aid.

It remains only to state the fact that the Census remains the copyright of NATS and that they have kindly given permission for publication of this article.

NEWS OF OLD GLIDERS

CHRISTOPHER WILLS



RRG Falke built by Fred Slingsby. Photo: Klaus Heyn.

A collection of old gliders beyond the wildest imagination is being amassed by Fritz Ulmer and Klaus Heyn at Göppingen Bezgenried, West Germany.

The types so far include a Wolfmueller glider, Pelzner Hang glider 1923, Rhön Rossitten Gesellschaft Zögling 1926, RRG Falke, Grunau Baby 2B, Rhönbussard 1934, Rhönsperber 1935, Hütter 17B, SG-38 1938, Minimoa, Meise Olympia 1940, Kranich 2 1940 and a Goevier.

They also have some interesting remains — the rudder of Wolf Hirth's Musterle; the instrument panel of the 1935 prototype Minimoa; the instrument panel from Hanna Reitsch's Sperber Junior; part of a Horten 4B, the first glider to have a laminar flow wing section; the crashed pieces of Wolf Hirth's Lo-150 No 13 and of Björn Stender's BS-1, gliders in which both pilots were killed.

The RRG Falke should be of special interest to British visitors as it is the last example of the first glider built by Fred Slingsby, the Falcon 1, type 1, 1935. It was found rotting in a chalet on a mountain top near Lucerne and has now been restored to its original condition.

Klaus Heyn wants to swap an airworthy 1952 Hütter 17B for an H-17A, which need not be airworthy. As far as is known, most glider types in the museum can't be flown, but Fritz Ulmer has been restoring a collection of old aeroplanes, such as Ernst Udet's Klemm 25 from the film *The White Hell of Pitz Palu*, to an airworthy condition.

The museum also has 14 scale models of gliders flown between 1920-1935 and thousands of photographs.

Anyone wanting to see the collection should write in English or German to Dipl. Ing Klaus Heyn, 7332 Eislingen/Fils, Klingenstrasse 23, West Germany.

Another Museum

Great efforts are being made to collect pre-war gliders, photographs and documents for a new museum on the Wasserkuppe to commemorate early gliding on this site. Already they have a SG-38, Hütter 17A, Grunau Baby 2B and 3, Kranich 2 and 3, Condor 4, K-3, Horten 3, Meise Olympia and a Rhönsperber, but more interesting historical types are needed. Most of the gliders are to be made airworthy.

The organiser of the museum is Helmut Dette, 2306 Schönberg, Kreis Plön, Ferienzentrum Holm, West Germany, and photographs and documents are being collected by Karl Vey, Archivar des D AeC, 6078 Neu-Isenburg, Waldstrasse 43, West Germany.

Vintage Enthusiasm Spreading

The Vintage Glider Movement has started in the USA where the Baby Bowlus, Super Albatross and three examples (one 50% damaged) of the legendary Bowlus Depont 60ft span sailplane of 1930, still exist. There are efforts to get more Baby Bowlus and Super Albatross types in the air to join the Goevier flown by a Dutch member.



By A.E.SLATER

THE appearance of two recent books on kites is a reminder that kites must have been the earliest aircraft to discover thermals—long before that word was invented. Personally, I only began flying kites in 1922 (years after attaining adulthood), but almost immediately started getting them into thermals, and began learning things about these as yet unnamed phenomena.

Yet, if you go through the literature of kite-flying, you will rarely find mention of kites getting into upcurrents, and nothing at all of the characteristics of these currents as shown by the behaviour of kites. One book, for instance, said that experienced kite flyers found their kites flew best over particular spots on the landscape, but it did not occur to the author that these might be good upcurrent sources, let alone why.

Astounding Height

Two books set me flying kites. One, "Sounding the Ocean of the Air", by A. Laurence Rotch, published in 1900 by The Society for Promoting Christian Knowledge (price one shilling secondhand), described how Rotch, at Blue Hill Observatory, Massachusetts, sent up large box-kites with meteorological recording instruments, sometimes in trains one above the other, and flew them to a maximum height of 12070ft asl, using piano wire. He must often have got them into thermals, as he discovered that relative humidity increases with height up to 100% at the bases of cumulus clouds.

The other book, "Parakites", by G. T. Wogram, published in New York by Putnam's in 1896 described how the author sent up kites to photograph New York from the air, and gave a lot of other information. He used "Eddy" type kites, a design which I adopted, as it is a monoplane kite which needs no tail.

The crosspiece of an Eddy kite is the same length as the vertical backbone, and crosses the latter at 18% of its length from the top. The surface below the crosspiece is somewhat loose, to give a dihedral angle, and each end of the crosspiece is bent back to an extent equal to one-tenth of its length, and is kept bent by a cord joining its ends, behind the kite—giving another dihedral effect. The length of the bridle, which is attached at the crossing-point and at the tail end, is equal to the length of the kite.

I used two 4ft canes, but this had the disadvantage that, in a temporary squall, the wind would bend back the thinner end of the cane crosspiece more than the thick end, and the kite would perform a sideways loop. The trouble could be mitigated by shaving the thick end, but by how much?

Colourful Exercise

For the surface I used the paper in which my laundry came, coloured in a variety of greens, browns and yellows (ie the paper), so that, when the sun shone, a train of five kites looked like a pretty collection of autumn leaves. The corners of each surface could be hooked to its corresponding kite frame with the sort of hooks and eyes then used for ladies' dresses (are they still?). So the whole lot could be wrapped up and carried on the crossbar of a bicycle from my Chelsea lodging to Richmond Park, there to be rigged.

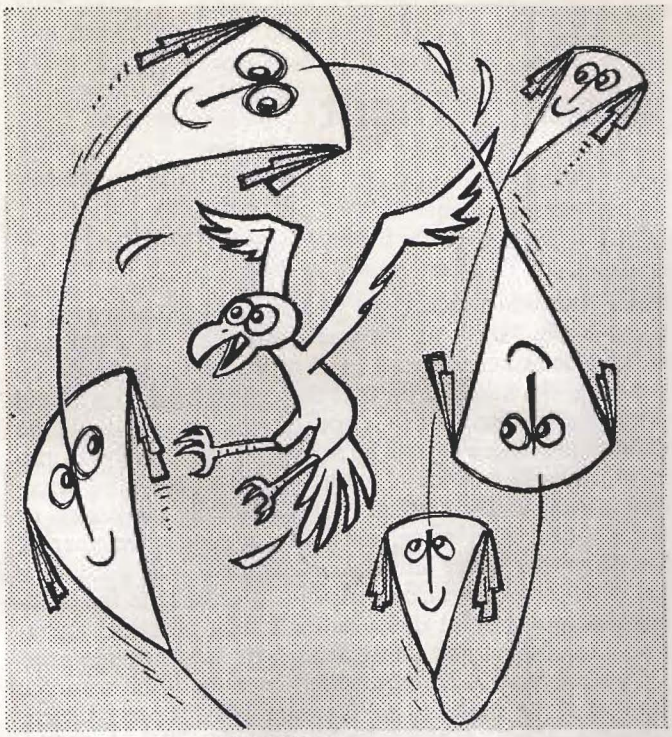
Of the two recent books mentioned, Clive Hart's "Your Book of Kites", published by Faber & Faber (second edition, 1970), is by the author of the historical book on kites reviewed in S&G for Oct-Nov, 1967, p416. He describes a variety of kites in this later book, telling how to make and fly them. In a chapter on meteorological research by kites, and their use for lifting radio aerials, he advises: "Never fly an aerial in stormy weather or when there are cumulus clouds about." (Does he mean cumulonimbus?) As to the new frameless kites, kept in shape by air pressure, he says that "the very fine Jalbert Parafoil has been used recently by meteorologists for the investigation of atmospheric conditions above mountain tops"—but what atmospheric conditions? Hart gives a height record of six miles, reached by a train of eight kites at Lindenberg, Germany, on August 1, 1919.

The other recent book, Harold Ridgway's "Kite Making and Flying" (Mayflower Books, London), gives detailed instructions for making many kinds of kites, and among them is a "Glider Kite", with a wing of 2ft 6in span and tail of 1ft 3in, joined by a triangular area representing the fuselage, with its apex touching the tail. But the author suggests filling in the rest of the space between wing and tail with transparent polythene to give the kite more "buoyancy and lift". What about adopting this tip for your own glider?

Fitful Wind

Mr Ridgway knows that air rises over ploughed fields, moorland and groups of buildings, and sinks over water, marsh or meadow, but this reads like secondhand knowledge since, in mentioning that the wind can be fitful, he has evidently not discovered for himself that this usually means there are thermals about.

This fitful wind condition, I found, is the most excit-



ILLUSTRATIONS: PETER FULLER

ing in which to fly a kite, though I did not realise it was due to thermals. A sudden increase of wind shows that a down-current has brought down the momentum of the faster-moving air above. This gust is short-lived, so, to get your kite up, you must pull it in from some distance away (where you have propped it up) as soon as you hear a rustling in the tree-tops, before the gust has reached the ground.

You must get the kite up to a height where there is sufficient wind to keep it flying after the gust has died down. The arrival of a gust means that a thermal has just gone by (I didn't know this in my kite-flying days); so the kite must stay up till the next thermal arrives, or you won't catch it.

On a day like this, I got a kite so high over Walsall, from my home a mile from the town centre, that it was almost invisible as a mere dot; then, it fell out of the thermal so precipitately that I could not reel in the string fast enough and had to pull it in arm over arm to prevent it falling across the main road and perhaps causing a traffic accident.

In Richmond Park I soon learned that thermals only last five or ten minutes at a particular level. Sometimes the kites would come vertically downwards on falling out of a thermal; presumably the wind was slowed down by the pull of another approaching thermal.

Once there was alternately an easterly wind which lifted the kite high and then a southerly wind letting it nearly down to the ground, each whole cycle taking about half an hour. The wind usually veers with height, especially if it has an easterly component; was it this veered wind that came down to earth between thermals?

As to rotating thermals: once, when I had a train of five kites, one above the other each flying from the point where the canes crossed on the kite below, the bottom kite started a sideways loop. When it was nearly a quarter of the way round, the next one started a loop, and so on, until the top one started its loop just as the bottom one was finishing *its*. Each kite made only one loop, and they moved round clockwise as seen from below, which is anti-clockwise as seen from above—ie, cyclonic, as it should be.

A final few words about Wogram's book, which I got out of the Cambridge University Library and have now done so again after 49 years. He knew there are up and down currents, but, for all his kite-flying experience, hadn't the least idea of their size, duration or likely location.

And why Parakites? Because Webster's Dictionary says a kite is: "A light frame of wood covered with paper, for flying in the air, for the amusement of boys"; and Wogram didn't want to be confused with *them*. But who cares? Many gliding pioneers tried out their machines at dawn, where there was nobody around to sneer at them for being childish. A lot of the general public still think it childish to want to fly without an engine when it's so much easier to fly with one.

CAN ANYONE BEAT THIS?

Could Alasdair Raffan of the Highland Gliding Club be the youngest pilot in Gt Britain to get his Gold height? He was 16½ when he qualified for this leg on January 26, 1974, having reached Silver C height earlier in the month.

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Some Practical Aspects of Straight-Flight Performance Measurement

L. P. MOORE

However utilitarian our operational requirement may be when the time comes to purchase a new glider, we at least want to know what our chances are likely to be of staying airborne on those only too frequent feeble lift conditions before we make our selection. And hence it matters much to us that we are presented with valid claims for performance, before we invest.

Procedure and conditions. The normal procedure for measurement of straight-flight performance is to select a well-finished glider of the type in question from the production line, calibrate its static head and instruments with the maximum precision, load it to maximum all-up weight and equip it with a flight recorder which accurately measures and records height and speed, simultaneously at close time intervals, over a series of short straight glides at constant airspeed. The flight recorder is calibrated before and after flight and its readings are usually analysed by computer.

In theory, scatter of individual readings astride their true mean, is taken care of by averaging. Nonetheless smooth air is an essential condition for obtaining the requisite minimum consistency. Consequently calibration flights are usually made around dawn or dusk or in sunless anti-cyclonic conditions, in order to minimise vertical convection from solar heating. Nonetheless, at least about ten series from ten different sorties in such conditions are required before results can be accepted. As the right atmospheric conditions occur so infrequently over the British Isles, valid calibration is a long, slow and expensive process: the temptation to take a chance on marginal days is almost irresistible.

Notwithstanding, flight recorder calibrations are being accepted almost universally and almost without question.

Fallibility. The fallibility of the flight recorder method, as I see it, is that it can neither measure nor otherwise allow for a general continuous rise or subsidence of the air mass *as a whole*. Even if this amounts to only a few centimetres per second, it is enough to transfer the apparent performance into an altogether different category from the true one.

But the anticyclone itself usually denotes a general subsidence, as does the aftermath of the passage of a cold front or an occlusion, with its enticing clear stable air lying over a soaking wet countryside.

Nor can the effect of waves be certainly averaged out. Those beautiful near-cloudless dawns and dusks, with the wind sock limp on its pole, nearly always belie the upper wind conditions. Their wind gradients, combined with their customary stability and higher humidity, are just the right conditions for wave, so that the very days and times normally chosen for calibration flights are those likely to provide both wave and subsidence.

If one could be sure that over any run or series of them at any one speed, the glider would pass through as many wave "ups" as "downs" and that the amplitude of all waves encountered in a series of them would be constant, the assumption that the averaging device would eliminate at least wave error by this cause, could be accepted: but one cannot be sure. Two minutes flying into wind, through a series of waves angled to the wind direction, could easily confine the run within the rising or sinking part of a wave, or within a greater number of one than the other in a series, without the pilot ever knowing it. Waves strong enough to invalidate the readings can occur right down to the lowest practical operational levels, the risk diminishing with lowering altitude.

Control drag. A further fallibility of the flight recorder method is its inability to measure what I would term "control drag". What with gusts and glider stability phugoids, the best of pilots is likely to be constantly trimming controls to check or correct. Whereas the flight recorder faithfully records the resultant random variations of airspeed, it does not measure the drag effect of each control surface deflection and these increments can add to a substantial effect upon rate of sink, depending upon control design characteristics and pilot ability. Even a low level of gustiness cannot be accepted.

Bias. Taking all the factors into account, it appears that the flight recorder as normally employed, will almost inevitably include some bias towards an over-reading of rate of sink and a spoiling of glide angle at all airspeeds, especially those at which the higher altitude runs have been made. It is indeed possible that this may account to some extent for the distinct pessimism of performance figures by this method, compared with those from design calculations.

A smooth curve with very little scatter by this method may look very convincing but is by no means a criterion of validity. Nor does the mystique of the computer improve the result.

Operational level. It does appear that valid straight-flight performance figures may only be possible provided that every run is made at very low level, in stable air above the sea or extensive plains, preferably with altitude being measured at the start and finish of the run by means of ground survey. Tedious and expensive as this would be, once one well-proved sailplane type (such as K-6E) had been so calibrated, it would be relatively easy and inexpensive to derive the performance of other types by "pair flying" them against this datum sailplane, *provided* that a certain procedure, as follows, be adopted.

Most pilots appraise straight-flight performance of a new type in more general comparative terms against one or more leading well-known types, so that pair flying against them tends to provide more relevant results than do absolute figures.

In pair flying, the glider to be calibrated flies in formation with a datum glider of a well-established type which has been calibrated with the utmost care over an extensive flight programme. The datum glider flies a straight steady course at constant airspeed, for a duration of at least two minutes, in very stable atmospheric conditions. The follower takes loose formation station on the datum glider, commencing the run both at the same height and measuring the vertical separation (eg visually in terms of wing span) at the end of the run. Thus a clear far-distant horizon is essential. A series of such runs is flown, each at a different selected airspeed, until the entire operational speed range has been adequately covered.

This sounds simple but isn't and requires special care. However good the follower's flying ability, he will inevitably have to trim his station keeping from time to time and will almost invariably tend to fly with some hold-off away from the leader, especially if flying line-abreast. If there is any gusting whatever, he will be quite busy with controls and each deflection will produce an increment of drag, progressively increasing his measured sink over the run. Thus the follower will almost invariably be accorded a greater rate of sink than is valid for his glider at the speed of the run.

It is therefore essential that each run be repeated with the two gliders in opposite station and that only the mean of each pair of results be accepted as the valid one. And it is equally essential that all pair flying calibration be flown in absolutely smooth air.

As a further check it is also advisable to fly each glider so calibrated against each other, again changing station. In pair flying, both gliders are of course flying in the same general air mass, so that wave and subsidence effect (but not convection gusts) are the same for both gliders and so cancel out. Both pilots need to be experienced in formation flying and of equal competence, and both gliders should be loaded to their maximum advertised all-up-weight.

Having spent so much time and money on calibrating our glider, we are now reminded how irrelevant straight-flight performance can be, in itself, to the true competitive value of our treasured acquisition: but that is a subject in itself.

Never on Sunday (or Saturday)

PATRICK LADD looks back to his second and last experience of hang gliding.

My attention has been drawn to the fact that the National Health Service, particularly the rescue and succour section, does not operate at their most efficient level at weekends. In fact I am sure that there is a case for banning all sports more dangerous than chess between Friday night and Monday morning. But let me begin at the beginning.

The Rogallo bug bit me early after reading pieces in *Soaring* and my desire to have a go was sharpened by watching two disgustingly fit young men leaping nonchalantly into the air from the Marlborough Downs. A disillusioned syndicate with wife trouble offered me a secondhand Rogallo. I bought it. With autumn evenings drawing in and weekends being the only practice time available, it was just not possible to wait for Justin Wills' perfect 10kt wind exactly on a 5:1 slope with no fence at the bottom etc. (In any case it is well known that anyone called Wills is born with feathers instead of skin like the rest of us.)

The first sorties to learn to control the flapping monster were pure Music Hall. Running with each leg lashed separately to opposite ends of a wooden seat, balancing nearly 50lbs of aluminium scaffolding above the head, produced a fair imitation of a lunatic pregnant duck wrestling with a recalcitrant shop window awning. The effect on bystanders was to reduce them to heaving gasping hulks unable to draw breath for paroxysms of laughter. The effect on the would be pilot was near thrombosis. These exercises eventually produced a flight of about 20yds, closely followed by Wills' accident 3b, (see S&G, Dec/Jan pp477, 478) and two days limping with the aid of a stick.

Undaunted, last weekend, in a southerly wind which was still too light, we sallied forth once more. I should have known that a dance the night before until 4am was not the ideal training for any sort of flying, let alone this, but the combination of slope, wind, sunshine and time off occur too infrequently to let opportunities pass. At 3.45pm I stood rigged, poised(?) and ready. I ran down the hill. The wing filled, and I felt myself go light. I tucked my feet up. That was the first mistake. The Rogallo now carried my full weight and settled towards the earth, and as I trapped my left foot under the descending seat I heard the bone break. At 3.47pm I was gazing ruefully at a knee which pointed at the meridian, and a foot which pointed at the horizon.

The venue for this little escapade, I should explain, was a steep bowl, about a mile and a half from the road, and separated from it by steep ploughed fields. After disentangling me from the harness, my collaborators decided to carry me to the car. We made 25yds before they collapsed, exhausted. One then went to dial 999 from the local town about two miles away, while the other derigged the wing and wrapped me in the sail. It was at this point that things began to go wrong. The 999 call got through to Dorchester Control who, with super efficiency, despatched aid. It was unfortunate that in their speedy response Control had rung off before it could be explained that (a) I am heavy; (b) I was over a mile from the road; (c) the fields were soft and impas-

sable to anything but a tractor or a Range Rover and (d) the whole area sloped about 40°.

Eventually, and with considerable relief, I saw the ambulance arrive. Unfortunately the crew consisted of a very nice motherly woman who asked if my foot hurt, and a driver who explained that he had a bad back and could not lift very well. They were both pretty puffed anyway because they had carried the empty stretcher all the way from the road. With my two buddies, there were now four more or less able-bodied people dedicated to getting me out. Between them they got me another 50yds.

"What we need is more help", said the ambulance driver and suggested he could easily summon the fire brigade or helicopter over the radio in the ambulance. Thinking I might end up with a bill for a helicopter, I said that the firemen would probably be very strong.

"I have some pain killing gas we give to women in labour" said the nice lady "would you like some? You would? It's in the ambulance". Despatch of small boy across fields to fetch cylinder.

Now before I became involved in this gliding lark I used to skin dive, and I learned about breathing apparatus. The person who set that demand valve must have lungs like King Kong. With a very determined effort it was just possible to extract some gas from the cylinder, and by this time unconsciousness was a consummation devoutly to be wished, and I did try, honest. However, I was still very much aware of my surroundings, to say nothing of my leg, when an amber flashing light raced up the hill and stopped.

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I felt a little cheated that there were no fire bells, klaxons, turn tables, jumping sheets and things, but the enthusiasm with which the firemen leapt from their jeep and came pounding across the field, their boots throwing up great clods of soil, their fluorescent waistcoats flapping in the wind, and the perspiration running down their faces from underneath their helmets, made a proud sight. I never did quite understand why they insisted on wearing their helmets. We then started on the great trek. When our cavalcade finally reached the road it was almost dark and the blue ambulance light, plus the amber fire brigade light, plus the car lights of those who had parked to see the show, lit the scene.

"Where's the wreckage?". "Is he dead?" "Was it Concorde". How many were in it?" Cor ! ! ! Oh no. I can see the headlines. "Glider pilot runs out of wind. Rescued by fire brigade." I knew what my club would make of that.

I was then stuffed into the ambulance and driven off to hospital. I'll bet you didn't know that ambulances are built with no springs and with solid tyres. More than 3-hrs had now passed since the accident and my leg was emerging from the numb stage with a vengeance. My entire being was now centred on trying to coax as much of the pain killing gas out of the cylinder into my system in as short a time as possible. At this point the demand valve stuck. Open.

"I think this is broken" I said to the nice lady. "So it is" she agreed, breathing from it deeply and going slightly crosseyed. "We will put it on the floor, out of the way" and she did. There it remained pouring sleeping gas into her, me, and the driver.

That is really the end. Except that the nurse in the hospital wanted to bandage my ankle and instructed me to "come back on Monday because we are a bit short staffed at weekends." A slight argument produced an X ray which showed that there was "only a small crack in the fibula" A further disagreement, during which I pointed out that I could feel the ends of the bones graunching together, reluctantly produced a real doctor who said "We had better put you out and see how far we can bend that ankle" They did. As a result here I am in plaster from toe to knee and likely to remain so for weeks.

But I have a long holiday soon, and I reckon that if I replace the seat with a parachute harness I could. . . . But perhaps not actually during the holiday.

* * *

NB. Any glider pilot wanting to experiment is no doubt fully aware that hang gliding mustn't take place from BGA sites. The official BGA policy is not to exercise any control over this sport, but rather to encourage its growth under its own organisation.

And you may have better luck than the writer. But first take a warning from the USA where they seem to have an obsession for leaping from cliffs, despite the grim results. Quite recently two young men were killed within four days after take-offs from a canyon ledge, the second jumping 1400ft and plunging to the ground.

Stick to a grassy slope and about the worst that will happen is . . . well back to Patrick.

Crossing the Alps



Extracts from an article written by JOCHEN VON KALCK-REUTH, the author of Segeln über den Alpen, a fascinating book on alpine gliding. Jochen, who started distance flying in the Alps in 1962, holds the 1973 alpine triangle record of 755km, the German National out-and-return record with 780km and has made the longest alpine flight of 860km in his Kestrel 17. He has many other notable flights to his credit, as well as three Diamonds, and by the end of the last soaring season totalled around 2900 gliding hours with 72000km flown in the Alps. Plans for the near future include the 850km triangle and the elusive 1000km out-and-return.

Glider pilots have been attracted to the idea of crossing the Alps ever since ridge lift and thermals were experienced in the 1920s. The first attempts were by young Swiss enthusiasts at the Rigi and by Robert Kronfeld who flew from the steep mountains near Vienna, although these were mainly long glides towards flat country.

Then in 1931 Guenther Groenhoff of Frankfurt flew 25km to the famous Jungfrau glacier, having lost part of his tail while sliding through an ice barrier. A little later he made what was to be regarded as the first alpine distance flight when he flew towards the mountain border, gained height in thermals and landed at Bern-Belpmoos airfield 53km away.

Four years later a group of pilots from several countries met again at the Jungfrau glacier for the first alpine competition. It was after this meeting that it was decided to begin future alpine flights at the usual towing height from the mountain border or in one of the numerous valleys, instead of high up in the mountains.

There is a long and exciting history of improved flights, competitions and always the continual gathering of knowledge which has led to spectacular distances being covered over the most formidable terrain. There have also been the tragedies.

But since 1954 young Austrian pilots such as Resch, Wödl and Fritz began to develop alpine gliding techniques still further and were the first to gain their Diamonds in the Alps. Now pilots everywhere were becoming aware that these mountains didn't present an obstacle, but rather offered the finest gliding conditions imaginable with rich sources of lift along and over the wide mountain slopes.

Greater Distances

The triangle and out-and-return became the main tasks and soon records were being set at far more than 500km. The existing and the new gliding sites around the alpine "rectangle" between Vienna and Geneva have encouraged distance flying and once the glass-fibre gliders were introduced around 1966 to the violent alpine thermals, the distances possible rapidly increased.

Fresh techniques were needed to handle the fast but aerodynamically sensitive laminar airfoils in the streets of lift along the mountain slopes, but once developed, triangles and out-and-return flights of more than 600km at an average speed of between 90 and 100km/h became a reality. The alpine records (also European) are a 810km out-and-return and a 755km triangle, both flights from eastern Styria.

Now that the gliding possibilities of all the many different mountain regions are known, the wide alpine rectangle (approx 800×170km) was recently divided into four operational areas by the writer. The borders are set according to the various climatic conditions, ie effects of the weather and landscape combined. This has meant better flight-planning to take advantage of the different conditions with a given high pressure zone.

It became clear that to improve on long distance flights it would mean a detailed and exact knowledge of alpine weather phenomena and of regional climatic differences. It was vital to know the flying conditions offered by a large variety of mountain zones, divided up by the types of rock, vegetation, water-holding properties, steepness, altitude, sun-aspect and location near flat areas.

Thanks to a flow of observations from pilots through articles, flight-analyses and seminars, there is a mass of information on all aspects of alpine distance flying.

All this knowledge has made it possible to predict, with only a slight margin of error, the ultimate limits of distances which will be reached within the alpine rectangle in today's gliders. Free distance and goal flights between Vienna and Geneva can easily reach the 800km mark, so allowing for a substantial increase of National records for the alpine countries as well as for those of guest pilots. Triangle flights of 850km will also be possible.

The best sites for such attempts are in eastern Styria as the return leg is considerably easier in the afternoon, down sun and into the lower regions. The same holds true for out-and-return flights. With more than ten hours of thermal activity available during June and July, an average of 92km/h and a final glide of around 40km,

the 1000km will undoubtedly be flown soon on the course between Semmering Pass and Gotthard Pass in central Switzerland.

Jochen, who missed a 920km out-and-return two years ago by just 60km when making the longest alpine flight so far, obviously knows more than anyone how near they are to the 1000km.

He writes that ideal conditions are found on about 75% of the days during the early summer period, with 5-7kt headwind on the outbound leg and 50% blue thermals. And if the 1000km is achieved, he points out that it will be the first time in the world the magic four numbers were reached without the least help of wind—either on the ridge or from behind.

To give some idea of the planning and technique involved in an alpine distance flight, Jochen goes on to tell us about his 755km triangle on May 13, 1973. After his success a year earlier with a 639km triangle in a Kestrel 17 at an average speed of 93km/h, it was logical to try and add another 100km to the task.

Instead of launching again from Aigen/Ennstal in the middle of Styria, this attempt was from Turnau, a site at 800m another 90km to the east, which meant that practically the entire alpine rectangle was ahead. This is so close to the main barrier (Hauptkamm), the pilot can either go to the southern or the northern part of the Alps, depending on the most favourable weather conditions. Given the right kind of air mass, thermal activity starts from 08.00.

Detailed Planning

Part of the preparation for the flight was to make a timeplan based on the predicted distances travelled during each hour along the various parts of the course. This chart enables the pilot to know at any stage of the flight whether it would be better to return home for a try on another day. Also, by sub-dividing the route into distances per hour it makes it easier to assess the speed according to the thermal, overall weather and orographic conditions. The timeplan is of particular importance for flights above the 600km mark as it may well prevent landing out and allows the pilot to control his position against the time clock.

The night before the record breaking flight, pressure rose over the entire eastern Alps. Jochen was on the field at 06.45 the next morning, watching closely for weather signs. Soon after 08.30 wispy curtain clouds over nearby mountains signalled that thermal activity was starting and ten minutes later he was aerotowed to 1000m (3284ft) over the site. He takes up the account again.

My Kestrel 17 carried a wingload of 36kg/m², which had proved to be the most suitable for long distances during many flights, putting the mark for best glide on 109km/h while still allowing tight turns with Min sink at 92km/h, and approaching the slopes with sufficient control.

The first leg followed the broad mountain shoulders along Gleinalpe, Stubalpe, Packalpe and Saualpe. There was a rather early cu development from 09.00 onwards and with cloudbase at 2200 to 2600m and lift between 2-3m/sec, sometimes even 4, progress was rapid. But having crossed the Drau river near Spittal, the cu dried away and the lift was reduced to 1-2m/sec, so I continued with more attention and less speed. In the first hour I made 100km, and 90km in the second.

I crossed the Gail river near the Gartnerkofel mountain at 10.59 and the southern sky ahead was completely blue with light haze showing in the lower layers. This was the critical point. To get higher would mean turning at Carnia, still 25km south, and be able to return towards the higher mountains where the first dry thermals, indicated by the little flags of white haze, were starting to develop.

Ahead of Timeplan

And it worked well. With 3-4m/sec coming from the steep southern slope of Gartnerkofel, the Kestrel climbed to 2700m, the photograph was taken and the first leg of 213.5km was completed at an average speed of 92km/h —an unexpected advantage being that I was 25 minutes ahead of the timeplan.

Healthy lift brought a working altitude of 2700 to again allow for a fast glide ahead following a line of mountain crests towards the west with the airspeed varying between 100 and 105km/h. I again crossed the river Drau and spotted good lift over the northern flank of the broad valley which meant I could "dolphin" right into the blue.

At 12.44 the main barrier was crossed 2km east of the Brenner Pass. I could see about 120km in each direction over the rich snow-covered central Alps and there wasn't a single cloud, only the unbelievably strong reflection of sunlight. It was literally like gliding through white fire.

Some 15 minutes later thermals near Serles and Kalkögel proved to be weak so I reduced the wingload to 33kg/m². I crossed the Inn valley 5km west of Innsbruck at 13.05, found a 1-2m/sec thermal over the Solstein mountain, but left it at 2300m as it was too weak for rapid progress. However, flying towards the huge wall of the Wetterstein Alps I suddenly and unexpectedly found a dry thermal over the lower hills covered in thick forests. This took me up to 2500m and then I noticed good cu over the Garmisch area and the nearby Ammer mountains close to the border of the Alps.

The turning point, Linderhof Castle in Germany, was reached at 13.39, which meant the average speed for the second leg (213.5km) was 86.4km/h and the advantage

D. G. C.

Aviation Services Ltd

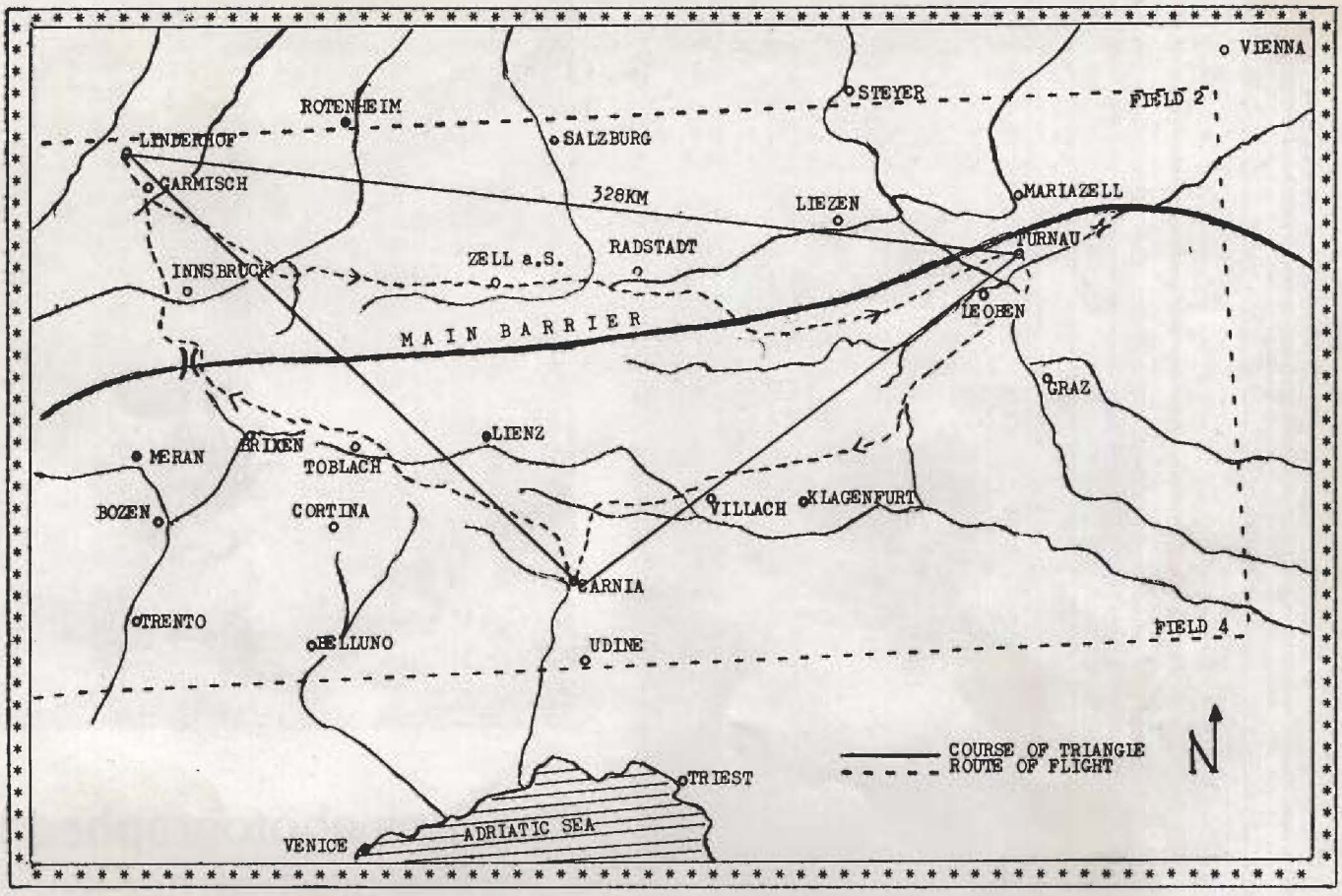
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over my timeplan rose to a comfortable 40 minutes. There was another strong thermal back over Garmisch which took me up to 2900. Although some 320km still lay ahead, I became sure that this day was a lucky 13.

Towards Mittenwald, directly on route, I climbed to 3100m, the highest so far. This respectable altitude allowed me to cross the snow-covered Karwendel Alps without having to circle round Innsbruck. During the 15 minutes glide I at last had time to relax and enjoy the dreamy scenery with a hundred white peaks dotted on the horizon.

Having reached the upper Pinzgau area, small shiny cu with their base around 3000m, presented themselves like a string of pearls right along this famous gliding region and to the east towards Zell am See and Radstadt. The Kestrel travelled fast over Zell, found the best lift of the day and continued on over the Hochgolling peak. I decided to cross the main barrier to the south because the air ahead became more hazy and the cu had died off—something we have often experienced in the region of this broad Liezen valley.

There was good lift again near Lessach, although the NW wind produced some hindering lee effects in the lower layers. But the lift finally went to 3-4m/sec under a huge and clearly outlined cu with its base at 3600m, the highest point of the entire flight.

It was now 16.00hrs with 115km still to go. At the most only 15 circles were needed to cover 70km and I initiated the final glide at around 45km from Turnau with a height of 1800m over the field—just to make sure. Arriving at 17.04, it meant an average speed for the third leg (328km) of 96km/h, bringing the total average speed with 8hrs 14min flying, to 92km/h for the 755km and 98.4km/h for the 810km I actually covered.

This showed an advantage over the timeplan of more than one hour, which means that when I plan another triangle I may again increase the distance by some 100km.

A final word to all pilots who would like to come and glide in the Alps. Some feel it wouldn't be worthwhile for them unless they had many hours of alpine practice and perhaps years of cross-country experience. This isn't necessarily the case, as a young Belgian pilot proved by gaining all three Diamonds in his K-6 in just one week. Later he told the press that he had prepared himself with the help of my book, carefully developing his flight and timeplans etc at home.

With sound gliding experience and distance flying in particular (200hrs minimum), as well as good practice in the glider one brings to the Alps (20hrs and spot-landings), every pilot may attempt distance flights.

Seven hours of alpine gliding is fun and with a Standard glass-fibre glider it can mean flights of more than 600km. The Open Class machine will take you to more than 700km, perhaps even 800km, in 8 to 9hrs.

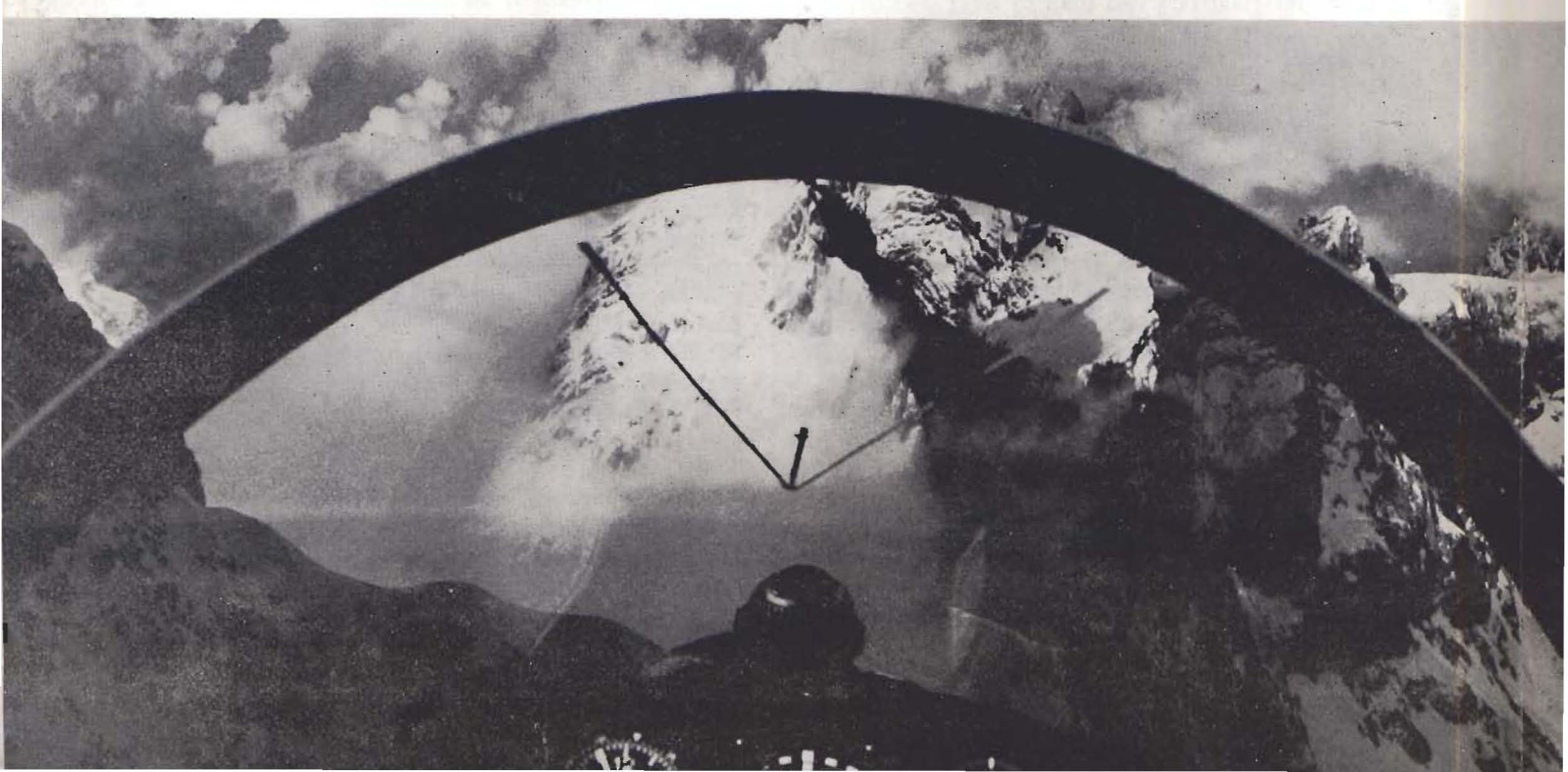
It is important to plan well at home, study the maps, mark all the important details and practice spot-landings on your home site. It will all lead you to the finest of gliding — crossing the Alps.





The Alps photographed by Joch
the cockpit of his Kestrel on
those long distance fligh

Top left, near Zell am See; top centre, approaching Grossrenediger: right,
wall of the Matterhorn; bottom, towards the Dachstein mountain pe

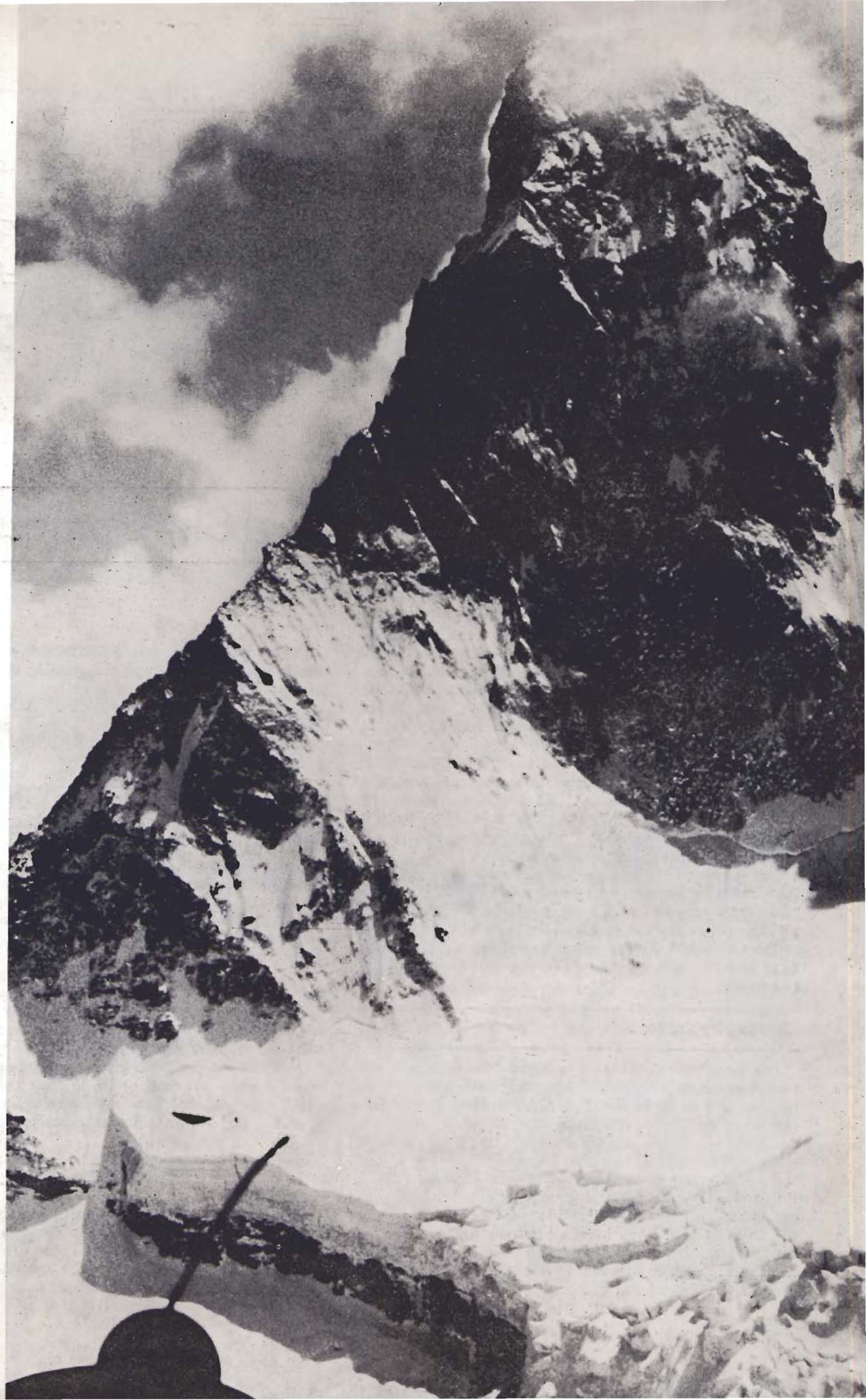




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What Can Go Wrong With a Simple Retrieve?

SUE CARR (Crusaders Gliding Club, Cyprus)

When the Nuffield Trust and Near East Air Force presented the Crusaders Gliding Club with a brand new Blanik, little did we think of the problems we would encounter in getting it the 2000 odd miles from Czechoslovakia to Cyprus. It was decided that the easiest and most economical way was to collect it.

What we had forgotten was that apart from Nicosia Air Traffic Control, very few people in Cyprus knew what a glider was, let alone a trailer. The first was overcome by carrying a picture of a glider (with a pilot inside, to prove it wasn't a model), the second was impossible, except for actually driving the trailer around.

This is presumably why my insurance company threw up their hands in horror and refused to run the risk of me "charging across half of Europe, towing a 35ft trailer with a 1300cc car on the wrong side of the road." Well, I suppose to the uninitiated it does sound impossible, but they were quite prepared to let me charge round half of Europe towing a caravan.

Cheaper By Trailer

The ferry proved the next problem. Nine metres is the maximum length allowed — fortunately no one had a tape measure and as in this part of the world the charges are dependent on weight, the trailer cost less than a car. We decided it was far too difficult to explain that it would weigh some 800lbs more on the return journey.

Eventually our tri-service team of Gus Paterson (RAF), Ralph Gwatkin (Army) and myself (Senior Service), with car and trailer, now insured as a luggage trailer, set sail for Mersin in Turkey. From Mersin our route took us over the Taurus mountains, across a huge plain where 100ft dust devils had to be seen to be believed, to Ankara, Instanbul and the Turkish/Greek border at Ipsala.

The Turkish police seemed reluctant to allow us over the border, but after explaining the purpose of our journey in halting French, they let us move on. We continued via Thessalonika, through Yugoslavia to Vienna and to the Czechoslovakian Embassy where we were politely told that no visas were being issued because of the foot and mouth epidemic in Austria.

Pointless Journey

To travel 2000 miles to be told we couldn't get over the border was demoralising to say the least, not to mention the 2000 miles drive back empty handed. Entry through Germany was the only possibility, but apart from having an uneventful crew change in Munich when Gus had to return to Cyprus and Len Barnes (also RAF) took his place, it was a fruitless journey and back to Vienna we went.

The help of the British Embassy and the Austrian Aero Club were again enlisted, and on contacting what we thought was the Aero Club, we were told they would see Len, the best talker, immediately. We then discovered why: we had contacted the only psychiatrist in the vicinity who evidently decided Len had the makings of an interesting case. I suppose he did have a just cause—who in their right minds would travel 2000 miles pulling a 35ft trailer, then rush off to Munich and back on what appeared to be a wild Blanik chase?

However, we eventually found the right person, got VIP treatment at the Czechoslovakian Embassy and our long awaited visa.

The following day Len disappeared over the border leaving Ralph and me kicking our heels in Haugsdorf. With nothing better to do we decided to walk the 9km to the border, and it was worth the blisters to see my car, dwarfed by the Blanik, sitting calmly in No-man's Land.





"Ours at last" we thought, but no, the Austrians had other ideas. This particular car trailer was not in their book and it took all of Ralph's pigeon German to explain. Only just satisfied with this, the official then proceeded to place his seal on the car, trailer, wing root and the seat of the rear cockpit "to prevent you fiying it in Austria", he said. Only then were we free to go.

A Break From Horses

The village blacksmith was duly summoned to do the odd mod to the trailer and said it made a change from shoeing horses. Then the long trek back began. This we had to accomplish in three-and-a-half days if we were to catch the Mersin ferry, which meant driving through two nights.

A brief stop at the British Embassy to show off our new toy — it had to be brief as we took up not only all the diplomatic car park but also blocked the road — and we were on our way.

Eventually, after a wrong turning at Skopje in Yugoslavia, burnt out plugs and a night stop at Thessalonika, we arrived moneyless in Xanthi at lunch time. By blocking the main road, we managed to persuade the policeman that we would only move if the Bank was opened so that we could change some money to buy fuel. Much to our surprise, that is exactly what happened and by night we were in Istanbul.

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Now Turkish loos had become an obsession with me and on espying what promised to be a reasonable one, every advantage was taken and a stop ordered. This particular one belonged to a hotel and as soon as we had stopped, an admiring audience gathered round the glider. The proprietor arrived and invited us to have coffee with him, so it was in our grotty gliding garments that we were escorted into one of the best nightclubs in Istanbul, belly dancer and all. Dragging the two men away proved somewhat difficult, but I succeeded and by the following morning we were back on the central plain amidst those tantalising dust devils and heading for a night stop at Mensin. With 27 miles of straight road and a glider on the back, autotowing was suggested but commonsense prevailed. The best travelling speed of the car and trailer seemed to be about 40mph with speeds of 60-70 between dust devils.

More Problems Ahead?

The problem we had envisaged getting onto the ferry the following day didn't materialise and a happy ten hours was spent watching sea gulls soaring off the stern, and idly casting pieces of paper into the air to discover where the lift was, not thinking of the likely troubles ahead of us in Cyprus. In fact our arrival in Famagusta was fairly uneventful apart from the customs officer looking in the boot of the car for the glider.

So we had achieved the impossible, 17 days and 5000 miles later, without damage to the glider or car, and only superficial damage to the rear guard of the trailer as a result of removing a concrete post from the gound.

It wasn't until a week later that I realised I had lost my passport. The general consensus was that I had left it at Famagusta and one sunny Saturday I went off to collect it. But it wasn't as simple as that. I was accused of entering Cyprus illegally, importing my car (which I was informed was a 1750 Alfa and not a 1300) illegally, evading customs and failing to pay wharfage dues.

How you can evade customs with a 35ft glider trailer I don't know, but in Cyprus anything is possible. I am pleased to say I didn't find myself in Famagusta jail. I left the customs shed clutching my passport — it is amazing what can be achieved by a dumb blonde and a few sniffles.

PS.—Is there a trophy for the longest retrieve of the year?

CARBURETTOR ICING

An article of value to tug and motor glider pilots

We used to talk about carburettor icing in past years, but with all the modern fuel metering devices used today, a more up-to-date terminology describes this flight condition as induction system icing. The latter term includes all types of fuel metering (fuel injection as well as carburetion), and also parts of the induction system where ice can accumulate such as the air filter or bends in the system, as well as the critical areas of the fuel metering device like the throttle plate in the float type carburettor.

If operators understand what happens when the fuel metering device (carburettor or fuel injector) injects fuel into the air being sucked into the induction system by the engine as it operates, they can take suitable precautions to preferably avoid or eliminate induction system ice. But they also need to understand how the engine reacts when heat is applied to prevent induction icing.

There are two types of induction system ice:

1 Impact ice—forms on the air filter and bends in system.

2 Refrigeration ice—forms in float type carburettor as result of fuel vaporisation and low pressure.

Under cetrain moist (and "moist" is a key word here) atmosphereric conditions, with air temperatures ranging anywhere from 20° to 90°F, it is possible for ice to form in the induction system. The rapid cooling in the induction system using a float type carburettor is caused by the absorption of heat from the air during vaporisation of the fuel, and also due in part to the high air velocity causing a low pressure area through the carburettor venturi.

As a result of these two influences, the temperature in the mixing chamber may drop as much as 70°F below the temperature of the incoming air. If this air contains a large amount of moisture, the cooling process can cause precipitation in the form of ice, generally in the vicinity of the "butterfly" or throttle plate, and may build up to such an extent that a drop in power output could result.

If not corrected, ice accumulation may cause complete engine stoppage. Indications of icing to the pilot are a loss of RPM with a fixed pitch propeller, and a loss of manifold pressure for the aircraft with a constant speed propeller, and the accompanying airspeed loss with both types.

Now the thinking pilot will anticipate possible icing and utilize heat before the ice forms. However, should he fail to anticipate icing with the float type carburettor and ice begins to form, he must definitely use the full heat position in order to be sure of eliminating the ice.

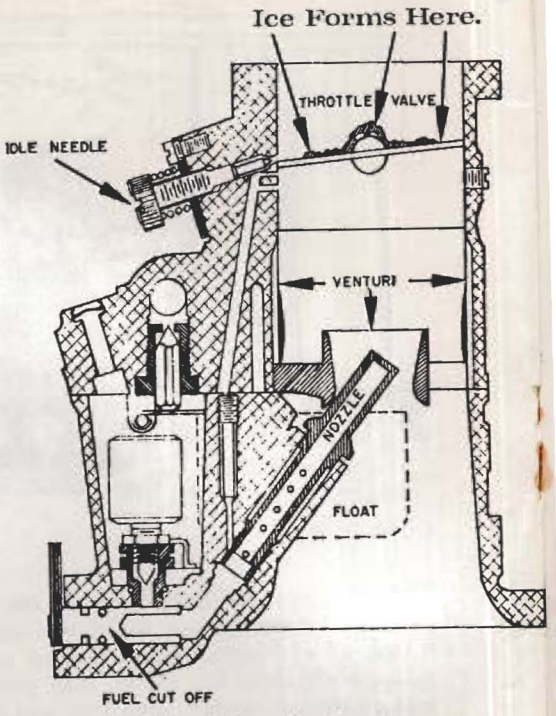
Using full heat will initially cause a loss of power and possible engine rougness. Heated air directed into the induction system will melt the ice which goes through the engine as water, causing some of the roughness and more power loss. Therefore, unless the pilot knows what is actually happening, the stress and confusion of the situation will tend to frighten him out of using heat, and thereby could result in losing his engine by icing. But most of all, he must realise that despite this temporary roughness and attendant moderate power loss, the pilot is not damaging his engine at a cruise power of 75% or less with any amount of heat.

Power Loss

When using heat, there are related factors or influences to remember. The engine loses an average of 9% of its power when full heat is applied. There is also power loss by going from ram air to the more indirect location. Carburettor heat or alternate air also creates a richer mixture which may cause the engine to run rough, particularly at full heat. If there is any throttle available, bring the power up at least to the former amount.

The mixture should be adjusted lean (at cruise power or less) whenever heat is applied. Furthermore, any application or removal of heat would call for an appropriate adjustment of the mixture during cruise. At lower power conditions such as required during flight in the traffic pattern, it may be impractical to lean the mixture.

Do not use heat for take off or climb on Avco Lycoming engines as it may bring on detonation and possible engine damage. An exception to the latter might be in the severe temperatures of the Arctic which calls for special knowledge.



Float Type Carburettor

If you are wondering how long to continue the use of heat, it would depend on the severity of the icing condition. If icing happened to be severe, then heat should be used as long as flight continues in it. We have found in our flight tests on various models of Lycoming engines and with special detonation pick-ups, that at cruise power with full heat or alternate air, we have never experienced detonation or damage to the engine.

If this is difficult to believe, a turbocharger heats the induction air hotter at altitude than the typical carburettor heat or alternate air, without causing any detonation or damage to the engine. The principal concern of the pilot under icing conditions is not the possibility of detonation from the heat at cruise power, but rather to keep the engine running no matter how much heat is required.

In known or suspected icing conditions, follow the instructions in the airplane owner's manual. If the airplane does have an induction air or carburettor air temperature gauge, the thinking pilot who anticipates the possibility of induction ice can prevent it by maintaining a minimum of 90°F in heat during cruise and let-down. However, if the pilot fails to anticipate icing, an undetermined amount of heat may be required to eliminate it if he has permitted it to accumulate.

Any aircraft without an induction air gauge must use either the full heat or full cold position, as an unknown amount of partial heat can actually cause induction ice in the float type carburettor, particularly where there is moisture in crystal form in the incoming air that would ordinarily pass through the induction system without any problem. Partial heat melts these crystals and they form carburettor ice in the venturi when they come in contact with the cold metal of the throttle plate. At a temperature of 14°F or below, any moisture in the air is frozen and heat should not be used.

A recent aviation magazine article reminds us of another point to consider concerning our discussion of induction icing. The short article in question was entitled "Carburettor Heat vs Go-Around". We very definitely disagree with the point they attempted to make. The article indicated that all of us have been taught to use carburettor heat during the landing configuration, and must be sure to get rid of it in case of a go-around, which is sound advice. But their explanation of this need to get rid of the heat on a go-round was—"the real danger is that the application of carburettor heat increases the richness of the mixture and upon sudden application of full throttle for a go-around it would be possible to flood the engine, causing complete engine failure". This is, of course, incorrect with a standard carburettor.

Although heat does make a richer mixture, it does not "flood the engine". The two basic reasons for removing heat on a go-around are:

1 Loss of power becomes critical at low altitude and low airspeed with full heat "on".

2 There is the danger of detonation and/or engine damage using full heat on go-around at take-off or climb power on the higher performance type powerplant.

It is necessary to carefully differentiate between the methods of applying heat to the various flat opposed piston engines in induction icing conditions. Most light airplanes with float type carburettors do not have a carburettor air temperature gauge, and therefore must use the heat position only in the full on, or full off positions, and with the mixture leaned to compensate for the richer fuel/air ratio mixture with carburettor heat.

Because flight instructors fly various models of manufacturers' airplanes and engines, it would be helpful to standardise the instruction on the use of heat in the landing configuration on aircraft using the float type carburettor. Avco Lycoming has no objection to the consistent standardised use of carburettor heat in the landing configuration.

Thus far our discussion has limited itself to the float type carburettor which can incur ice in VFR flight conditions if there is the right combination of moisture, temperature and fuel mixture. In the case of fuel injection and pressure carburettors, it is the IFR type flight condition which generally causes induction system icing for the most part. The fuel injected engine does not have the threat of icing at the venturi; but other parts of the induction system can gather ice such as bends in the system, the impact tubes, or on the air filter.

The pilot of a turbocharged powerplant should not be too concerned with induction system icing except in extreme conditions because of the high temperature of the induction air when the compressor is running. However, slush/snow can be a blockage threat to the air filter area if there is not easy availability to alternate air. Impact ice at high altitude with some turbocharged engines may cause a loss of four to six inches of manifold pressure when going to the automatic alternative air source.

The pressure carburettor is similar to the fuel injector in that it is not very vulnerable to icing, other than that outlined in the previous paragraph. When a float type carburettor is placed next to a pressure carburettor for a visual inspection and comparison, note that the float carburettor fuel jet is ahead of or below the venturi and throttle butterfly which means the fuel is being squirted into the worst possible place for icing—the carburettor venturi. On the other hand, the pressure carburettor jets are squirting fuel farther downstream beyond the venturi refrigeration chamber, which accounts for the less likelihood of icing in this type of system.

Most pressure carburettors have automatic mixture controls. On the ground, any application of heat will affect the AMC unit so as to make it temporarily unpredictable in its effect on the carburettor in flight immediately. If for some reason the pilot used heat on the ground (ie checking the heat system), he must wait at least two minutes before take-off in order to avoid an erratic fuel flow because of the effect of the heat on the AMC unit.

CONCLUSION. Now that the operator understands how ice forms in the fuel metering device, and how the engine reacts when heat is applied, he can cope with an icing problem without panic because he knows what is happening.

This article is re-printed from Avco Lycoming's "Flyer".

An information leaflet was issued by the Department of Trade and Industry to help pilots avoid engine icing (see S&G, April, 1971, p100)—Aeronautical Information Circular United Kingdom 106/1970, "The effect of icing on piston engines in light aircraft"—which is still available from the Aeronautical Information Service (AIS I), Tolcarne Drive, Pinner, Middlesex, telephone 01-866 8781.

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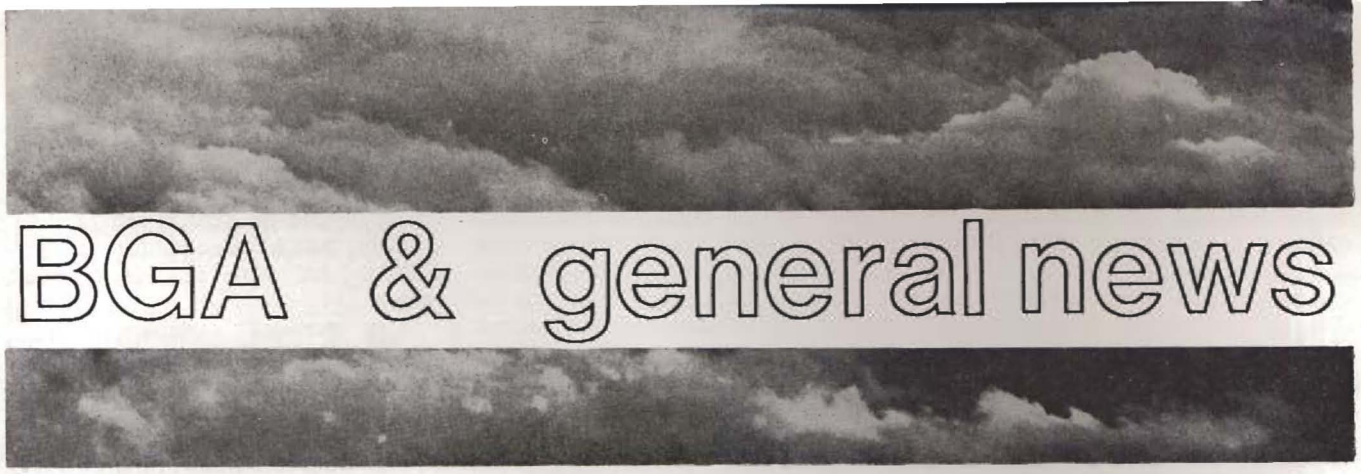
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BGA & general news

RAY STAFFORD ALLEN

The British Gliding Association announces with the utmost regret the sudden death on May 13 of Ray Stafford Allen (56), the BGA's Chief Technical Officer.

Our deepest sympathy is extended to Peggy, his wife, and to his sons, John, Peter and Robin and family.

An Obituary will appear in our next issue.

HONOURS FOR RALPH

Our congratulations to Ralph Jones who has been awarded a Silver medal by the United Service & Royal Aero Club's Aviation Council for his outstanding performance in 1973 when he won five major gliding competitions.

A CUP FOR NAOMI

We are also pleased to report that the Council has awarded the O. P. Jones cup for noteworthy achievement in gliding by a woman pilot to Naomi Christy, BGA Development Officer.

It is for Naomi's great contribution to gliding and private aviation in preparing the paper on *The Requirement for a National Recreational Airfield and Airspace Policy*, which was submitted to Lord Boyd-Carpenter's Private Aviation Committee in March, 1973 and later widely circulated.

Naomi is a gliding instructor, tug pilot and deputy Chairman of the Girls Venture Corps.

BGA DIPLOMA WINNERS

Our congratulations to the three BGA Diploma winners, chosen for their services to gliding over a long period.

Jack Aked

Jack Aked continues a family tradition—his father was also president of the Blackpool & Fylde Club. The many trials and tribulations Jack overcame in the post-war years of shortage are still remembered by many members. Besides this, he has realised his dream of a permanent site for his club and the location promises a variety of soaring few others can match.

"Doc" Bradwell

"Doc" Bradwell's connections with gliding began in the 1950s when he joined Derby & Lancs and later the Midland Club.

He was a founder member of the Staffordshire Club, one of the three guarantors for the SBAC loan which helped to provide initial equipment, and their CFI from 1961 until this year.

"Doc" made the expansion of the club fleet possible by financial assistance and as one of the Trustees, helped them transfer to the new freehold site at Morridge.

Arthur Doughty

Arthur Doughty has been described as the complete gliding club member. He first joined the London Club and in more recent years has been a mainstay of the Airways Flying Club at Booker.

The Wycombe Regionals depend for their very existence on Arthur's presence as director and task-setter. When not running the Regionals, he is a hard working instructor and tug-pilot, a BGA inspector and, in addition, always willing to help with paperwork.

Recently, when the CFI left the country, he took over until a replacement could be appointed. Since then he has given great support as deputy CFI.

Arthur still finds time for solo flying —he has a Gold C with two Diamonds.

UK SINGLE AND TWO-SEATER RECORDS CLAIMED

Ralph Jones took his Nimbus 2 round a 108km triangle at an approximate speed of 112km/h on Tuesday, April 30.

John Jeffries and Geoffrey Love declared an 108km triangle on April 22 and averaged 81.16km/h in their newly acquired Calif A-21. The following day a 304km triangle was flown by John and Dilys Yates again in the Calif this time at 68.06km/h. On May 7, John and Geoffrey flew the Calif A-21 round a 403km triangle at 69km/h. (All flights from Dunstable.)

Chris Rollings and Martin Breem flew a K-13 from Booker over a 108km "speed to goal" at 122.9km/h on May 10.

Alan Purnell, Lasham, claims the goal and return record with 540m in his Nimbus 2 on May 14. (All flights subject to homologation.)

COMPETITION ENTERPRISE

The Devon and Somerset Gliding Club report "all is set fair for Competition Enterprise, to be held at North Hill from June 22-30, now that Mike Garrod has agreed to come and organise the weather for us". It is also becoming clearer that, apart from the "Farglide" possibilities, a lot of interest has been generated by Competition Enterprise, and many will be watching this event with interest.

GLIDING CERTIFICATES

No.	Name	Club	1974
ALL THREE DIAMONDS			
36	L. E. Beer	Thames Valley	18.3
DIAMOND HEIGHT			
3/189	L. E. Beer	Thames Valley	18.3
3/190	C. Leo	Airways	18.3
3/191	E. G. Shephard	SW District	9.10.73
3/192	R. A. Sandford	Bristol/Glos	16.3
3/193	J. Butler	in USA	26.6.73
DIAMOND GOAL			
2/476	L. K. Forsey	Thames Valley	31.12.73
2/477	M. R. Carlton	in Australia	29.1.74
GOLD C HEIGHT			
	L. K. Forsey	Thames Valley	31.12
	S. T. E. Walker	Cranwell	7.11
	A. Raffan	Highland	26.1.74
	P. F. J. Wells	Clevelands	27.2
	M. R. Carlton	in Australia	29.1
	G. C. Sorum	Thames Valley	16.3
	M. G. Throssell	Essex	16.3
	I. A. Ronald	Lakes	9.3
	E. J. F. Lusted	Airways	31.3
	L. J. Welburn	Clevelands	17.3
SILVER C			
3557	M. C. Mahon	Fenland	24.10.73
3558	G. Camp	Fenland	24.10
3559	G. A. Hagger	Cranwell	31.10
3560	J. F. McAulay	Cranwell	3.11
No.	Name	Club	1974
3561	M. A. Chritchley	SGU	7.2.74
3562	E. J. Crawford	in S Africa	11.1.73
3563	A. D. Hilton	Fenland	12.2
3564	R. E. B. Johnson	Surrey/Hants	2.3
3565	D. D. Booker	in S Africa	11.2.73
3566	M. S. Hall	Fenland	12.2
3567	M. R. Carlton	in Australia	18.1
3568	C. A. Marren	SW District	17.3
3569	L. Free	Southdown	3.3

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ENTRIES OPEN/STANDARD CLASS NATIONALS

Dunstable, May 25 - June 2

No	*Pilot*	*Open*	*Standard*
82	Jones, R.	Nimbus 2	
268	Lee, G.	Kestrel 19	
242	Sandford, R. A.		Std Cirrus
66	Delafield, J.	Kestrel 22	
269	Williamson, J. S.	Kestrel 19	
566	Jeffries, J. R.	Calif A-21	
27	Camp, G. W. G.		Std Cirrus
402	Lysakowski, E. R.	Kestrel 19	
7	Burton, G. E.	Kestrel 19	
148	Burton, A. J.		Std Libelle
	Rollings, C. C.		Pilatus B-4
151	Garrod, M. P.		ASW-15
24	White, S. A.	Kestrel 19	
43	Goldsbrough, J. B.	Kestrel 19	
12	Welsh, J. H.		Std Cirrus
29	Glossop, J. D. J.	Kestrel 19	
259	Livesay, M. H.		Std Libelle
347	Day, C. G.	Kestrel 19	
	Cardiff, J.	?	?
16	Orme, H.		Std Libelle
543	Wright, R. H.		Std Libelle
260	Pozerskis, P.	ASW-17	
135	Lilburn, D. W.		Std Libelle
545	Cole, R. A.		K-6E
380	Brown, H. F.		Std Libelle
22	Zealley, T. S.	Kestrel 19	
294	Keogh, B.		Std Libelle
10	Simms, J. A.		Std Cirrus
90	Foot, R. A.	Nimbus 2	
102	Cousins, R.	Kestrel 19	
264	Miller, A. S.		K-6E
379	Kiely, K.		K-6E
52	Shephard, E. G.		Std Cirrus
818	Sheffield, R. J.		Cobra 15
488	Vennard, D. A.	Kestrel 19	
602	Watson, A. J.		Std Libelle
	Greaves, C. M.	?	?
92	Ellis, C. A. P.	Dart 17R	
	Torode, H. A.		SHK or K-6
108	Simpson, C. R.	Kestrel 19	
19	Burns, Anne	Nimbus 2	
304	Krzystek, T. J.		Std Cirrus
	Robertson, D. J.	?	?
	Brownlow, B.		Std Libelle
	Dimock, H. R.	Nimbus 2	

ENTRIES DAILY TELEGRAPH—EUROGLIDE

Nympsfield, August 17 - 26

No	*Pilot*	*Open*	*Standard*
82	Jones, R.	Nimbus 2	
40	Fitchett, B.		Std Cirrus
242	Sandford, R. A.		Std Cirrus
566	Jeffries, J. R.	Calif A-21	
27	Camp, G. W. G.		Std Cirrus
402	Lysakowski, E. R.	Kestrel 19	
7	Burton, G. E.	Kestrel 19	
148	Burton, A. J.		Std Libelle
	Rollings, C. C.		Pilatus B-4
24	White, S. A.	Kestrel 19	
269	Farmer, A. T.	Kestrel 19	
43	Goldsbrough, J. B.	Kestrel 19	
29	Glossop, J. D. J.	Kestrel 19	
52	Hood, L. S.		Std Cirrus
380	Woodier, C. J.		Std Libelle
16	Dixon, R. T.		Std Libelle
260	Pozerskis, P.	ASW-17	
304	Przewlocki, J. K.		Std Cirrus
	St Pierre, A. H. G.	?	?
12	Cook, P. G.		Std Cirrus
	Meddings, E. J.	?	?

The following European entries have been received so far but the list is incomplete (gliders and Class not known) and is subject to alteration.

Bluekens, Michel	Belgium	Mayer, Richard	Switzerland
Defosse, Georges	,,	Eisele, Walter	West Germany
Evens, Jan	,,	von Gwinner, Otto	,,
Louis, Pierre	,,	Hajek, Herman	,,
Zegels, Bert	,,	Henkel, Fritz	,,
Hersey, B. J.	Eire	Nagel, Rolf	,,
Innes, David	Guernsey	Sand, Peter	,,
Muszczynski, H.	Poland	Wilsch, Rudolf	,,

overseas news

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

NEW ZEALAND NATIONALS, 1974

ROSS MACINTYRE

The National Championships this year at Waipukuray, Hawkes Bay, was a disappointing event. Poor weather, small entry and a lack of the "big names" all contrived to create a low key contest.

Doug Yarrall has become the New Zealand Standard Class Champion for the second time. He is also the Open (handicap) Class Champion, although with only one Open Class entrant included with the 15 Standard Class machines, it was almost inevitable.



Maurice Honey

Maurice Honey flying his K-6BR, the oldest machine in the contest and one that has figured many times before among top placings, won the Sports Class from a total of 16 entrants.

Only six contest days were possible in the Open/Standard Classes and five in the Sports Class. Tasks were generally short. The longest (179km) wasn't completed by anyone and only two completed the 177km triangle on the second day.

Open/Standard Classes *Final Leading Results*	Pts
1 D. Yarrall, Std Cirrus	5020
2 I. Finlayson, Std Libelle	4902
3 B. Fowler, Std Libelle	4671



Douglas Yarrall

Sports Class	
1 M. Honey, K-6BR	3624
2 B. Kelly, K-6CR	3263
3 A. Van Dyk, K-6E	3101

AMERICAN MARATHON

As this issue goes to press, seven of USA's top pilots—Karl H. Striedieck, Ross and Kenny Briegleb, William Holbrook, Richard E. Schreder, Dan Pierson and Hannes Linke, are gliding their way from Los Angeles to Washington DC.

They are taking part in the third annual Smirnoff Sailplane Derby, the world's longest gliding competition, and expect to cover between 250 to 300 miles each day.

VINON MOUNTAIN COMPETITIONS

These will be held from June 29 to July 11 at Vinon Airport in France. Pilots who are interested to fly in this international contest should write immediately to the Secretary, Remy Dayre, Association Aeronautique Verdon-Alpilles, 3 Rue du Commandant Imhaus, 13006 Marseilles, France.

HANS-WERNER GROSSE DOES IT AGAIN

On Tuesday, April 16, Hans-Werner Grosse set off, once again in his ASW-17, from Lübeck, Germany after declaring Marmade, France 1280km away as his goal and thus claims the World's Goal flight record which was broken on April 25, 1972 by Klaus Tesch of Hamburg (1051km) on the same day as Hans-Werner claimed the World's Distance record of 1460.8km.

SIGI BAUMGARTL ALSO JOINS THE "1000km CLUB"

Having declared 1150km Dinslaken-Pau, France on the same day in another ASW-17 for his attempt on the goal record Sigi learnt on the radio, over France, that Hans-Werner's goal would beat his own. He therefore decided to curtail his flight and land at Marmade to join Hans-Werner on the ground. This distance of about 1020km ensures him a place in the FAI Diploma list which now stands at 15 flights over 1000km with Hans-Werner Grosse having done three.

. . . AND THE TWO-SEATERS WON'T BE LEFT OUT

Walter Schewe and his 22 year-old son Fritz set off from Dinslaken in a K-13 (the same glider in which Baumgartl/Schewe broke the world two-seater record two years ago) to try and reclaim this record, now held by Makula of Poland in a Calif A-21. Unfortunate hold ups with the towing tug made them take a winch launch for a late start at 10.15 am. With a last 700m high mountain to cross, 30km before their goal, they were reduced to ridge soaring for over an hour in order to clear the mountain—when they did it was too late to make the goal and they landed after 752km—only 10km short of what they had set out to do!

SB-10 JOINS THE HUNT

The world's largest glider the 29m two-seater SB-10 from Akaflieg Braunschweig having declared 775km Braunschweig-Orleans, France, would have

beaten Walter Schewe's declaration in the K-13.

On reaching Orleans at 1700hrs conditions were still good and the pilots, Benno Schmaljohann and Günther Knorr, decided to overfly their goal and try for the world's distance instead which stands at 921km. By 1800hrs, however, lift ceased rapidly and they were forced to land after having flown 896km. Although not good enough for the world record it gives them a place on the German National record list. (All records, subject to homologation.)

FIRST CROSS-COUNTRY HOLLAND-SWITZERLAND

In conditions ranging from 4/8 cumulus and blue thermals to snow showers, overcast and a strong northerly wind, Otto Foelkel from Holland flew a Std Libelle on Easter Monday from Terlet, Holland, to Frutigen, Switzerland, a distance of 630km. The flight was curtailed by the scarcity of landing fields in the Swiss mountain valleys, and Foelkel decided to land at 7pm while still at 6000ft asl.

The area of overcast, which cut off the sun completely, covered about 300km of the distance flown. According to a News Bulletin by Ary Ceelen, the pilot is the first Dutchman to have flown a glider from Holland to Switzerland.

Two days later, April 17, Foelkel flew another 520km from Terlet, this time landing at Chartres, France. On the same day Dick Réparon broke the National 100km triangle record with 94.6km/h in his Kestrel 17.

KESTREL 19 TO 41000FT IN CANADA

A Canadian national record for absolute altitude of 41000ft was set up at Colerado Springs, USA, by Walter Chmela of York Soaring Association, Toronto, on January 9 this year. At the same time he put up a Canadian gain of height record of 28000ft in a Kestrel 19.

This is only the third time that a glider has reached an altitude of over 40000ft (subject to homologation).

Membership of the Soaring Association of Canada increased from 931 in 1972 to 1301 in 1973—the fastest rate of growth ever. This is shown by a graph published in *Free Flight*. During the past ten years, starting with 653 members in 1963, there has been an increase every year except in 1964 and 1969. There are now 45 gliding clubs in the country; Ontario Zone has most with 20 and Prairie Zone least with four. The "Provincial Motorgliding and Soaring Association" of Blackstock, Ontario, must be the first ever gliding club to include motorgliders in its title.



LUCKY ESCAPE FOR HANS NIETLISPACH

While landing out on a cross-country flight on Saturday, April 20, the well-known Swiss pilot, Hans Nietlispach, flew into a single high-voltage power cable which was not visible from the cockpit.

By great good fortune, below and lower down, was another four-cable low-voltage supply on which he fell after impact with the high-voltage cable, breaking three of the four cables. The fourth no doubt saved him as he hung entangled and suspended in the cables about 30-40ft above ground.

He called for help over his radio which was still working, but before it came, a local farmer who saw his predicament came to his aid and with the help of a large ladder Hans was able to get out of his Std Libelle.

The supply in the area was cut off by the resultant power failure and the Std Libelle needs a pair of new wings. Readers will, however, be pleased to know that Hans escaped unscathed from this very alarming experience and took this photo.

NEW MOTOR GLIDER RECORD

Paul Dröghoff from Lünen, Germany, claims the world distance record with a flight of 715km in a SF-27M from Dahlemer Binz to Roc Amadour in France.

Many other noteworthy flights have been carried out in mid-April from sites all over the Continent. In Germany, however, only those living north of the Main were lucky with the weather as in the south (Hahnweide and Munich area) rain and snow played havoc and brought traffic almost to a standstill. (*Luftsport*)

GERMAN AEROBATIC CONTEST

Germany's first gliding aerobatic contest will be held at Saulgau airfield, about 30 miles SSW of Ulm, from July 18-20. (*Aerokurier*)

SOUTH-WEST AFRICA RALLY

At Bitterwasser in South-West Africa, the private soaring site which welcomes visiting parties, the first German expedition came to try out the soaring conditions last November. Helmut Ivers of Husum obtained his Silver C and Gold C height, Dieter Bayerbach his third Diamond with a flight of 500km and Karl Feiler of Freiburg and Ingwer Biehl of Holstein, the organiser of the expedition, both got their Gold C height. Frans Caers came from Belgium to

join the party with a Blanik and set up a Belgian national two-seater record of 63.28km/h for the 100km triangle. (*Aerokurier*)

OBITUARY

ED van BREE

Ed van Bree, 38, died on March 31 as a result of injuries received in a serious flying accident in a Traveller four-seater on Sunday, March 3 in which his nine year-old youngest son was killed and his 12 year-old second son was injured. A colleague, who like Ed, was employed as a pilot by Philips of Eindhoven, is still critically ill.

Ed, who started gliding at 14, was one of the most experienced glider pilots in Holland and became well-known as an instructor, CFI and competition pilot. He was National Champion several times and represented Holland in five World Championships. Ed's father, still an active glider pilot, and Ed's oldest son, who soloed in January at the age of 14, made up three generations of glider pilots, an occurrence which was probably unique and has now sadly come to an end.

Readers who attended the World Championships at South Cerney, 1965, may well remember the exhilarating aerobatic display which was performed by Ed unofficially on the opening day and left the onlookers in no doubt as to his flying skills.

The sympathy of their many friends goes out to Henny, his wife, who lost both a son and her husband in this tragic accident. **RH**

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your letters

TAIL PARACHUTE EFFECTS

Dear Editor,

I was extremely interested to read Dennis Carey's article about the stabilising effects of tail parachutes (*S & G*, April p55). Might I be permitted to sum it up for the average reader who may have to use a tail chute.

1 If you make too slow an approach in any configuration, you may find insufficient control to round out accurately and you can expect a heavy landing!

2 If you open the tail chute you must either have sufficient height to be able to lower the nose to maintain an adequate approach speed, or have sufficient speed to allow for the rapid decay of speed and still have sufficient speed for the round out, or be close enough to the ground as the chute deploys to hold off normally without danger of dropping more than a foot or so as the speed is lost.

Although there seems to be evidence that some of our gliders might run short of elevator power during the round out, it seems much more likely that some landing accidents were caused by the pilot losing speed, or attempting to approach with inadequate speed. Even with the flaps down and using some airbrake with the tail chute deployed in the Kestrel, it still seems possible to make a normal wheel and tail wheel touch down and, in practice, we have little or no evidence to suggest any significant additional problem with the round out.

Lasham Gliding Centre DEREK PIGGOTT, CFI

MORE ABOUT TAIL PARACHUTES

Dear Editor,

May I correct some printing errors which crept into the last issue and enlarge on one or two points?

At the top of p58, the height for parachute deployment should be 75ft, not 15ft! This figure assumes zero delay in canopy development and a flight path curvature corresponding with a (−) 0.25*g* pushover followed immediately by a (+) 0.25*g* round out at 50kts. In practice, with minimal allowances for deployment and transition from pushover to round out, a minimum height for streaming the parachute of at least 100ft would appear to be necessary.

Of less importance, at the top (RH column) of p56, the end of the first paragraph should read ". . . aft or forward of the wing aerodynamic centre . . .". The letter E (Fig 1) should be replaced by the symbol ε, and in Fig 3, the parachute trails at an angle ($\alpha p + \alpha p$).

In the interest of brevity, the derivation of the formula given on p58 was omitted. The factor $(1 + \frac{C_D S_P}{A_T S_T})$ on the tail area, is a simplification which results when the parachute trails very close to the fuselage, and provides a conservative estimate of the effect of a parachute on the basic stability margins of a glider. When the parachute trails at some distance behind the fuselage, or very close to the ground, the downwash angle at the parachute is reduced, and it trails at a larger angle very nearly equal to the wing incidence. The parachute moment (M_P) will be increased by either of these effects by about 25%, which is equivalent to an additional forward CG Shift of about 0.5in. The practice of using a very short tethering line which was the case considered in my article, is therefore quite sound in principle, but has no aerodynamic advantage over a long tether, during hold off.

Haverthwaite, Cumbria. DENNIS CAREY

(This seems as good a place as any to ask for your indulgence over the last two issues of S & G, particularly the last. More corrections than I dare to count were ignored by the printers, who were suffering themselves with an industrial dispute, and both issues were plagued by irritating typographical errors and misplaced lines. I hope we will soon be back to our usual standards and meanwhile apologise for something out of our control.—EDITOR)

COMPETITION FLYING — A NEW SUGGESTION

Dear Editor,

The aim of most glider pilots is successful cross-country flying. Most clubs encourage this aspect of flying and in this country there must be a considerable number of very competent cross-country pilots who have never flown under competition conditions and, for a variety of reasons, may never do so. As it is at present organised, I have the feeling that competition flying could soon become the preserve of the wealthy private owner. Competition Enterprise is a step in the right direction but, nevertheless, it has merely produced another Regional-type contest, which is both time consuming and expensive and does nothing to help the glider pilot I have in mind.

I suggest that weekend inter-club competitions could provide this sort of flying for those unable to enter Regional contests. Fixtures between neighbouring clubs could easily be arranged on a home or away basis with two or three gliders per club taking part. To facilitate the making of fixtures it would not be too difficult to make convenient groupings of interested clubs — say about five to each group. Rules and scoring could be simple and a selection of suitable tasks could be prepared in advance. The possibility of inter-group contests for group winners would not be out of the question.

The advantages of the above system should be obvious. Reduced travelling time and expense, particularly if the host clubs waive temporary membership fees and club members provide visiting pilots with accommodation. Normal club launching facilities should be sufficient and other club activities would not be adversely affected.

If such a competition received widespread support, a National co-ordinator would be required together with a number of group organisers, results being in S&G.

Several years ago I introduced this type of contest in my own club and I give below the rules and scoring system which were used at the time. I should, of course, be inter-

ested to have any comments or suggestions regarding this scheme, together with some indications of the possible support.

1 Competition Rules

a) Any pilot may take part provided that he has the permission of his CFI.
b) Flights in two-seater gliders may be made, but all points scored will be allocated to the P1 pilot.
c) The current BGA Handicap List will apply to all tasks.
d) Photographic evidence will not be required for turning points — the pilot's word will be taken for this.
e) A no-contest day will be declared if no pilot exceeds 25km.
f) Declaration and claim forms must be handed to the steward before and after a flight.

2 Scoring System

a) Completed tasks: free distance 1pt/km; declared goal — 1.5pt/km; out-and-return — 2pt/km; triangle declared — 2.5pt/km.
b) Uncompleted tasks count as free distance.
c) Speed points = $dv^2/2000$, where d is the distance in km, and v the speed in km/h.
d) Gain of height points = (gain in ft) /50.
e) Competition points are calculated as follows: glider handicap a fraction, total points from above.
f) Inter-club scoring system. Within each group each club will be awarded points for each inter-club contest: win 2pts, draw 1pt and lose 0pts.

Colchester, Essex. ERIC RICHARDS

AN ALTERNATIVE TO PRIVATE OWNERSHIP

Dear Editor,

Someone has been taking Ann Welch's article on trends in the structure of clubs (S&G April 1973, p89) too much to heart! Being the exception to Bill Scull's supposed rule, I really must protest when he says in his article "How Experienced Are You?" (S&G February, p11) that there is no alternative to private ownership in UK clubs.

Will all pilots who enjoy variety, as I do, please note that the Surrey and Hants Club fleet ranges from K-8Bs and Pilatus B-4s through the Dart 17R and K-6E types to Phoebus 17 and Kestrel 19 — the latter for those who have 150hrs solo or more. Eleven gliders for club pilots, not private owners may I stress, although no small number of such people at Lasham fly both their own machines and ours.

Amongst the private owners it is only fair to add that there is no shortage of Skylarks, K-6CRs and Pirats at Lasham — not to mention a large Tutor syndicate. So there is an alternative Bill, and as a former CFI and frequent visitor you should know.

CHRISTOPHER BRYANT
Lasham, Hants. Chairman, S&H GC

A MISUNDERSTANDING

Dear Editor,

While conversing with air cadet gliding instructors I became aware of a certain disenchantment with the BGA. This was because these instructors, some of them highly experienced, felt they were considered incompetant by the BGA.

Surely this cannot be the case? Why cannot these instructors be awarded a BGA instructors' category upon successful completion of their comprehensive air cadet instructors course? I understand that the air cadets will soon be operating motor gliders which will bring them into line with the most modern of the BGA clubs. Doesn't this make a case for uniformity of instructor standards?

Perhaps the highly progressive and up-to-date officers at HQ Air Cadets are unaware of the situation, but it would seem that liaison between the two organisations is overdue. Perhaps someone with experience of both BGA gliding and air cadet gliding would care to comment?

Aberdeen PETER SHAW

Barry Rolfe, General Secretary of the BGA points out that ATC A or B Category gliding instructors are already exempt from the BGA Instructors' Course, and on completion of an acceptance test with a CFI, they can automatically be issued with a BGA Assistant Instructor Rating (ED)

BOOK REVIEW

Glider Pilot: By Peter Champion. Published by Model & Allied Publications Ltd, Hemel Hempstead. Price £2 (UK only). Obtainable from BGA, mail order £2.20.

Agoraphobia, from the Greek, meaning a fear of open spaces, is not at first sight an affliction which one would regard as being likely to be cured by taking up the sport of gliding. Nevertheless, the author of this slim volume, experiencing that peculiar mental torment after a nervous breakdown, was in fact finally healed in mind by the novel experiences of soaring, to which he was introduced by a friend, a member of the Southdown Gliding Club.

The author explains in his preface that the book is not in any sense instructional, but merely relates his personal experiences, at the same time recording his indebtedness to his club. It may be said—using a medical analogy—to be an interesting "case history" of a typical gliding addict. It reads well, it could help to allay the fears of anyone who might be shrinking at the idea of gliding, and is well worth the money.

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club news



Copy and photographs for the August/September issue should be sent to the Editor, S&G, 281, Queen Edith's Way, Cambridge CB1 4NH, tel Cambridge 47725, to arrive not later than June 12 and for the October/November issue to arrive not later than August 14.

GILLIAN BRYCE-SMITH

April 18, 1974

BLACKPOOL & FYLDE

Long spells of southerly and easterly winds made us thankful for our various hill faces, while our valley airfield allows us to soar the hill in very light winds. The condition which spoils our fun is a low cloudbase, but even then we can do training circuits. We are feeling the benefit of our hangar, and are pleased with the sliding plus folding doors which are very easy to operate. The next step is to develop the mental agility and discipline needed to safely stow up to nine gliders into a space of 60×60ft.

Having bought the flattest land around, the rain in January and February showed more inclination to run on to our fields than off them, heading mainly for a pond which we had filled in. Thus we couldn't get the winch to our favourite spot, so we had to resort to more digging instead of flying, and we now possess more drains, a ditch and a stone track that we hadn't originally planned. However, this was the patch that needed levelling for take-off on the south-east run, and the huge mounds of clay were soon pushed back into place, dozed, ploughed and harrowed to make a good smooth surface, thanks to our machines and a small band of dedicated members.

Unfortunately work on our site, with drainage and levelling, cost us money set aside for buying a Sovereign and reluctantly we had to cancel the order. One group has bought a Kestrel 17 and another has formed to order a Consort—two members will be unable to moan about design features they dislike for they were responsible for the detail design! We look forward to comparing these new machines with the Olympia and K-6E. Thus our flying operations are able to move into top gear at last, and we think we have done wonders to get the land and the hangar fully organised within 18 months.

We can now turn our attention to the clubhouse where the kitchen is getting first attention, then we aim to get a drinks licence.

K.E.

BRISTOL & GLOUCESTERSHIRE

Mike Munday formally started work as our staff instructor on February 20 and the increase in launch rate and reduction in fumbles was apparent almost immediately. Flying now begins before 9.30am on weekdays and Mike seems to provide an endless source of enthusiasm and energy for everybody. Good luck Mike!

At last we almost have our Super Cub. Chris "Biggles" Day and Mike Munday were flown to Germany by Barry Walker on April 10 and returned three days later after a relatively trouble free trip. Problems started when they diverted to Staverton (ten miles from Nympsfield) because of adverse weather conditions and were immediately put in detention pending the arrival of HM Customs.

After visions of spending the summer under lock and key, the officials arrived and the intrepid aviators made the short journey back to the club. Meanwhile the Super Cub was rendered unflyable by removal of the rotor arm, or whatever people do to ensure aircraft remain firmly on the ground. Clearance of paperwork and re-registration should only take a few days, so with luck the tug should be in use before the end of April.

As far as flying is concerned, conditions have slowly improved through February and March. On Saturday, March 16, Ron Sandford found wave to the west of the club and took the Std Cirrus 242 up to 16400ft—we're keeping our fingers crossed that it's a Diamond for Ron.

The last week in March, which was superb last year, saw the trailers rolling northwards to the SGU at Portmoak but the gliders never came out.

Std Libelle 238 carried Mike Davies down to Tarrant Rushton to give him Silver distance plus on Sunday, April 14. Several Bronze legs have been flown recently, there were numerous conversions and Julia Harris went solo in the Swallow on March 3.

The summer courses have started with our own Tim Bradbury again in full control.

R.A.R.



CAMBRIDGE UNIVERSITY

The first soaring of the year was on February 3 at Duxford but it wasn't until February 23 that genuine soaring again took place. (We have a curious system whereby any flight over 10min counts as soaring, regardless of the fact that a good winch launch can give 15min without even a twitch of up.) On this date several pilots flew for an hour or more.

Cross-countries traditionally begin here in April, but on March 2 there was pronounced streeting in the strong winds as well as strong convection. Stephen Longland did a conservative out-and-return of 100km along the streets whilst Desmond Pearce, in a more original frame of mind, did a crosswind out-and-return of 146km.

Also during March one of our pilots got his C during his first solo in the T-21 and later in the day, when converted to the Swallow, managed a Bronze leg. There were other excitements in March including a bungey expedition to Crossfell.

April has produced three Silver distance flights so far, all to Dunstable—although Val Rendle deliberately overshot by 40km and landed near Bicester.

S.N.L.

COTSWOLD

The banning of Sunday flying at the height of our miseries, plus the uncertain economic future, pushed the committee into selling our Skylark 2 to reduce a high priced overdraft.

Those lucky enough to have a glider handy when wave visited us on January 19 were able to whisk themselves up to 3500ft for some unexpected soaring. Dick Goldup gained his first Bronze C leg with an hour in wave.

Another cheerful note in our winter was the series of lectures, particularly the evening Tom Bradbury spoke on Pilot's Meteorology. This really was a classic.

Thanks to the hard work of a few members, the three K-7s and the K-6E have had their Cs of A and are fettled for the season. The first cross-country of the year was a 60km triangle by Tim Macfadyan.

J.D.H.

CORNISH

As the poor weather conditions continued into early spring, gloom began to set in. Even our NW facing ridge has only been useable on a couple of occasions this year, although this has meant time available to work on the clubhouse extension.

It came as a welcome relief to have such good conditions over the Easter weekend. On the Sunday, Dave Pentecost found wave in the north-easterly, something he failed to do at Shobdon earlier this month. And the following day was equally good; one after another gliders deserted the airfield to make the most of the seabreeze front formed over Truro and to get the first real thermalling practice of the season. Some climbs of 6 to 8kts were reported.

D.E.P.

COVENTRY

The soaring season started earlier than previous years with several cross-countries completed in March.

Wally Mason, however, suffered an unpleasant time when he landed his K-6 in a very large field some miles south of HB. He made the customary approach to the farmer to apologise and to ask permission to have his crew de-rig the glider. The farmer refused the crew's entry into the field and, in fact, denied the removal of the glider altogether until the field had dried out.

Taking the English climate into consideration this could have taken months. After several hours of negotiation and reasoning, the farmer eventually gave permission for the removal of the glider but the crew had to carry each bit over 200yds to the trailer outside the field. This situation obviously called for a great deal of tact and diplomacy and the pilot could have ended up in a very embarrassing position.

After a long while of very hard work and infinite patience, the Goevier has made its maiden flight having been completely rebuilt. Four flights later Lou Glover is quoted as being "extremely satisfied" with its progress.

The Easter weekend brought a spate of good cross-countries. Several got to Nympsfield and Eric Lambert achieved his Silver distance. He said he'd rather have done it in the Swallow but as one wasn't available he did it in his Kestrel instead.

The balloon syndicate has been formed at HB and a new balloon has arrived. The first flight produced a cross-country flight of about 20 miles and they landed near Bubbenhall.

V.M.G.

DERBYSHIRE & LANCASHIRE

Our Swallow has gone to a new home in Lincolnshire and another link with Slingsby has been severed, this being the first time we have been without a Slingsby aircraft in the club fleet.

The annual dinner-dance was well attended and greatly enjoyed. We have a number of new members and their ranks should swell with the courses, starting in May. Task week is fast approaching and the perimeter road construction has begun at the south end of our site with Peter Gray and John Bradwell hard at work.

Our AGM was at the end of March but there were no major changes.

P.H.

DONCASTER & DISTRICT

The new Bocian has arrived at last and is in use for advanced training and solo flying. Our K-13 is being reserved for *ab-initio* training and the M-100s can now be flown by pilots without Bronze Cs.

It is with regret that we lose Betty and John Ashmore who are emigrating to South Africa. John, a recently qualified instructor and tug pilot, ran the bar and Betty organised the club catering and evening courses. They will be sadly missed.

S.P.U.

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ESSEX

Pressure of work has forced Graham Martin to retire from the demanding job as our CFI. We are all sorry to lose Graham who has managed to maintain a high level of enthusiasm for training *ab-initios*, while at the same time encouraging early solo pilots to progress through the badges to pundetry. Graham's job has been taken over by our deputy CFI, Mike Throssell. Mike is well-known in the gliding world and we are fortunate to have such a worthy successor. Mike has appointed Peter Bartle as deputy CFI, another member of our stalwart team of instructors whose ranks have now been swelled by Chris Nicholas.

Our Easter tasks weekend was yet again marred by the weather but even so many pilots made a supreme effort, most notable of these being Tony Mainwaring (SHK) who managed to complete his task after everybody else had packed their aircraft away. Tony was awarded the Easter Cup for his determination and his syndicate, being overall winners of the weekend tasks, were the first winners of our new Easter trophy shield. Other trophies were presented to Mike Jeffries for his flight in his Pirat, and to John McElarney (Oly 463) who managed to complete his task when all others failed, a particularly good effort since this was his first cross-country.

P.F.McE.

ESSEX & SUFFOLK

The club expedition took the K-6, K-6E, SHK and Skylark to Aboyne at the end of March, but the wave failed to put in an appearance.

Our most experienced P2, Roger Stone, has recently gone solo and the following day, to prove his point, soared for 40min to gain his C. Spring thermals have given us several 1hr Bronze legs, plus longer flights.

Jack Birkin, our technical man, has worked long hours on Cs of A for the club K-6 and K-2. Jack, who nearly always seems to be found under a heap of tools, pots of paint and brushes, emerges for a quick circuit and then disappears under the debris again.

On Easter Monday we invited members of the public to have a look at the club activities and our glider force. Our K-7 and K-2 were kept busy until dusk on trial flights and Ralph Brooker did aerobatics in the K-6CR.

C.C.S.

HIGHLAND

A busy two months for us, though not spectacular as far as flying goes. George Hobben gained his Silver height and we have two new solo pilots, Bob Jamieson and John McFarlane.

The winch is at last finished and giving excellent, smooth launches. Our particular thanks for this to Bill Hill and Chris McCrae. With RAF Fulmar we are sharing a Falke, kindly loaned by Ian Jamieson, which we are finding invaluable for field landing practice and trips to Ben Aigan when the hill is working.

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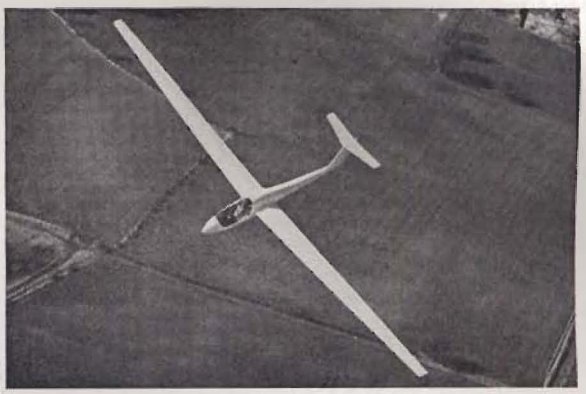
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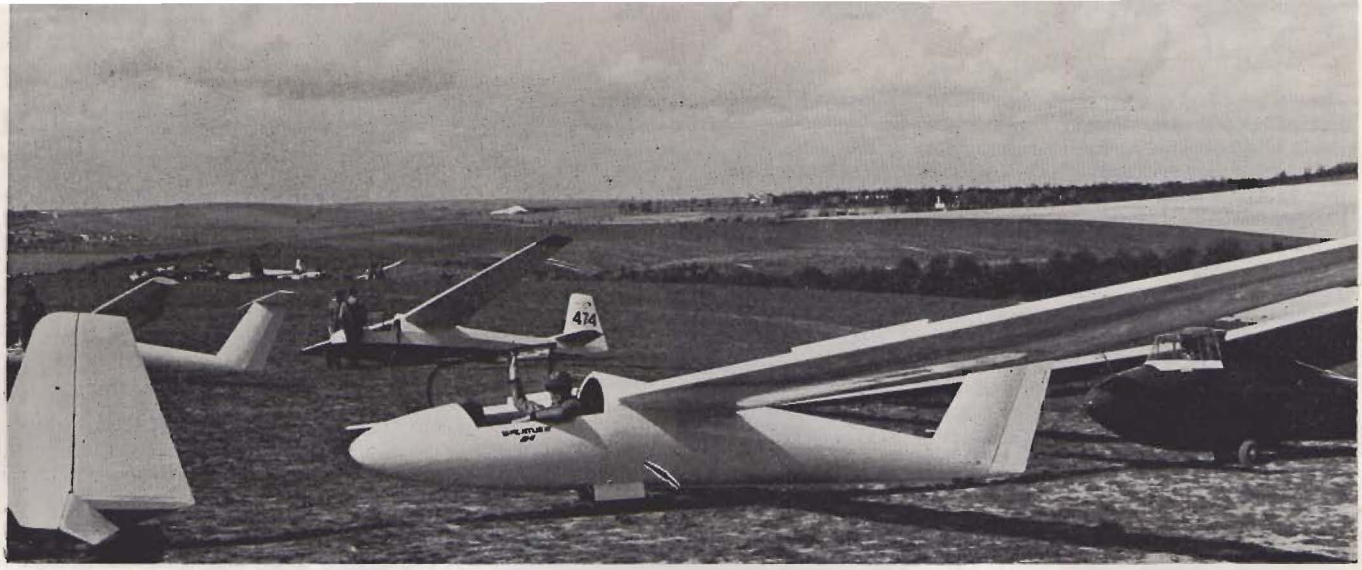
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David Savile, the actor, in the launch queue at Dunstable in the syndicate Pilatus he shares with nine others. David was "Number One" in last year's successful TV *Warship* series and is now making further episodes. Photo: Sheila Young

We held the annual dinner in February with RAF Fulmar and presented the Hendry Dyce cup for the best gain of height to Tim O'Donovan, CFI, for his 19000ft Diamond height at the end of December, and the Alasdair Raffan cup for the most meritorious flight to Hendry Dyce for his site record breaking flight of 23000ft last July.

An official reciprocal membership now exists between the Deeside Club at Aboyne and the Highland Club, a situation which should benefit us all.

R.E.T.

IMPERIAL COLLEGE

We have been quite active since our notes last appeared. Mike Alexander and Pete Jenkins both completed their Silver Cs late last summer. The expedition to Aboyne in the autumn was a great success with six Gold C heights. The highest, by Geoff Gentry, was to 17500ft. We must thank the Cambridge University Club for the loan of their tug during the expedition. This trip also provided the first ever Imperial College entries to the National Ladder.

Last October's annual intake of aspiring aces contained an unusually high number of members with some previous flying experience, two with Bronze Cs and two with current PPLs. Hopefully this will lead to a higher utilisation of the single-seater and more flying achievements in the future. Bob Simpson was the first of this year's *ab-initio* pilots to go solo.

The annual dinner was a great success. Our guest speaker, Roger Barrett, had many amusing tales about the World Championships.

Thanks to Dave West, Dave Kent, Ian Parker and sundry volunteers, the Cs of A were completed well before the soaring season. A new private syndicate has been formed with an Olympia 463 and is included in the club's four entries for the Lasham Regionals. This year's committee has been elected with Nigel Leak as captain.

A.P.P.

KENT

There are two new syndicates at Challock; Terry Braxton's two-seater syndicate have bought a K-13 and another new group have a Dart 17R.

March produced some good soaring weather, both ridge and thermal, and Dave Harris did his Silver duration on the ridge.

On the last day of March a NE wind, blowing down our ridge at about 15kts, gave us wave just downwind of the site about 4000ft. Most of the club fleet made use of it, many of them flying downwind from winch launches knowing that if they didn't make contact at around 500ft they would have to land out.

The day resulted in Silver duration for Colin Baines in his K-6 and Jeff Owens in his Oly 2B. Jeff, who was not wearing a watch, landed after 6hrs thinking he had done three. Peter Howland flew the club Swallow for 1½hrs for a Bronze leg, all three pilots having their first taste of wave.

Our CFI Roy Hubble is organising our first task week at the end of July and judging by the encouraging number of entries, everybody seems to be very enthusiastic.

C.B.

LONDON

There is little to report on the flying side, the only flight of note being a 14000ft gain of height for a Gold C leg by Brian Davies in Yorkshire. We have managed to weather the fuel shortage by a cutback in aerotowing, and doing more winching than last year.

The arrival of a Caproni two-seater during March heralded the first hot ship of its type at Dunstable. The aircraft has proved itself easy to handle, but it requires our Minerva tug to get it rolling.

The winter has seen the clearance of thornbushes below our bungev point, largely achieved by Charles Ellis and crew. We have decided to sell a large piece of land on the hill to the Bedford County Council, but not without retention of permanent rights to launch gliders from the top in our fenced-off section plus permission to charge for parking during air displays.

There have been a number of staff changes. Renee and Martin Harmandian, after many happy years with us, have departed to start a restaurant business in Ealing. Members had a party for them and we shall all miss them very much. Their places have been taken by Mr and Mrs Humphries.

Derek Sear is now deputy CFI, while Barry Foster has moved into the professional bracket and been taken on as summer course instructor. Our summer resident tug pilot is Bob Lyons.

Regrettably, and for the first time in 14yrs, this news section ends on a sombre note. John Bentley, a member for just over a year, was tragically killed in an accident just before Easter, flying his recently acquired Pirat. He leaves a wife and four children, and we wish to offer our sincere condolences to John's relatives and friends.

M.P.G.

MIDLAND

An important sale of land at our end of the Mynd took place as the season began, and the club succeeded in acquiring several of the lots adjacent to the relatively small area which we already owned. The cost was considerable, but we are nevertheless very pleased with this significant extension to our freehold and all that it means in improving the security of our future operation.

This year marks the club's 40th anniversary, and at the dinner-dance on March 30 our guests were Philip and Kitty Wills and Mrs Hardwick, widow of Espin Hardwick who brought the club into being in 1934 and who secured our present site. Awards and trophies were presented as follows: the Hardwick

(longest out-and-return) and the ladder, John Brenner; the Siam (longest flight) Don Brown; the Sheffield (best height) Mike Horan; the Neill (best *ab-initio*) Roy Witton and the Maxam (club effort) Marjorie Hobby.

We could have wished for better conditions at Easter — the east winds were neither pleasant nor productive of good soaring. Even so, wave was in evidence early on Easter Sunday morning, and was contacted by the first few pilots who took an angled launch from the hangar mouth. Just before the easterly pattern established itself, David Lloyd-Roach had the exasperating experience of completing 4½hrs of his 5hrs before dying hill lift forced him in.

Finally, congratulations to chairman Keith Mansell on his election as BGA vice-chairman. With BGA and MGC duties (the recent land purchase not least) the sport is taking substantial amounts of his time.

W.J.T.



Norfolk's task week.

NORFOLK

Thirty years ago when the B-24s of the "Mighty 8th" were stationed at our airfield, an extension of the control building was used as a recreation room for the Liberator fliers. This building, now semi-derelict, still survives as a recreation room for glider fliers.

After years of discussion about this clubhouse, we have decided to buy another structure — actually redundant from a club in the south — and also to install water and drainage. Fund raising plans include a dance, an organ recital and an open day on August Bank holiday.

We offered to run a course for schoolchildren again this year — and promptly collected 100 instant inquiries, of whom the first dozen started training during the Easter holiday.

To encourage cross-country flying, a task week has been arranged for April 19 - May 5 and a club ladder was initiated on April 1.

C.E.H.

OXFORD

February and early March provided good soaring. On March 3 Steve Evans did the first cross-country of the year when he flew the new syndicate Olympia 463 to Lasham for his Silver C distance.

Considerable changes have occurred during the winter to the number and types of gliders based at Weston. Confused observers may be forgiven if they thought an elaborate game of musical gliders had been going on. Ian March sold his Pirat to the club and this slots in as a fairly early solo machine. It is hoped that the second K-13 will be freed for advanced training. The faithful Skylark 2 moves on to new airspace.

Two new syndicates have formed with an Olympia 2B and an Olympia 463. The 75 syndicate have acquired a Phoebus 17 and their K-6E passes on to Dave Roberts.

Easter provided some good soaring in spite of strong easterly winds. This enabled the more experienced pilots to put the new Pirat through its paces and the newly converted Skylark 3 pilots to discover the joys of 18m flight.

J.R.

SHROPSHIRE

Mid-March saw the latest addition to our flock, the Kestrel 19 belonging to Nick Carr and John Jefferson.

Congratulations are due to Alan Levi's grandfather, Arthur Jones, on gaining his Silver distance from Sleap in his K-6 in difficult conditions. Well done, Arthur.

April 14 produced some excellent soaring conditions with Neil Mackay disappearing with the K-6 for 5hrs and trips of up to 3hrs being commonplace.

Our good friends the Shropshire Aero Club have offered us the services of the Cessna 172 as a standby tug should our venerable old Terrier have an off-day or have to go to the menders.

D.V.

SOUTHDOWN

We are busy planning the move to our new site. The clubhouse is up to first floor level and we hope to be installed by the next issue of S & G.

The first quarter's flying has been three outstanding soaring weekends. At the end of February two of our youngest members went solo and there was a Silver C height and distance. Bob Burns distinguished himself by getting his 5hrs the day after he acquired a share in the Oly 2B. Easter weekend saw a number of our younger members queueing up to get their ½hrs in the club Swallow and Peter Atkin managed to complete his Bronze C.

Peter Champion has just had a book published on the trials and tribulations of the aspiring glider pilot. It is called *Glider Pilot* but Peter, who is also a gifted aviation artist, wanted a question mark after "Pilot" and was sorry the publishers wouldn't agree.

S.E.

SOUTH WALES

We are grateful for Shobdon's hospitality in welcoming visitors from Usk, plus our K-13, during the time we were waterlogged.

A hopeful lead up to the Usk wave week came on Saturday, March 23 when Lyn and Malcolm, launched from Shobdon in one of our K-13s, used wave to get to and from Oswestry. Meanwhile the other K-13 launched at Usk was taken by Andrew and Cliff to a no oxygen limited 12000ft. The coincident timing caused much speculation about distance potentials from Usk as the starting point northwards using west wave conditions.

A complete reversal occurred for the Usk wave week with a change to easterly winds. However, thermal soaring was achieved on the Tuesday while on Thurs-

day two of the visitors and Ivor, hill soared the Pontypool-Abergavenny area. On the following Sunday the impossible happened with wave from an easterly direction; although somewhat chopped-up with the thermal activity, the wave gave heights of 4000ft. It finally disappeared in the mid-afternoon and left behind yet another soaring potential at Usk.

B.J.E.

STAFFORDSHIRE

We are gradually using take-off and landing runs which wouldn't have been possible a year ago. East wind days are no longer an anathema and pilots flying in these conditions have been intrigued by a workable looking ridge which has so far been out of reach. Further work on the field is planned this spring to open up new landing areas.

The soaring season started at the end of March when John Howle in the BG-135 climbed to 2800ft in 10kts and Joe Malkin gained his second Bronze leg.

A dedicated band, led by Bob Wilshaw, are fund raising and busy completing the clubroom while another group is constructing a diesel winch.

F.B.

SURREY & HANTS

The first weekend in March shook the dust from the trailers and rust off the pins. Rob Johnson completed his Silver C distance to Shoreham and among the 1500km flown that weekend, Chris Garton went to Daventry and back — 250km. A fortnight later, Guy Ballard, our staff towcar driver, also flew to Shoreham for his distance — 65km at 60km/h.

Since that first burst of activity the haze and poor soaring conditions have kept most pilots local and Easter, although providing the spring easterlies of "Perranporth or Bust" fame, didn't come up to scratch thermalwise. Still there was an excellent party and some rather improbable looking 600km flight plans were drawn-up, providing endless discussion concerning the minimum cloudbase needed to cross the Black Mountains or Snowdon!

C.D.L.

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TRENT VALLEY

We are now firmly established at Kirton-in-Lindsey, Lincs, with our hangar completed and in use, thanks to George Nelson and his helpers. Our aircraft now stay on site, rigged in the hangar after a flying day.

With our twin drum system safely through the early proving stages, it looks like all systems go for the soaring season. We have reports of a few extended flights in early thermic conditions, such as Dave Bensted with 55min in the Olympia 2.

P.F.S.

ULSTER & SHORTS

Never was otherwise brilliant weather so roundly cursed as at Easter when the club went to Magilligan beach only to roast in superb anti-cyclonic weather of such stability that, in general, only circuit bashing was possible.

The weekend marked the entry into club service of our first two-seater to use the beach — a well-used Capstan purchased from West Wales. This was shipped on the Fishguard-Rosslare ferry and only just made it for Easter, for when Joe Taggart went to collect it on Good Friday he was asked for £140 refundable duty by the Irish Customs. They would not accept an uncertified cheque; the Banks were closed so Joe was unable to get his certified, but by dint of a mis-spent youth and consummate charm was able to borrow £140 in real greenies from a trusting Dublin publican.

The Capstan supplements our Blanik to increase our training capacity, though it will also be used as a solo and mutual soaring machine by established pilots. Its ability to go to the beach — where we never take the all-metal Blanik — will enable us to show our students ridge, thermal and wave soaring at their Irish best.

The K-6E, which we won in the Wills competition back in 1968, has emerged from its first full refurbishing and respray in brilliant form.

The AGM at the end of March produced a few changes. Lawrence McKelvie resigned the secretaryship, to be replaced by Bob Rodwell, and Joe Taggart became ground organiser to be succeeded as technical officer by Bob Cochrane.

R.R.R.

WYCOMBE AIR PARK

As an all-aerotow site we were very relieved when the Sunday ban on aerotowing was lifted, as this was seriously effecting our operations — this is the first year when we have not had a Silver C completed before March, and in contrast to 1973, when sheer numbers forced us to restrict membership and introduce a waiting list, this year we are short of *ab-initios.*

On the brighter side, however, we have achieved several record flights. We have stolen the Douglas Trophy from Lasham with a record distance of 1566km in three flights by Justin Wills, Laurie Beer and "Rocky" Stone. Justin Wills also won the Wakefield Cup for a flight of 560km.

Lloyd Forsey, having sworn to get his Gold distance by the end of 1973, finally achieved this ambition on December 31 with a flight which also earned him his Diamond goal (although he "cheated" by going to South Africa to get it!) Laurie Beer and Chris Leo both gained their Diamond height at Aboyne, making a total of five Diamonds achieved by their syndicate Std Libelle in a year, which must be a record in itself.

J.M.C.W.

SERVICE NEWS

ANZUK (Singapore RN)

We draw our members from the Australian, New Zealand and UK armed forces, plus eligible civilians in Singapore. But our continued existence isn't altogether certain at the moment. Our CFI, John Griffin, leaves for the UK this month and there isn't a Service replacement in sight. "Willy" Wilton-Jones will briefly take over, but isn't certain he will be staying in Singapore longer than June. It also looks as though we will be losing our glider hangarage.

Our fleet is made up of a T-21, T-31 and a Swallow, plus part-time use of a privately owned Tutor. The winch engine finally expired but thanks to efforts of Philip Stiling and helpers it is back in service.

Our flying area and height is very restricted—2000yds/2500ft—but despite this we enjoy our flying and there are many people working hard to try and ensure the continuation of the club.

Visiting pilots, prospective members and interested onlookers are always welcome. We fly from SAF Sembawang every weekend and public holiday. The airfield is about two miles north of the village of Nee Soon, temporary membership costs $7 and each launch or 15min airtime costs $1. At the current rate of exchange, $1 equals 16p which must make it the cheapest flying anywhere in the world.

M.G.S.

BICESTER (RAFGSA CENTRE)

Soaring really got under way in March and the first 5hrs of the year was done by Pete Saundby in the Pilatus. The first attempt at a Silver C cross-country leg was on Easter Sunday when Richard Mayer in the K-8 and Pete Webster in the K-6CR were tasked to Upavon. Richard reached the other side of Marlborough and went far enough, but if we

had an award for the near miss of the year Pete would no doubt get it because he landed 1km short. Weather-wise the Easter weekend was mixed and only Sunday could be classed as a good day with about 8hrs of thermal activity.

The glass-fibre fleet is now much in evidence and all four are entered for various competitions this season. Andy Gough and John Glossop are flying in the Nationals and Tony Simms, who has left us on posting, is borrowing the Std Libelle for the same competition. Pete Abbey also left about the same time for Hendon, but we still see him at weekends. Pam and Ron Newall are returning from Germany in July and as they are going to a nearby RAF station, we will have them with us once more.

The expedition to Sutton Bank was not very successful from a wave soaring point of view.

A.E.B.

CLEVELANDS/HAMBLETONS (RAF Dishforth)

As (one of) Britain's best wave sites it is about time that Dishforth had a write-up. Not that we feel forgotten — sitting at 10000ft plus watching glider trailers battling up the A1 to the far north is a pleasant way of passing a weekend.

To recap, two clubs operate from this site — one RAF (Clevelands) and one civilian (Hambletons, plus Leeds University). Fleets comprise Std Cirrus, K-6E, K-8, Swallow, Blanik, K-4 and T-21 (Clevelands), with the civvies making do with an Oly 419, Oly 2B, T-53, T-21 plus the instructors' delight, a T-31. Private gliders comprise a Pilatus B-4, Dart 17R and 15, K-7, Bergfalke and "team gipsy" — two BG-135s.

1973 was an eventful year, as the statistics show. This is due, as in most clubs, to the sheer hard work of the core of regulars, headed by CFI Barry Nowell.

The wave has been kind to us and we have had some good thermal days — remembering that we are basically a weekend only site, 43 Silver, 37 Gold and two Diamond legs can't be bad.

March 3 was the big day with ten Gold and eight Silver heights. It has been known for empty gliders to be on the line with the duty instructor shouting "anyone want a Gold height?" Several courses were run during the year to provide a healthy flow of *ab-initio* and new solo members.

Notable departures during the year included Neil Stagg and Cobb Ball, both to Germany, where we note that Neil is CFI at Brüggen. Arrivals include Con Greaves, whose experience will be most welcome. We have several new instructors, including a batch in February who have had the Andy Gough treatment at Bicester. George McLean, the new Hambletons chairman, is still talking with bated breath of his dual aerobatics trip.

N.B.

CHILTERNS (RAF Weston-on-the-Green)

Almost everyone was caught out during the first weekend in March including Nick Nicholls who nearly completed his 300km triangle. All he needed was one more thermal but unfortunately had to land near Swindon.

The Aboyne expedition in March had limited success. Only one day produced good wave and then it was great. Eight pilots including Bob Sheffield, Charlie Wiggins and Geoff Millward from Chilterns went to more than Diamond height. There were also two Gold claims.

Another glider has appeared on the site — a Doppelraab. It's a bit like a vintage K-4 and should fly soon after being revamped.

G.M.

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CRANWELL (RAFGSA)

Recent weeks have seen much work done in the hangar. The K-7 now looks almost as good as new after its recovering and the SF-26 has at last joined the fleet after major surgery to the wingpins.

Jim Bond's winch has been working well for several weekends and he is now busy on a cable-retrieve vehicle while the rest of us are rebuilding a trailer that was blown over and virtually written off. Meanwhile, in the corner of the hangar, yet another "hand-finished by Delafield" Kestrel is taking shape.

Grahaeme Haggar and Keith Watson are at present on instructor courses and we have had our first Bronze leg of the season flown by Simon Roberts.

S.T.E.W.

EAGLE (Detmold)

The Eagle Gliding Club isn't dead—we have just been too busy to write. 1973 was very successful. We just failed to reach the previous year's record launch figures but set a new record in hours with 949 and a cross-country mileage of 6700kms. Possibly even more important, we made a good profit.

The highlight of the season was Alan Sommerville's 500km to complete his three Diamonds in our newly acquired Phoebus 17. It was done in the Alps on a day the experts said was impossible. He is now the only Army holder of three Diamonds.

Two 300km out-and-returns were flown in the Alps by Martin Hardy and Tony Clark to complete their Gold C. James Adair got his Gold C distance and Diamond goal in Germany. Other successes include 26 first solos, 27 Bronze C legs and 14 Silver C legs. This rather made up for our poor showing in the BAOR Championships organised by Jeremy Wheeler.

The club fleet now consists of K-7, K-13, K-3 (yes 3 not 4), Swallow, K-8, Oly 463, K-6E and the Phoebus. We are trying to get a Falke to ease the two-seater work load. Sixteen members went solo on a successful beginners' course led by Howard Jarvis, and an expedition to a ridge site resulted in pilots mastering the art of landing in 30kt crosswinds.

During the year we lost a lot of stalwarts who are sadly missed. Our chairman Jeremy Wheeler has returned to the UK. Peter Williams is back in the job and even having to write these notes! Alan Sommerville remains as CFI with Ann Wolf as secretary; Howard Jarvis, DCFI; Rex Parkingson, treasurer; and Ray Washer in charge of ground equipment.

We broke the record for launches and hours flown for January and February, had 10kt thermals in March and look forward to a cracking good season with the equipment in excellent form. We have the BAOR Championships at Detmold in June and plan an expedition in July to Zell am See, in Austria.

P.W.

FENLAND (RAF Marham)

Since our last write-up the most noticeable achievement is a large growth in membership following a recent recruiting campaign. This has had the effect of balancing the club, after being top heavy for several months. Our members come from all the local RAF stations including an ever growing contingent from the American bases. Three of the Americans succeeded in going solo in March.

Our trip to Sutton Bank enabled Mick Hall and Andy Hilton to complete their Silver Cs and Jeff Bawden his first Bronze leg with a flight of 4hrs 34min. Later he went on to get his other Bronze leg and Silver duration.

Dave Wood has returned to the club after spending a frustrating three months with the Cold Lake Soaring Club in Alberta, Canada. Eight feet of snow prevented flying the entire time he was there.

D.W.

KESTREL (RAF Odiham)

Hard work in the cold puddle-filled hangar was the order last winter and we have taken to the air in shiny new paintwork. The greater proportion of the work was done by Gordon Berry, Pete and Briony Richie with Ian Symms doing most on our 463, now numbered 612.

We have overcome the stortage of instructors and welcome Don Webber as the DCFI with three old timers, Pam Davis, Dan Dare and Pete Andrews, fresh from the Bicester course.

Now with plenty of new students coming along, all we need is good weather and we will crack last year's average of 73 launches per flying day.

R.D.

PHOENIX (RAF Brüggen)

We heralded the New Year with a great increase in membership. From January 1 to April 7 we logged 2270 launches with 226hrs 40min flying time, and this was with 128 cable breaks. Congratulations for first solo flights to G. Watson R. Lashley, M. Simmonds, F. Hall, M. Charlett-Green, J. Tobias, R. Thompson, T. Honeyball and D. Peden.

Jerry Wallace has just got his full category bringing our strength to six, two being welcome newcomers Terry Slater and Tim Oulds. Tony North-Graves has just returned from Bicester having completed the instructors' course to bring the assistant category strength to four.

The old caravan is going for scrap and we have bought a new bus which we are in the process of converting to a kitchen. Plans are still going ahead for a new glider and it now appears it may be a Std Libelle.

Pat Warne has retired as social member and is replaced by Ron Cawthorne with Roger Gard assisting.

A.M.

PORTSMOUTH (RNGSA)

Our first ever *ab-initio* course got off to a great start on April 16. All three club two-seaters were sharing the same thermal at one time at 3500ft over the Solent — a fairly rare occurrence at the best of times but particularly welcome as an introduction for new members.

The AGM on March 29 was held for the first time in the clubhouse, recently fitted with a bar. Nigel Tovey was awarded the Corner cup for the best *ab-initio* and Porel "Topsy" Turner the Goodhart trophy for the best all-round club member.

We are looking forward to making good use of our bar to celebrate our 25th anniversary. We were formed on May 31, 1949 when the Siskin and Collingwood Gliding Club combined with the RN gliding unit of the RN Scientific Service, which has experimented with gliders on aircraft carriers.

We have a very good liaison with the Army Gliding Club at Upavon who kindly allow us to invade them when cycle meetings at Lee-on-Solent airfield prevent us from flying. We look forward to meeting many old friends again this year.

Finally, we all wish Lt Cdr "Bunny" Hale, Lt John Dransfield and Flt Lt Eddie Best, RAF, every success in the Inter-Services Championships.

R.F.L.

WREKIN (RAF Cosford)

We held a successful course during February for a contingent from the St John Moore's army barracks in Shrewsbury. Nine out of 16 boys went solo and some have returned for further training.

Our newest instructor, Frank "Paddy" Kennedy, claims "Jim's pot" this season for the first hour's soaring from a winch launch and has recently completed his Silver C. Graham Heady has his Silver C distance and Andy Bould and Mick Boyden their Bronze Cs.

The Pilatus trailer is now complete, thanks mainly to Mick Osborne and Gary Moore. We now have a new tug, another Auster, our old tug being retired after many years' service.

It is with regret we say goodbye to "Polly" Parrott, one of our instructors, who has been posted to Germany.

The current task is a super tidy up ready for the Inter-Services Championships to be held here in May.

J.A.Y.

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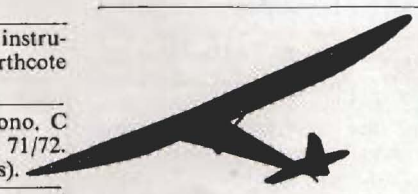
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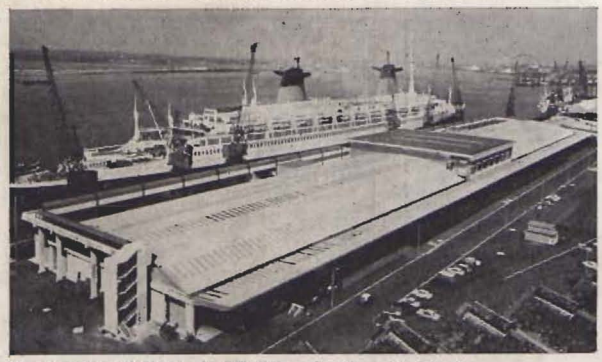
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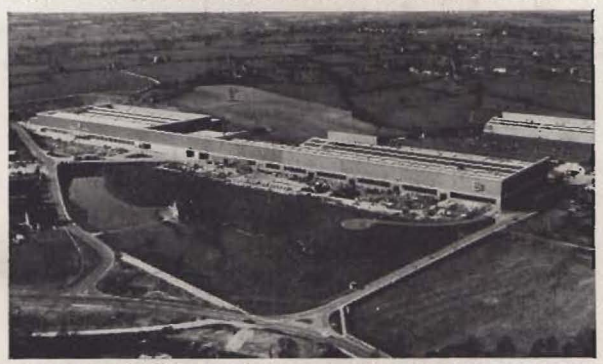
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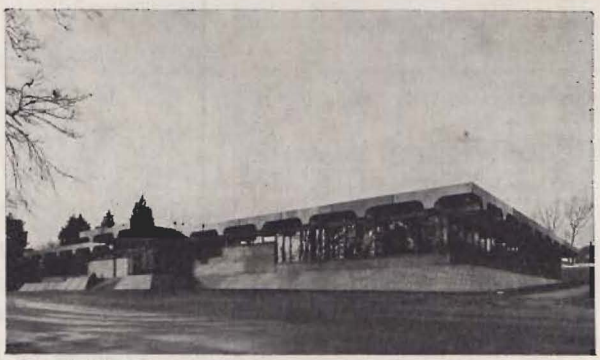
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