Wel's Clouds. | Slope Soaring in Mountains |

SAILPLANE AND GLIDER

JANUARY
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Thanet House,
231, Strand, W.C.2.

The First Journal devoted to Soaring and Gliding

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SAILPLANE and GLIDER

The First Journal devoted to Soaring and Gliding

F/L VERNON BLUNT, Editor
ALAN E. SLATER, Associate Editor

Editorial Offices:
THANET HOUSE, 231 STRAND, W.C.2
Phone: CEN. 7081

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LETTER TO THE EDITOR.

NOT all the letters to the Editor reach the light of print. Most of them request some service or information, some are critical, some are flattering and encouraging. Not many raise points of such interest that it is considered important to publish them.

In this issue are two letters to the Editor, which raise points about which it would be useful to have the views of readers of SAILPLANE.

But one letter was received recently which not only gave the Editor particular pleasure but also raised in a graphic form the question of the Policy of SAILPLANE and the reason for its present existence.

I should like to take this opportunity of saying how much I appreciated your editorial articles in the "Sailplane" these last two or three months since I have been having it. I feel just as you do about it. The authorities do not seem to realise we have to build up an "air structure" knowledge, similar to the knowledge of the sea, which our old sea dogs have accumulated during many lifetimes, and the sailplane happens to be the only instrument in which air flow is clearly and unmistakably detected. I have done enough myself to know that it works within definite laws and in similar conditions the same thing happens time and time again, and it is only a matter of getting the whole thing taped, in time and experience. This should make power flying much safer, because pilots will not only know how to fly, but they will learn the structure of the air they are using, and know where and where not to fly. That is why I am so keen on getting the thing properly going in the A.T.C., so the lads can start at 14 or 15, in the same way that they do with the sea on our coast, with their dinghies and rowing boats, learning the location and habits of currents, tides, etc.

This is exactly it. Soaring is perhaps the most thrilling as well as the purest of all sports. But just as cricket and football carry with them the power to create character and increase physical well-being, so Soaring also carries with it not perhaps so much a capacity to build in quite the same way the virtues acquired in combat with human wills and bodies, but a capacity for the acquisition of scientific knowledge about physical phenomena and of mastery over an element—the Air—which has a greater potential over human Destiny than have either of the great field sports. In this it is much like yachting was in the last hundred years.

The Sea has been our heritage for a thousand years. But in the Air we are not the best placed in the world, by reason of our resources and the size of our country for the use of the Air in our everyday lives. But in the sense that the Sea *was* our heritage, it is now the Air that is our imperative necessity. By Air we can be linked in body with every corner of our wide Empire much more quickly than by any other means. Through the air will come in future the greatest dangers to our continued existence, commercially or militarily. For that reason it is imperative that we must become the most air-minded nation in the world, and that does not mean great air-liners and the organisations of Big Business, it means that Tom, Dick and Harriet shall spend their summer afternoons in the air, either gliding, soaring or power flying. Other pastimes will not suffer, in popularity, for those whom the "bug" bites need not all be the most physically robust among us. Not the least of the charms of Gliding and Soaring, is that the maimed and (within certain limits) the cripples, young and old of both sexes and rich and poor alike, can engage in the occupation of Mastering the Air.

It is the Policy of SAILPLANE to see that as many as possible of our Empire Peoples take up this sport, which has no equal in itself or in its possibilities.

British Soaring Contests—6

THE 1936 CONTESTS AT BRADWELL EDGE.

THE Derbyshire and Lancashire Gliding Club took on the job of running the 1936 National Contests soon after it came into existence. However, its leading members were not new to Gliding. Of its two contingents from Manchester and Derby, whose union gave it birth, the former had been gliding for six years, and the latter included that peripatetic trio, Gerry O. Smith, A. Louis Slater and R. G. Robertson, who, with their home-built " Golden Wren," must have soared in nearly every topographical up-current in the County, and not a few outside.

The club ground is on a high plateau, about 1,300 feet above sea level, close to the junction of Bradwell Edge, facing west, with Eyam Edge, facing south. Each of these slopes is about three miles long. Camphill Farm serves as a clubhouse, and a hangar had already been erected. A preliminary inter-club meeting had been held at Easter, at which Mam Tor, a few miles away, had to be used because of north-east winds.

SOARING IN A PRIMARY

Of the 18 machines which turned up, out of 26 entered for the Contest, all were true sailplanes except a " Kirby Kadet " secondary, and a " Dagling " nacelled primary. But the last two justified their presence on the very first day, Saturday, August 29th, by going up to astonishing heights in the so-called " evening thermal." This phenomenon, first discovered in Poland, is set going in the evening when the hillsides radiate their heat away into a clear sky; the air in contact with them cools down and flows into the valleys, displacing the warm air which has collected there during the day.

A light soaring wind over Bradwell Edge had died out completely by 7.30 p.m., when R. E. Garner, the club secretary, was launched in the " Dagling " and astounded everyone by floating up to at least 1,200 feet above the hilltop. F. C. Coleman followed in his home-made " Grunau Baby " and rose to 4,000 feet; Wills took *The Times* correspondent to 1,700 feet in " Falcon III," and that paper's readers

NOW READ THIS

heard all about it on Monday morning; finally A. Davies soared to nearly 2,000 feet in the " Kadet (the type now spelt " Cadet " by the A.T.C.), and all in a dead calm, as far as observers on the ground could tell. Unfortunately all the high-performance sailplanes had been de-rigged and so could do nothing.

A soaring wind sprang up again on Sunday afternoon, August 30th, and before it was replaced by rain at 5 p.m. nearly 8 hours' soaring was done. R. S. Rattray won the Daily Prize for duration with 1 hour 48 minutes in " Cambridge II."

On Monday J. E. Simpson was launched into cloud base in " Cambridge I," but before anyone else could do the same the clouds had descended on to the hill.

SPOT LANDING COMPETITION

A spot-landing competition was organized on Tuesday, in the absence of any wind. Twenty pilots had repeated launches by winch to 200 feet in the "Dagling," and some hair-raising manoeuvres were seen. P. A. Wills got nearest the mark with an overshoot of 6½ yards; H. L. Richardson overshot by 10 yards, and G. O. Smith by 11 yards.

On Wednesday there was excellent slope-soaring along Bradwell Edge from noon till 5.40 p.m. In fact, the total flying time, 43 hours 55 minutes, was a record for a day's soaring at a British site, as was also the number of sailplanes seen in the air at one time—fourteen.

Duration flying was encouraged by offering the Daily Prize for the maximum number of beats along a course between two points 2½ miles apart, at opposite ends of Bradwell Edge. D. M. Morland won it with 50 beats in the " White Wren," this piece of repetition work taking him 5 hours 46 minutes. To dart to and fro as quickly as possible between the turning points, Morland flew in the strongest part of the lift, close to the cliff edge, so that he could keep his nose well down and lay off a good ground speed. This flight also counted towards the " Silver C," as did the flights by two other contestants, R. C. G. Slazenger and A. Louis Slater.

THERMALS AND SLOPE LIFT

There appeared to be occasional thermals in addition to the slope lift, as Wills reached 2,400 feet in " Hjordis, Dewsbury 2,100 feet in " Rhonsperber," Robertson 1,800 feet in " Rhonadler," Eustace Thomas 1,300 feet in " Crested Wren," and Filmer 1,200 feet in his " Grunau."

Thursday was a poor day, with rain and low cloud, and only the "Cambridge I" and "White Wren" attempted some difficult soaring over Eyam Edge. Richardson, after landing the " Wren " at the bottom, had a still more difficult time preventing the cows from eating it.

More bad weather on Friday again prevented flying till the afternoon, when 15½ hours were put in by 14 different pilots in rough conditions. A course to High Longton and back was set for the Manio Cup, offered for the best out-and-return flight; but as there were no thermals, nobody could leave the slope lift.

Saturday, September 5th, was the only suitable day for cross-country flying, and two pilots managed to get away, though the cumulus cloud bases were only 1,200 feet above the hill top.

Occasional cloud streets enabled Wills, in " Hjordis," and Furlong, in " Cambridge II," to get away from the site, but Furlong had to come down near Sheffield after going 12 miles.

WILLS OVERTURNED

Wills's ailerons had developed a droop, and he was about to land to have them adjusted when he noticed a cloud street coming over. It took him as far as another slope, Stannedge Edge, 8 miles downwind, where he waited for more cloud light. After 20 minutes another " street " came along, and he rose right into it, climbing to 2,800 feet above the start. This enabled him to make off into Lincolnshire, where he later encountered a secondary cold front. After using this he tried to cross a gap of clear sky to reach another cold front beyond, but was forced to land near Lincoln, 45 miles from the start. Owing to an unexpected change of wind, probably caused by the fronts, he landed downwind and overturned.

The two cross-country pilots won the Daily Prizes, which were for altitude. The day's flying totalled 37½ hours.

On the final Sunday there were cumulus clouds again, but nobody used them. A course to Peveril Castle and back, about 12 miles, was set for the Manio Cup, and two pilots, Filmer and Morland, attempted it. The trouble was the strong westerly wind, as neither the " Grunau " nor the " Wren " are designed for good gliding angles at high speeds. Morland nearly reached the turning point and then had to make the best landing he could in the valley, damaging the " Wren."

GREATEST AGGREGATE

The chief excitement of the day's flying (39 hours' total) was a close struggle for two prizes offered for greatest aggregate flying time during the meeting, one for single pilots and one for teams. D. G. Hiscox had a good start for the first and and won it easily with a total of 17 hours 11 minutes in his " Kirby Kite."

The day started with the "Golden Wren," Cambridge II," White Wren " and " Cambridge I " in the lead for the team prize, in that order. The last machine gained an hour by an early start, and the Cambridge University Gliding Club planned to keep it going all day with two-hour spells by different pilots. The plan worked well until J. E. Simpson was caught out at 5.30 by a sudden change of wind, and had to land in the valley. Morland took the " White Wren " away upwind, as already described. This left " Golden Wren " and " Cambridge II " to fight it out. " Cambridge," after starting ten minutes behind " Wren," jumped into the lead with a four-hour flight by Rattray. Furlong then took the machine over and was up for 1 hour 12 minutes. Meanwhile the " Wren " was being flown by Robertson for 1 hour 1 min., Smith for 2 hrs. 32 mins., Louis Slater for 1 hr. 4 mins., and finally Smith again, who stayed up 1 hr. 3 mins., and just managed to outlast Furlong when the wind began to drop about 6.30 p.m. So the " Golden Wren " won with an aggregate of 19 hours 6 minutes during the meeting. " Cambridge II " had put up 18 hrs. 26 mins., and " Cambridge I," 17 hrs. 7 mins.

HAMPERED BY POOR WEATHER

It will be seen from this account that the 1936 Contests were hampered by poor weather, and the only outstanding performances were Wills's flight into Lincolnshire and the interesting " evening thermal " flights on the first day. One of the chief objects of such Contests, to encourage the less experienced pilots to practise distance and altitude flying, could not be attained. As an after-effect of this, some difficulty was found in the following summer in selecting a suitable team to represent Britain for the first time at an international contest. That event came just a year too soon, for at the next meeting at the Derbyshire site, as will be shown in due course, the situation was well and truly remedied.

A. E. S.

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WHO DID FLY FIRST?

The Editor Comments

THE article under the above title which appeared in the October SAILPLANE, accompanied by two photographs of a boat-shaped fuselage with wings and two airscrews, did in fact point out the difficulty of assessing evidence collected by uninitiated laymen. The Editor found a copy of the book by Stella Randolph in the Royal Aeronautical Society's Library and read it with care. The first thing that struck him about the evidence, which was mostly in the form of sworn statements by people who said they had seen Whitehead fly, was that almost all of it was non-technical, even from people who claimed to have helped him work on his machines. One might have expected that at least one of them would have referred to the particular problems which were encountered, such as how the machine was directed into the air and how it was landed and manoeuvred in the air. Photographs of Whitehead in gliders make it clear that he at least had thought of these problems, but it is peculiar that in the two photographs printed in SAILPLANE there is no sign of a rudder, although there is a fair-sized stabilizer. To have achieved flights of two miles before the Wrights had even got off the ground, must have demanded a high stage of technical performance which was to elude the Wrights for some time to come. It is a great pity that Stella Randolph was not technically minded, for otherwise she could not be expected to draw out from her witnesses the details which would have corroborated the story far more than all the sworn statements in the world. It may be a great injustice to a courageous pioneer, but it does appear that whatever his achievements they did not benefit mankind, for he did not pass on the knowledge he gained. If he had even instructed one person who went on from where he left off, that would have been a positive gain to the world. But to the Editor, at least, there is no evidence that if Whitehead ever flew a glider, he in fact flew a power aircraft. A more cynical person might say that such evidence as there is was a smokescreen to hide his failure to solve the problem of power flight.

Pioneers of British Gliding 9.

GREIG AND STEVE.

D. F. GREIG IN "GREY KITE."

THE people of every community vary in habit and termperament, and how dull life would be if this were not so. Some people will just come and go, and no one notice their passing. Others will arrive like a stone in a pond, affecting everyone with their sudden appearance; these people may go equally suddenly, or they may wear a groove for themselves in time. Another variety will gradually emerge from the community, and from obscure and unspectacular beginnings become an essential and influential part of the whole. It was in this last manner that Greig and Steve came to hold the position of respect and affection that they now possess in British Gliding.

NO PREVIOUS EXPERIENCE

Sometime during 1935 two new members, D. F. Greig and G. H. Stephenson, joined the London Gliding Club: they had no previous experience, and were despatched with other beginners to go through the Primary Training mill.

Throughout the months which followed they turned up regularly, and worked hard, with results which were neither outstanding nor expensively spectacular, and during the summer months of 1936 each obtained his "C" (Soaring) Certificate.

Greig and Steve continued in this manner every week-end, flying when their turn came, and afterwards going quietly away again. On a blustering day in February 1937 they each attempted their first winch launch, and shortly afterwards gained early experience in aero-towing.

They listened to the talk of others, sifted the valuable from the airy enthusiastic, and went on piling up hours whenever machines were available, and irrespective of cold and unpleasant weather.

THE "GREY KITE"

In April of this same year (1937), they each acquired a share in the "Grey Kite" with J. C. Dent, and with this were independent of Club aircraft, with the long waiting lists, and so their hours piled up faster still.

It was always possible to know who was flying the "Kirby Kite" by inspecting which of the two cockpit covers was left behind on the ground: Steve, being on the small side, had a cover with a neat little windscreen and almost a slot for his head. Greig, however, being somewhat larger, could only use Steve's cover as a necklace, and had, instead, instead, a rather open affair which fitted him nicely around the biceps.

"SILVER C"

During the summer following the purchase of the "Grey Kite," Steve obtained his "Silver C" Certificate (International number 545, and British number 15), by flying 46 miles from Dunstable to a point near Chelmsford, and reaching 3,300 feet in the way. His duration flight of 5 hours was completed about the same time, and Greig's shortly afterwards. The Spring of 1939 gave Greig his "Silver C" (International number 861 and British number 36).

UBIQUITOUS

Each minute that could be spared from work saw these two off with the trailer and "Grey Kite" to take every soaring opportunity that offered. During 1938, they flew at the Huish Spring meeting organised by the Cambridge University Gliding Club; made some of the experimental soaring flights at the site of the Surrey Gliding Club, and spent their summer holidays on Salisbury Plain with a few other enthusiasts, moving and flying from site to site as wind and weather decreed. By this time it had become almost a tradition that if Greig and Steve were "going to be there," the expedition would be a success, and it was well worth going as well. And no meeting seemed quite the same if it lacked the presence of the "Grey Kite," and the helping hands of its owners.

1938 COMPETITION

The "Grey Kite" partnership entered the 1938 National Contests, organised by the British Gliding Association, and although this was Greig and Steve's first attempt at competition flying, they reached 8th place from an entry of 29, Greig winning the prize for climbing to the greatest height of the meeting.

These days were shortly to end, however, but only temporarily. The "Grey Kite" was sold, and a "Gull" of higher performance, offering further experience, was bought instead. This "Gull" was painted light blue, and by the following Spring was as well and affectionately known as was the old "Grey Kite."*

*The "Grey Kite" slowly pined away, never making another cross-country flight after the change of ownership. It ended its days patriotically, but ostentatiously, on war service.

FIRST CLASS SOARING PILOTS

By 1939 Greig and Steve had developed into first rank soaring pilots, almost entirely by their own hard work and perseverance. They had become skilled in the art of blind flying, Steve having entirely taught himself. Throughout the Summer they flew from various sites, going to wherever conditions seemed best, and generally turning their experience to good account. Each of them, during this year, made at least one outstanding flight. Greig's was little noticed, but for sheer persistence has not been often surpassed. He flew from Devizes to Heston Airport, a distance of 70 miles, and only once on the whole journey was able to exceed 1,900 feet, and was often only a few hundred feet off the ground, circling interminably in the heat and turbulent air, in condition of zero rise, or with the prospect of only a few hundred feet gain. Lesser mortals would have given up and landed near the next pub, but by his own peculiar sort of personal levitation he finally reached his goal.

FIRST CROSS CHANNEL SOARING FLIGHT

Steve's flight, one of the finest made in this country, was by its very nature spectacular, and consisted of a flight from Dunstable at an average speed of 40 m.p.h. to Le Wast, Boulogne, being the first soaring flight across the English Channel ever to be made ; a total distance of 127 miles. In this flight his self-taught skill in instrument flying was put to good account when he climbed blind inside a large cumulus over mid-channel ; this was his only means of crossing the expanse of water, which seemed only too wide at a few thousand feet.

The " Blue Gull " was entered for the 1939 B.G.A. National Competition held at the Derbyshire and Lancashire Gliding Club's site, and in their second attempt at contest flying, the team rose to third place, and won the Firth Vickers Trophy.

WAR SERVICE

Very shortly afterwards war started. Steve, to his disappointment, was firmly kept to the valuable experimental work upon which he was engaged. Greig, however, after a period in the Army in France up to the time of the evacuation, transferred to the R.A.F., and has now many hundreds of hours as an instructor.

When the war ends there will be very many gliding people who hope that they will see Greig, Steve, and the trailer setting out once more with an eye to the clouds.

C. H. STEPHENSON IN THE "CROSS-CHANNEL" GULL. *A. E. Slater*

Letters to the Editor

Manor Farm,
Great Somerford,
Chippenham.

DEAR SIR, Nov. 2nd, 1944.

The keen yachtsman scorns an auxiliary engine, but if he has shore-bound responsibilities he can make the best of his limited hours of freedom only if the engine is there to ensure a quick return to port when necessary.

Since all Sailplane pilots have not a Mrs. P. A. Wills ready at a moment's notice to drive three hundred or so miles in any direction to retrieve them-even the fiercest purists will have to consider an auxiliary.

I hope a retractable reaction propulson unit rocket or turbine (fitted to a tailless aircraft) would meet our needs, and I trust you will keep us fully informed of developments in this type of engine.

Yours sincerely, K. B. BATCHELOR.

SUBSCRIPTIONS

The circulation of *Sailplane and Glider* is limited by its paper quota. This is the reason for the reduction in size, and the thinner and therefore lighter paper. The publishers can dispose of far more copies than can be printed. To be sure of your copy, therefore, it is necessary to take out an Annual Subscription of 13/- post free for twelve numbers. Publication date is the 25th of the month dated the succeeding month. Cheques, Money Orders, etc., payable to *Sailplane and Glider*, and crossed.

15, Kings Orchard,
Eltham, S.E.9.
13th December, 1944.

DEAR SIR,

Circling Technique

R. H. Warring on page 7 of December issue states : " To take the fullest advantage of a thermal, a tight flat circle is required." This manoeuvre if it were even possible would be quite unsuitable.

A correct turn " tight " or " wide " must be banked and there is only one correct degree of bank for each rate of turn. Again, Mr. Warring cannot be writing from actual experience when he says : " A sailplane would automatically tend to circle on entering a large thermal "—quite the reverse is the fact, and any sailplane pilot will tell him that one way to get into a thermal is to insist on the machine turning the *opposite* way to which it *automatically* tends.

What is this bug-bear " tip-stalling " that we have to be so careful to avoid ? No doubt it goes with the flat turns : any way, it does not unduly affect any reasonable modern sailplane. What is exactly has the rudder and fin to do with " tip-stalling " ?

Please once and for all let us get away from the silly idea that sailplanes normally do flat turns—if by that we mean turns with no bank or insufficient bank. A sailplane pilot normally does " easy " turns to maintain his efficiency, but they are correctly banked, otherwise he will slip outwards (or inwards if over-banked) and again lose some of his precious efficiency.

Yours faithfully,
E. J. FURLONG.

SOARING METEOROLOGY: INTRODUCTION.

By J. A. SIMPSON

President, Soaring Association of Canada.

A GOOD working knowledge of the science of meteorology is of the greatest benefit to the glider pilot. This is of course particularly true of the sailplane pilot engaged in distance and altitude flights; but it will be shown that even the pupil, practicing slope soaring, can profit time and time again from an understanding of the ways of the wind. Besides, this is the logical time to begin a study of the subject.

Unfortunately most meteorological texts deal solely with horizontal air movements and, in fact, it was not until quite recently, and then only at the instigation of the gliding people, that the meteorologists became interested in the vertical movements of the air on which soaring flight depends. Thus for reliable information on the kind of weather in which he is interested the glider pilot must turn to reports and papers hidden in the files of the meteorological sciences, which are not easy to find when needed.

THE EFFECT OF OBSTRUCTIONS ON SURFACE WINDS

Although the effect of ground contours on the turbulence, strength and direction of the wind was of some interest to balloonists it was not seriously studied until about twenty years ago, when Georgii and Lange in Germany, Idrac in France, and later Morgans in England, investigated these effects at the instigation of their national gliding associations.

The flow of the wind over mountains, dunes, coastlines, forest boundaries, and other obstructions was plotted with the aid of "no-lift" balloons, smoke rockets, and gliders in flight. In addition a great deal has been done by the glider clubs themselves with balloons and even paper darts. Also mathematical investigations have been made of the flow over idealised mountain contours. The conclusions drawn by the many different investigators have been surprisingly consistent.

Considering first the conditions obtaining when the free air temperature lapse rate is nearly adiabatic the results may be stated in general terms as follows:—

(1) The *height of influence* to which the air is deflected over an isolated mountain is only about one-third the height of that mountain. This is because the air would rather go round such a mountain and, in fact, strong lateral currents show this deflection.

(2) In the case of a continuous ridge which the air cannot go round the *height of influence* is about four times the ridge height, measured from the top. The actual height depends, of course, on the strength of the wind and the sinking speed of the glider.

(3) When the wind blows over a hill or ridge the maximum horizontal velocity is at, or just behind, the top. The minimum horizontal velocity is at the bottom. The maximum vertical velocity is over the middle of the slope at all heights (except close to the ground, where it may be over the steepest part of the slope). The vertical velocity increases slightly with height at first and then decreases.

(4) Wind velocities of the order of 22 m.p.h. may be considered critical. Below this velocity a comparatively steady state of stationary eddies nearly always exists to windward of the hill, particularly at the foot of the slope. Above such a velocity a state of turbulence exists about which little is known. Thus no theory depending on streamline flow can be applied to windflow over mountains. It should also be noted that stationary eddies can only exist if the prevailing lapse rate is below the adiabatic.

(5) The effect of increase in surface roughness, such as occur at coastlines, or forest or city boundaries, is to cause piling up of the air due to surface friction to as high as 1,500 feet. Succeeding air blows over this and the vertical component of its velocity is often sufficient to support a glider.

(6) Pockets or bowls in the smooth face of a ridge seem to funnel the wind and very much stronger upcurrents are found over them than over the smooth ridge. The reverse is true of buttresses projecting from the hill.

(7) Temperature lapse rates in excess of the adiabatic can and do cause air blowing up the side of a hill to continue up to very great heights. Conversely a low lapse rate, or an inversion, may altogether prevent air flow over a hill. Thus surface inversions or low lapse rates, often occurring in the early morning or after continued east and north-east winds, which bring stable air conditions, may make slope soaring impossible in spite of favourable winds aloft. These conditions usually disappear at about 11.00 a.m., by which time the heat of the sun and the mixing due to the wind have created a more favourable lapse rate.

(8) It cannot be emphasised too strongly that much depends on local conditions and to take full advantage of any site the air flow over it in winds of different strength and direction should be fully investigated. This is particularly true of special conditions, such as evening wind thermals.

References

Morgans: Relations between ground contours, atmospheric turbulence, wind speed and direction. R and M 1456. A complete discussion of which the above is a summary.

Brunt: Weather Science for Everybody. (Professor Brunt is President of the Royal Meteorological Society.)

Shaw: The Air and its Ways.

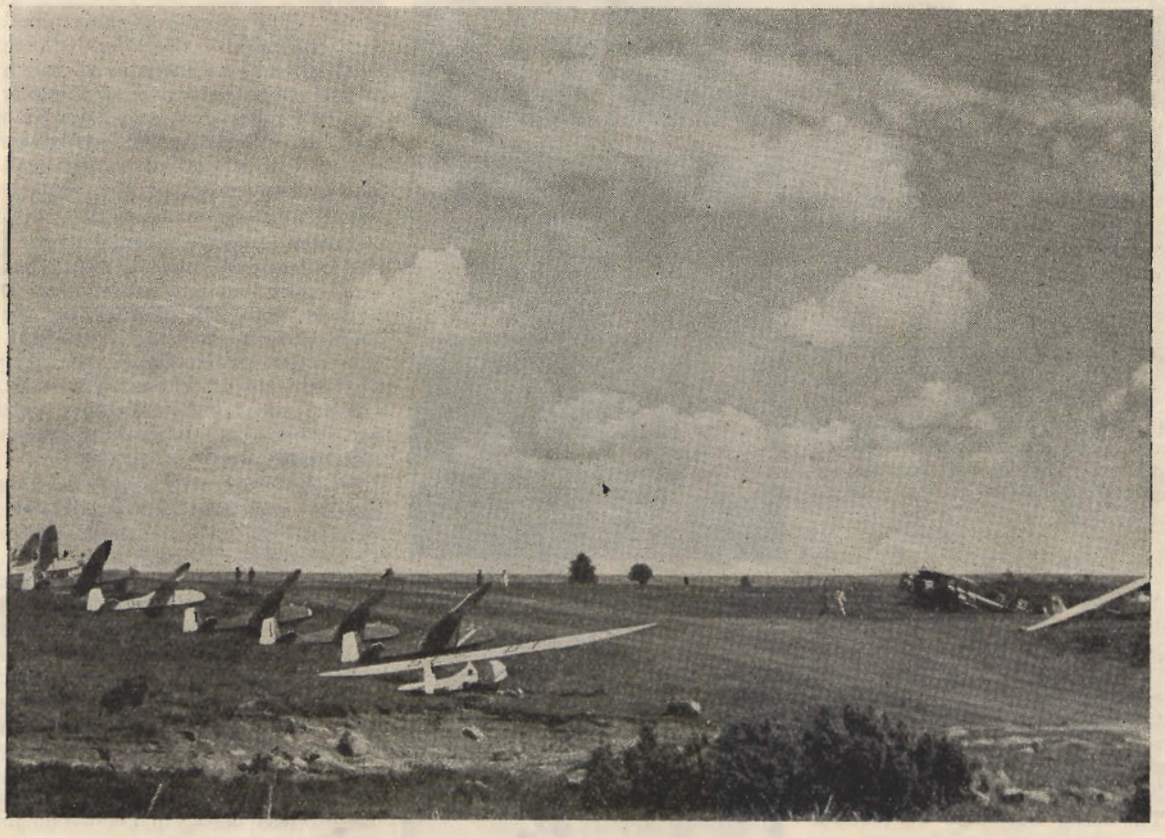
Various issues of *The Sailplane* and *Soaring*.

CHILTON AIRCRAFT OF HUNGERFORD report that they are receiving numerous enquiries for their "Olympia" Sailplane. One well-known gliding club has already placed an order for five of them on behalf of their members; a wise measure to enable them to re-start their soaring at the earliest possible moment. The makers hope to see the "Olympia" adopted as a basis for one-design competitions for which purpose the "Olympia" was originally evolved. This type of contest provides the best sport by eliminating the machine efficiency factor and focussing attention entirely on the skill of the pilot. Up to now there have never been enough sailplanes of any type to make one-design competitions possible in this country.

MY SWEDISH RECORD HEIGHT FLIGHT.

By LIEUTENANT ARNE WENNERSTROM.

(With acknowledgements to " Swedish Flying News.")



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ON the day before the end of the Alleberg Sailplane Competition I was well situated for a place in the final list of awards. This seemed to be more hopeful, as the weather prospects were pretty good.

So I took my seat in the "Weihe," waved " All Clear," and up she went.

The day's competition was for altitude flying. The height of the release was 600 m. (2,000 feet). From the outset I was keyed up, with my eyes on the A.S.I. and the variometer, whilst I directed the the tow plane towards the places where I thought it likely I could find " lift."

The altimeter crept slowly up, the variometer gave a weak kick now and then, but never strong enough to move me to risk the release. In an altitude competition, one aims at a release as low as possible so as to gain the maximum increase thereby. It is just the opposite with a distance flight where the specified launching height is normally exploited to the full.

EXCELLENT LIFT

At 550 m. (700 feet) under a devil of a dark grey cloud, I got the long desired kick on the variometer which prompted a release. I lay steady for a few minutes behind the tow-plane and rose some 5-6 m. (18-20 feet) a second. Then I released and began to circle. In a few seconds I was inside the cloud and rose by some 4-5 m. per second up to 1,500 m. (1,650 feet) height, where I reached the top of the cloud. Round about me one first-class cumulus cloud after another was twisting upwards. I set my course on one which appeared relatively high and went straight into it in order to hunt out its " kernel." I succeeded in this, and with an altitude increase of 5-6 m. second I rose up to about 2,500 m. (7,800 feet) altitude.

In my hunt for thermals I had come about 10 miles south of

Alleberg, exactly the opposite direction from the goal, which that day was Eks Church, about 55 kilos north of Falkoping. I therefore ceased climbing and set my compass course on the goal.

EARTH OUT OF SIGHT

The cloud cover grew thicker and thicker, and here and there I passed an up-wind area, but as I was able the whole time to maintain my height and the variometer never gave the kick which in very fact I sensed was going to come, I went on heading north. All view of the earth had long been lost. The cloud grew darker and darker, and I understood that I was in a thundery area which might give excellent chances of a fine altitude increase.

Perfectly right—the variometer began to creep straight up, passing 5, 6, 8, 10, and 12 metres. It was time to begin circling again. The ship rose up and up at an even speed. The altimeter crept up at that speed, which is every sail-flyer's dream when he has had an upward kick.

ICE

At 3,000 metres (10,000 feet) icing began; soon after the A.S.I. showed signs of fatigue, and after some seconds it stood still, and soon the variometer did the same. I put up a quiet prayer that the gyrometer should not suffer the same fate: but there was nothing to indicate the likelihood of this.

The icing began to be troublesome, the whole windscreen was covered with a thick layer of ice, and so were the landing edges of the wings. Now and then I waggled the stick from side to side in order to delay the ailerons freezing solid, as has been my habit at that height.

I passed 4,000 m. (13,200 feet), the gyro indicator was getting closer and closer to its limit, and at 4,500 m. (15,000 feet) it stood completely still. I bewailed my own ill-luck, for that same morning I had managed to procure an electric gyro-indicator (an instrument indispensable for long cloud flights since it often happens that the air driven variety freezes), but, worse luck, it was not working, so I had had to leave it behind. However, I did not give up my efforts for the height record of which I had been dreaming, but went on circling with the help of such instruments as continued to be serviceable.

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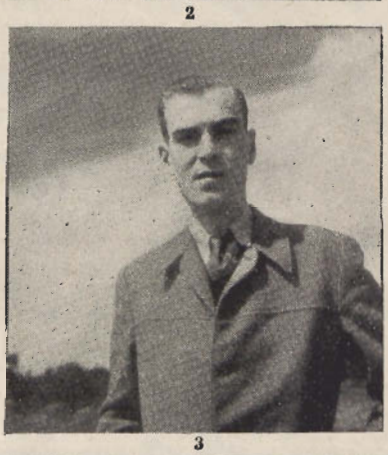

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FROZEN STICK

The ailerons were easy to hold, as the stick had frozen in the position I was in when I began to circle. The speed was maintained with the help of the long-distance inclinometer—an instrument which measures the inclination of the long axis to the horizon—and I was able to satisfy myself that the swing was pretty near to normal by the bead which shows whether the plane is gliding inwards or side-slipping out.

I often met an abnormal stratum and got outside of the " lift," but was lucky enough to manage to wriggle into the kernel of the thermal without losing any height. The altimeter continued to creep up, and when I had passed 5,500 m. (18,000 feet) I understood that there was a chance of my breaking Ensign Bergman's week-old record.

I carried on, although it became harder and harder to hold the machine on an even keel, partly because of my lack of instruments. I now and then divagated and got strong sensations of dizziness and partly owing to a decrease of my ability to concentrate by reason of the lack of oxygen. I finally got into a perfect medley of up-currents and vertigo, and despite all my efforts I could not get the plane to rise, nor, speaking generally, to comport itself normally. The height was between 6,000-7000 m. (20,000-23,000 feet).

SPINNING COMPASS

The ice-load was appallingly heavy, due to my having several times passed areas of hail and/or rain. I tried to get sense into the compass, which was spinning round like mad, and set the plane into a normal glide. I managed this by degrees and flew with a northerly course in the direction of the target, as I hoped.

At 2,000 m. (7,000 feet) I got my first sight of the ground and found myself out over Vanern directly north of Hallekis, about 20 km. (13 miles) to the west of the line of the course.

I took a compass bearing on the goal and carried on without a

glimpse of the floor. Next time I got a sight of Mother Earth I found myself at 600 m. height over the northern point of Billiklen. The cloud level grew lower and lower, and the rain was streaming down. I counted, however, on being able to reach the goal with such height as I had. But Fate was unpropitious.

WIND CHANGE

At the launching the wind had been south-easterly, and therefore I counted on having a side wind, but after the passage of the storm cloud the wind had veered round nearly 180 degrees and instead I got a certain amount of headwind.

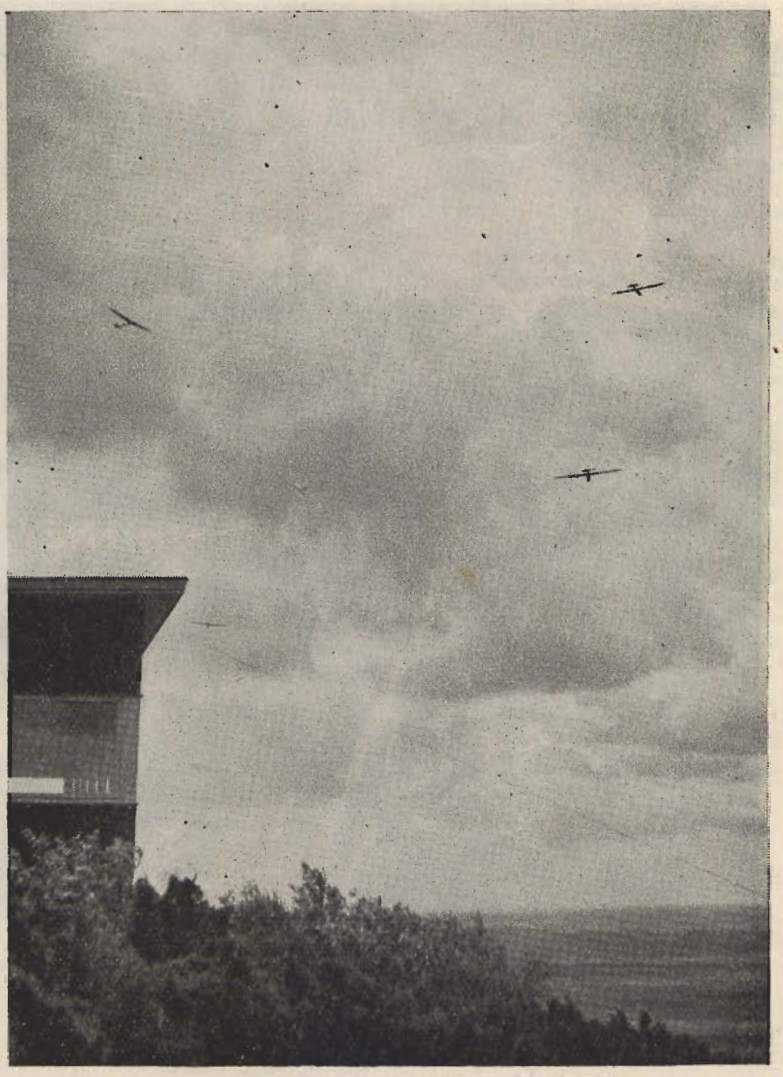
I continued, and for the time had no consciousness of the up-wind which was the centre of my thoughts, and was the sole prerequisite of my getting safely through. When I reached such a distance that I could make it out when the rain gave me a glimpse, there was almost no altitude perceptible, and I was compelled to land only a few hundred metres from the day's goal, a little disappointed at not having reached home but unprecedently excited to see on the baraograph just what altitude I had reached. It was like balm on a wound to observe that this was considerably greater than that attained by Ensign Bergman, namely, 5,723 m. (18,800 feet).

In conclusion I will merely observe that the result is by no means unique. In my view it will be beaten as soon as the experience gained in the years Alleberg Competitions has been put to practical effect, especially in so far as concerns flying instruments and the supply of oxygen.

(*Translated by A. V. Burbury*)

PICTURES (in order)

1. Sailplanes at the Alleberg Soaring School.
2. Lieut. A. G. Wennerstrom, Altitude Record Holder (Sailplanes)
3. Stig Faagerblad, Chief Instructor Alleberg Sailplane School.
4. Ensign A. Bergman, immediately after his 5,540 metres (18,000 ft.) soaring flight.
5. General B. Nordenskiold, Swedish Chief of Air Staff, who is keenly interested in Sailplaning.
6. Soaring at Alleberg.



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MODEL AIRCRAFT EXHIBITION.

BRITAIN'S FIRST NATIONAL SHOW

BRITAIN'S first National Model Aircraft Exhibition will be held at the Dorland Hall, Piccadilly, London, W.1, from January 5th till January 13th, 1945.

It will be the greatest show of its kind ever held in this country, and will display every type of model 'plane, including a number of well-known competition-winning machines and examples of unusual and experimental models.

The exhibition, organised by "The Aeromodeller," will be open daily from 11 a.m. till 9 p.m., except Sunday, January 7. Admission: Adults 1/-, Juniors and Service members in uniform 6d. It will be the finest show of model aircraft ever assembled under one roof, and will provide a remarkable insight into what is being done in this country by those interested in the grand hobby and science of model aeronautics.

" I glided down past the highest peaks into the steep canyons, where jagged pinnacles of rock reached out within 100 ft. of my wingtip."

By JOHN ROBINSON

TO soar a glider over the highest mountain in the United States, Mt. Whitney, 14,496 feet above sea level, has long been an ambition of mine. The opportunity to fulfill this ambition presented itself rather unexpectedly, as it was not part of the flight plan until about thirty minutes before it was accomplished.

At 2.45 p.m., on September 4, 1943, I was towed to approximately 1,000 feet altitude above the airport at Bishop, Calif., by car tow with 2,500 feet of wire. Flying my Stephens RS-1 high performance sailplane, " Zanonia," I released the tow wire and glided back across the field, looking for the " thermal " I thought I detected while on the tow line. Soon I was flying the ship in tight circles and climbing between 3 and 5 feet per second in this rising column of air.

AN EYE ON HOME

Bishop is at an altitude of 4,000 feet, so my release altitude was 5,000 feet above sea level. At about 7,000 feet the thermal disappeared, so I glided eastward toward the White Mountain range in search of another. Not encountering any in a reasonable time, I soon changed course to the south, in order to be able to make a return glide to the airport in the event that another thermal was not discovered before my altitude was expended. Just as I was about to turn back, a thermal presented itself, and I spiralled upward to nearly 8,000 feet.

From this vantage point it seemed reasonable that I could glide south-east to the western slope of Black Mountain and still have enough altitude to return to Bishop. I proceeded to the mountain. Meanwhile puffy cumulus clouds were forming over all the high ranges, but none of these extended over the valley. Thus it was obvious that some good soaring could be enjoyed over the tops of these high mountains, if one could get up out of the valley.

UP AND UP

The thermals over the valley were few and far between, netting a climb of less than 5 feet per second. However, by persistently working them I soon topped Black Mountain, altitude 9,075 feet, and found a real updraft directly over it.

Indicated rate of climb was 5 to 10 feet per second. It wasn't long before the altimeter showed 15,000 feet, and one of those enticing cumulus clouds was directly overhead.

About this time I remembered my barograph, which was behind the seat, neither turned on nor wound up. Reaching behind with my left hand, I moved the lever which allows the stylus to touch the drum, and then pondered the possibility of winding the clock works to set the drum in motion, without losing the thermal. This detail was soon accomplished, and I continued climbing to the base of the cloud.

The best looking clouds stretched off to the south-east toward Death Valley, which would take me considerably off course, for my announced destination had been Lone Pine, in Owens Valley. However, a few miles one way or another would make little difference with all this altitude under me, so I glided off toward the next cloud, meanwhile checking the map and enjoying the scenery.

JUST FANCY !

My indicated airspeed for cruising beteen thermals was 70 m.p.h., and 60 m.p.h. in the climbing turns. The thermals under these clouds yielded very good rates of climb, and the sailplane nearly took care of itself. Every time we sank down to 15,000 feet altitude the ship would circle vigorously and climb up to about 18,000 feet. The highest altitude reached during the flight was 19,002 feet.

While revelling in this wonderful type of soaring, I was also admiring the beautiful scenery from this high vantage point. The trackless deserts form an interesting contrast with the mountains which are heavily forested in some spots and barren in others. To the west beyond Owens Valley was the High Sierra Nevada Mountain Range with its white snow fields and blue lakes. Over these several large thunder storms were building up and dumping their loads of rain on the western slopes.

AN HOUR AT 15,000

The temperature being what it should be at these altitudes, I pulled on a sweater, wrapped a leather jacket around myself, and proceeded to freeze anyway. After spending an hour above 15,000 feet, I was over the Inyo Mountains and heading across Owens Valley, trying to locate the airports at Independence and Lone Pine. Unfortunately, they were not distinguishable from this height.

Arriving at Lone Pine with this excessive altitude, I could have made a return glide to Bishop, but Mr. Whitney seemed to beckon. I decided to take a close look at it and return for a landing at Lone Pine, as scheduled.

Gliding over the eastern slope of this range, I expected to find strong down-drafts, since this area has prevailing westerly winds. The large thunderstorm which was now dispersing and dropping its rain on the western side, had apparently consumed and spent all the vertical energy in this region, for I encountered nothing but smooth flying in the clear cold air. Desiring a closer view, I glided down past the highest peaks into the steep canyons where snow banks and jagged pinnacles of rock reached out within 100 feet of my wingtip. Exploring several canyons in this manner, I passed over many small crystal-clear lakes in which the sunken logs were plainly visible.

NATURE STUDY

I was losing altitude steadily until, after coming quite a distance down the mountain slope, I flew around a large protruding point of rocks and encountered a small region of lift close to the mountain side. While flying a figure 8 pattern to stay in this region, I discovered a road ending at a lake directly below. Beside it were a few cabins with several cars parked close by. Presently five people gathered in the road and strained their necks watching the manoeuvres. They were still looking when I disappeared into another canyon to scrutinize some rocks and trees.

When my spare altitude finally dwindled away, I headed for town and arrived with 2,000 feet to spare. Spotting the airport on the south edge of Lone Pine, I took note of the traffic pattern being flown by the airplanes operating upon it, then expended my extra altitude in lazy manoeuvres close to town. Landing, I slid to a stop on the edge of the runway close to the hangar at 6.10 p.m., just 3 hours and 25 minutes after my take-off 56 miles away. Much greater distance could have been accomplished, but this was prohibited by military restrictions.

18,000 FT. NEXT DAY

Taking off at Bishop the following day, I found the weather still exceptionally good, and was able to make another interesting flight, reaching an altitude of 18,000 feet. This time I went northward over the While Mountain Range for forty miles, making a return glide to the airport in a straight line at constant airspeed, while measuring the time, altitude lost, and distance covered. This data was for the purpose of computing the actual sinking velocity and gliding ratio of this high performance sailplane under normal conditions of updrafts and downdrafts found in unstable air. The results of this test were compared with those of other similar tests made with the same sailplane in the smooth air of the early morning hours on the following day, the purpose being to determine the best possible performance of the plane. All this data and the results were submitted to the National Advisory Committee for Aeronautics as a scientific report.

(Acknowledgements to "Soaring."

KEEPING POSTED

Ann Douglas is reported not only to plan starting up with her Gliding and Flying School after the war but also of going into manufacturing Gliders and Winches in a big way, aided no doubt by her husband, Wing-Commander Graham Douglas, who has the almost unique distinction of having passed both the British and American Staff Courses in the period of the present war.

Flight-Lieut Sproule is said to have been posted to an appointment in S.E.A.C. It would be difficult to imagine this devotee of Gliding far away from Sutton Bank. But there it is, although no doubt he will still be interested in Airborne Gliders, in the creation of which he has played a not unimportant part.

Group Captain Mole is also reported to have been posted abroad. No doubt wherever he goes he will not be far from wooden aircraft. His record number of loops is likely to remain a record, although Flying Officer Don Stevens (see page 18) has designs on it.

(Continued on page 18)

THE news that Lt.-General F. A. M. Browning, Second-in-Command of the Allied First Airborne Army, had been appointed Chief of Staff to Admiral Lord Mountbatten, C.-in-C. of South Eastern Asia Command, brought a chill of dismay to the hearts of all Airborne Forces and their friends. Is our most popular General to leave us then ? But then it seemed that he had gone to prepare the way, and that the campaign against the Japanese for the recovery of Burma, Mandalay and that prime essential of any British attack on Japan—Singapore—will be largely Airborne. Perhaps it will not be for long that the 30,000 Allied Airborne Forces which went to Arnhem and Nijmegen plus the Sixth Division, which did not go, will feel the lack of his inspiring presence, and in the great events of the future he may lead them to the writing of history as noble, thrilling and as far-reaching in effect as any that the world has ever seen.

GLIDER STRATEGIST FOR FAR EAST WAR

LT.-GENERAL " BOY " BROWNING, C.B., D.S.O.

MOCK BATTLE

Two years ago, in the early days of December, members of the Press and many workpeople of the various firms which were making articles of equipment for the use of Airborne Forces—gliders, guns, lightweight jeeps, midget motorcycles and so on, were invited to a two-day visit to Airborne Forces on Salisbury Plain, where a mock battle was staged for our benefit—a real battle—with live ammunition, real dive bombing, paratroops, glider-borne forces and all. It was a most thrilling, most moving experience. I well remember marvelling at the physical condition of the men who carried the flame throwers ; after running over a mile to the enemy post with their heavy gear strapped on their backs they arrived as little " blown " as myself and Air Commodore Howard Williams were in our " blitz buggy" (jeep). But then that was one of the most important occasions of my life, and one that I shall never forget. I met the General at lunch on the first day. After lunch I had my first ride in a Horsa with him. Next day I made my first parachute jump (controlled) and literally landed at his feet, and metaphorically I have been there ever since. I would not deny that the impression this " Bonnie Prince Charlie " of a man made on me was profound, and I am proud to number myself among his devoted admirers.

OLYMPIC GAMES

Afterwards I was to meet him several times again and to get to know him more intimately. I found out about him that he had gone to France with the Grenadiers in 1915, was invalided home, went back, got an immediate award of the D.S.O. whilst a Lieutenant, marched into Cologne with his regiment, and was afterwards Adjutant of Sandhurst, where they still speak of him as the best Adjutant Sandhurst ever had, and where he met as Cadets many of the men who are now his devoted Staff. Besides representing England in the 120 yards high hurdles in the Olympic Games as a horseman, he won the first pool in the King Georhe V Jumping Cup at Olympia, and bob-sleighed for England also in the Olympic Games. He is a yachtsman too, which led to his

marriage to the famous Daphne Du Maurier. Her book, "The Loving Spirit," so captivated him that he paid a visit to Fowey, about which it was written, laid his yacht up there, and the following Spring met the authoress, and married her four months later. In 1939 he was Colonel Browning commanding the Small Arms School. In February 1941 he was appointed to the command of the Guards Brigade Mechanised Group. In October of the same year he was appointed to command Britain's Airborne Forces, and the real task of his life began, at least he feels so.

Since then he has built up not only the British Airborne Forces but those of the United States as well.

LEADERSHIP

Possibly one of the secrets of the terrific morale of our Airborne Forces is the immense regard his troops have for their leader. He had already learnt to fly before the war. But he took his Glider Pilots Wings—the proud emblem of the most complete soldiers in the world —at the age of 46, about a year and a half ago. Similarly he will not ask his troops to do anything he is not prepared to do himself. He was in the Normandy landing, and at Arnhem-Nijmegen. It was in order to ease their minds of worry about home affairs that he founded with his own fortune the Airborne Forces Security Fund.

FUTURE OF WAR

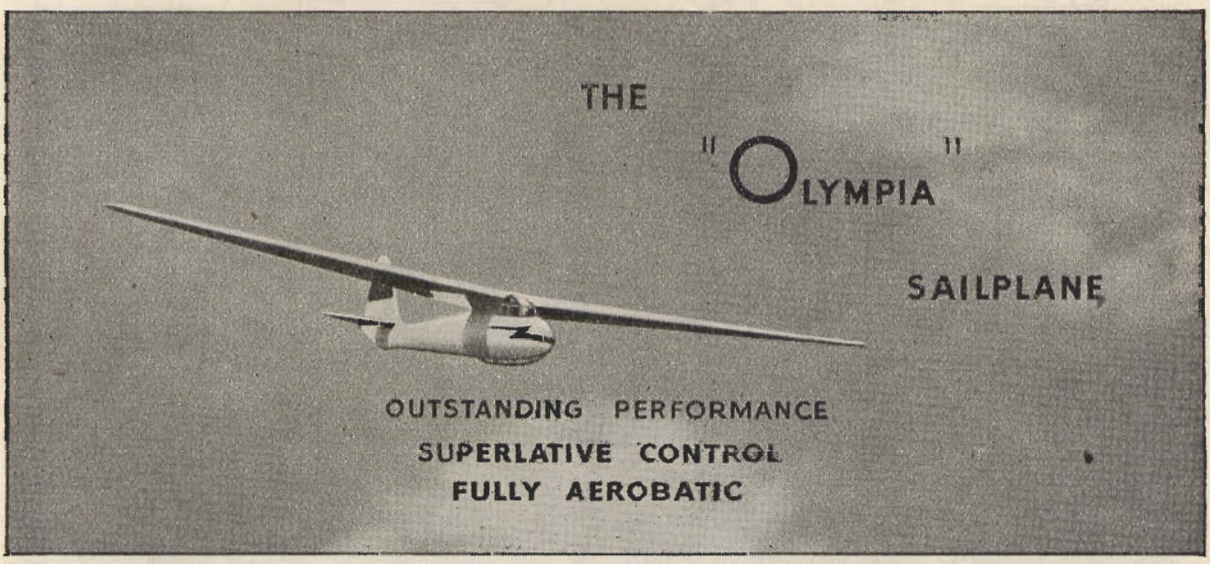
He believes that Airborne Forces are the future armed forces of the world, and as aircraft begin to replace ships for transport—and the rocket has made the future of surface shipping somewhat insecure —and as jet and rocket propulsion become more usual, Airborne Forces may become the most immediately decisive weapon the world has ever seen. In this development the glider has played its not unimportant part, as have those gliding enthusiasts of pre-war days who have helped build our Airborne Forces — machines, pilots and organisation.

England has need of such leaders as General Browning. Yet withal he is deeply religious, simple, abstemious, athletic, exuding an air of physical fitness, with a delicate boyish charm that simply captivates all hearts. I have seen many a man much older in years and experience watching and waiting his turn to go up to the General and give him the new dignified Army Salute which is so much an act of proud homage and so little of servility, and I regretted I was not able to do the same. If I am proud to be his friend, I must be humble too, for I know that at least fifty thousand other people would dispute with me the title of being his most devoted admirer.

VERNON BLUNT.

BACK NUMBERS

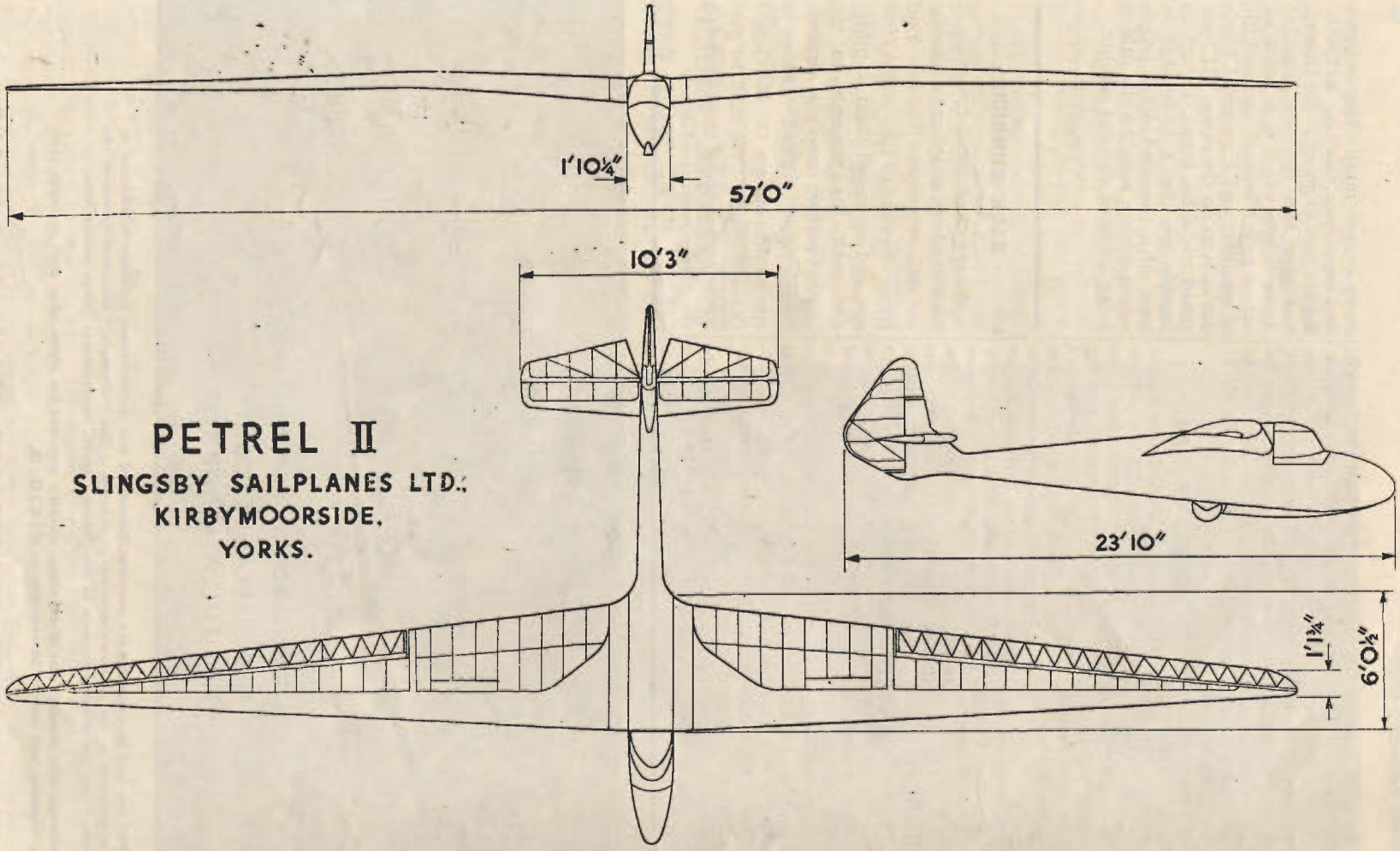
We are often asked for copies of back numbers, which unfortunately we do not possess. Some kind friends forward us their copies after use, and we re-sell them to others and send the proceeds to the original readers or to the Airborne Forces Security Fund. Issues in special demand are the March and October issues. We shall be glad to receive copies of these issues on the terms mentioned above.



Orders can now be accepted for post-war delivery of this world-famous sailplane in addition to other machines in our comprehensive range of types. The "Olympia," sometime known as the "Meise," was the winning machine in the Olympic games International design competition.

In addition fully detailed sets of drawings, specially prepared for those who wish to build their own Olympia, will shortly be available at £14.0.0.

CHILTON AIRCRAFT, HUNGERFORD, BERKSHIRE, ENGLAND.



PETREL II

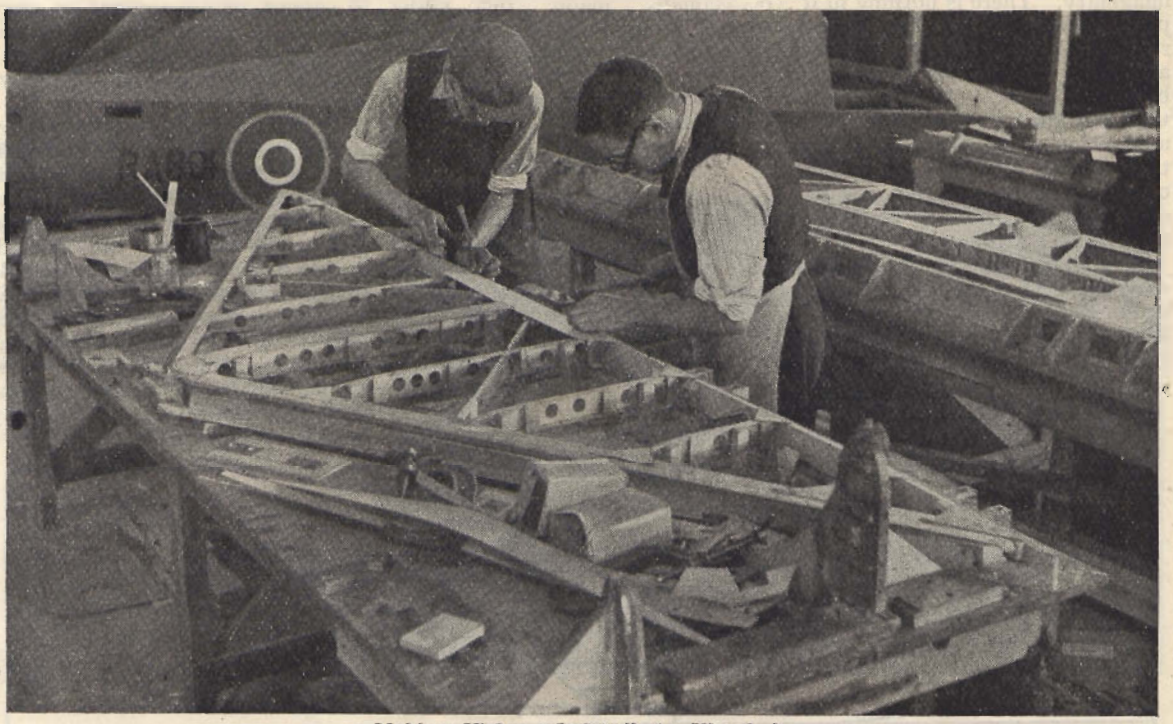
SLINGSBY SAILPLANES LTD.,
KIRBYMOORSIDE,
YORKS.

SLINGSBY "PETREL II."

The new competition type high performance sailplane evolved from the pre-war "Petrel" described in a recent issue of *Sailplane and Glider*.

The machine has exceptionally good control action, useful speed range, and is delightfully easy to handle It will prove itself to be a formidable competitor at future soaring meetings.

The New Slingsby "Ab Initio" Two-Seater.



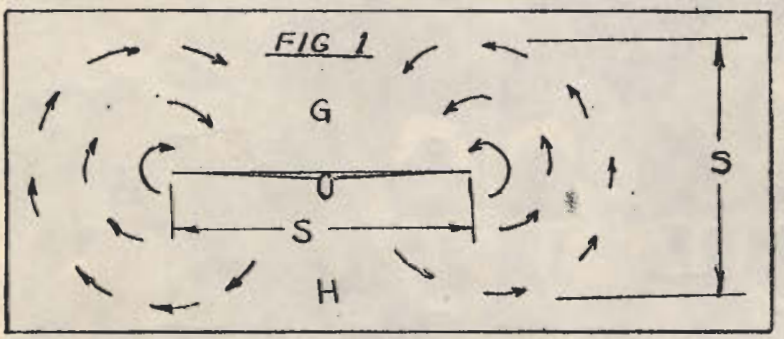
Making Kirby "Cadets" At Slingsby's.

THE DOWNWIND TURN.

By DUDLEY HISCOX.

WHENEVER a few ardent glider pilots get together discussions on some technical aspects of the art invariably start.

There is one such subject that comes up regularly from time to time, and upon which agreement never seems to materialise. It is the matter of the downwind turn.



In regular sequence newcomers to gliding voice their experiences of the difference in the feel of control when turning a glider to fly down wind, and when turning again upwind. "Nonsense," immediately retorts some listener. "It is all imaginary. There is nothing in it; pure illusion due to the ground rushing by in the first case, and appearing to slow up when flying back into wind. No more in it than a goldfish swimming round in a bowl on a moving train; or for that matter walking in a railway carriage corridor in the direction of travel and turning to walk back the opposite way."

Such retorts usually come from engineers and those with scientific training. The greater their qualifications the more they deprecate the alleged phenomenum.

RECURRING SUBJECT

In spite of all their assurances the subject keeps coming up, as it did recently among a knot of A.T.C. Gliding Instructors.

Before the war all pilots who had done a little slope soaring, in winds that blew up the hill from an angle, instead of straight on, experienced a difference in the effect of the lift when flying upwind. It was stronger than when flying downwind. They often reported being able to soar at just under 30 m.p.h. on the A.S.I. upwind; yet required over 30 m.p.h. on the indicator to feel safe when running downwind. Also when downwind landings were occasionally made, the glider seemed to sit down with certainty at a surprising speed, but landing into wind, in the same conditions, the machine floated and seemed to refuse to sit down.

NOT IMAGINARY

These effects, and the tendency of a glider to stall in the downwind turn are not imaginary, or a matter of psychology, there is an aerodynamic reason. When it is understood the risk of accidents is greatly reduced.

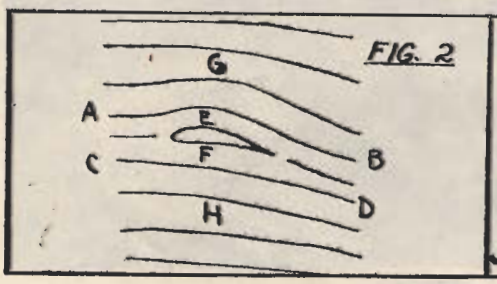
This aerodynamic reason was well explained by Arthur Schultz five years ago in an edition of that excellent American contemporary journal *Soaring*, and from which the following is quoted :—

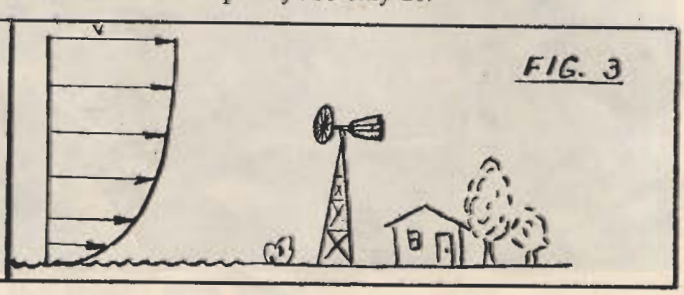
"Figure 1 is a sketch common to all textbooks on aerodynamics. It is a circulation diagram showing the 'zone of influence' about an aeroplane, and its significance is clear to most readers. The point to be noted here is that the height of the zone of influence equals the wing span, as much as 60 feet for Sailplanes.

SOLIDITY OF FEEL

"Figure 2 is also not new. A particle of air moving from A to B has a longer way to go than a particle from C to D, hence it must go faster. Bernoulli's theorem then says if this is so, the pressure at E must be less than the pressure at F. That is one way of looking at the question why wings lift. An alternate way of putting it would be to say, if the wing is lifting, the air at E must be moving faster than the air at F. This condition exists in diminishing amount throughout the full depth of the zone of influence. The important point to note here is that the actual difference in the mean velocity above at G and below the wing at H cannot really amount to very much—just a matter of several feet per second or so—but it is this that gives us that feeling of solidity we know as lift.

"Figure 3 can be understood by anyone who has ever seen a windmill. Farmers always mount their windmills high so the wind can get at them better. They not only do this when buildings are around, but do it as well out in the middle of open fields. The wind has what is called a velocity gradient—it is slowed down by friction with the surface or water. The wind 50 feet up may blow 30 miles per hour while the wind at the ground may be only 20.





LOSS OF LIFT DOWNWIND

" Now then, if part of this velocity differential lies within the zone of influence of the wing, it will produce a marked effect on the lift. Flying upwind, the wind velocity at G in Figure 1 will be a few feet higher per second than the velocity at H. According to Figure 2, this should result in increased lift. On the other hand, flying downwind, the average velocity in the zone of influence above the wing will be decreased relative to that below the wing, resulting in a loss of lift.

" Thus it is readily seen that, when flying level within the range of wind velocity gradient, a ship must fly a faster airspeed when going tailwind than when going upwind to obtain the same degree of controllability. By the same token the soaring pilot must run faster down the ridge than up ; a ship will have a hotter landing speed landing downwind than upwind and will not float as long; and airplane pilots might be a little easier on fences and landing gears if they would dare practise an occasional downwind turn near the ground. Yes, the downwind turn must be made faster than then upwind, and the sooner we all realise the cause, the sooner we will be able to avoid the consequences."

VELOCITY GRADIENT IMPORTANT

Now are we all satisfied ? Will the learned gentlemen agree that a glider behaves very differently when flying, either straight or turning, in air subject to a velocity gradient ? The others, will they acknowledge that when high enough to be above the influence of the earth's drag on the wind flow, there can be no difference in lift or control when flying upwing or downwind ?

The answer is probably no in both cases. The subject is likely to be argued for decades to come.

D. G. O. H.

AUSTRALIAN GLIDING ASSOCIATION

SOUTH AUSTRALIA

WAIKERIE GLIDING CLUB

(INCORPORATED)

Letter 15/8/44 from Hon. Secretary, Mr. Jack Moody, also copies of Instructor's Report. Statement of Receipts and Payments and Balance Sheet for the year ended 30th June, 1944. £1 1s. contribution towards Association expenses was also forwarded.

ANNUAL REPORT

" Our plant and equipment has been maintained in good order and with the exception of breaking tow lines we have had very little repair work to do. The cost of repairs and renewals amounted to £4 8s. 6d. for the year. Flying took place on 28 days, 162 launchings being made on all machines for a total flying of 18 hours 49 minutes. The expenditure on petrol for this amount of flying amounted to £6 8s. 4d. The " Pelican " two-seater has again done good service. During the year 79 passenger flights were made, 31 of which were dual instruction to pupils. The " Kite I " Sailplane has been taken to over 2,000 feet on nine occasions.

RECORDS

The three members, Messrs. Reibe, Coates and Barratt, who fly this machine, have each done soaring flights of over the hour, reaching heights of over 5,200 feet. Records secured for the Club during the year were :—

SOUTH AUSTRALIAN DISTANCE IN A STRAIGHT LINE. 25 miles. Waikerie to Moorook. R. G. Coats on 2/10/43 in "Kite I."

SOUTH AUSTRALIAN HEIGHT RECORD. 4,550 feet above point of release (a climb to 5,450 feet from winch launch tp 900 feet) by R. G. Coats in " Kite I " on 2/10/43. This was raised to 4,600 feet by E. R. Barratt on 31/10/43 with a climb of 5,600 feet from a winch launch to 1,000 feet.

On this same flight the **SOUTH AUSTRALIAN DURATION GLIDING RECORD** was set at 1 hour 45 minutes. Details of flying for each machine are as follows :—

Pratt Utility. 31 launchings for a flying time of 2 hours 26 minutes.

" Kite I " Sailplane. 56 launchings for 11 hours 10 minutes.

" Pelican " Two-seater. 75 launchings for 5 hours 13 minutes.

During the year the " Primary " Glider repairs were completed and the machine assembled ready for flying. This machine should get more use in the coming year with new members joining up. We welcome our first lady trainee, Miss N. Swan."

Note.—Some of the passenger flights in the " Pelican " were with the pilot and two passengers.

NEW SOUTH WALES

SYDNEY SOARING CLUB

Harry Ryan and Doc Heydon's " Gull."

In a letter dated 28/8/44, Harry Ryan states :—" We had another day at Box Hill yesterday and a few distinguished visitors were present in Prof. Stevens, of Sydney Uni-Aeronautics, and Mr. John Mills and Mr. Ian Spittle, of De Havillands, and Jack Munn. We were late in arriving with the 'Gull,' due to carburettor trouble with Doc Heydon's Ford, but some of us were able to have lunch while others did the dirty work. Conditions looked good, although there was a moderately strong S.E. wind blowing, but somehow no one was able to connect with a decent thermal except Martin Warner, and he had to leave it at 2,400 feet because of drifting too far away from the ground base. Heights of 1,200 feet were easily obtainable on the winch if one was careful not to pull up too steeply at the start and thereby break the cable in the strong wind. We use a safety link, but certain portion of our cable is showing signs of wear. Here are the times, and it is doubtful if we will hold another meet before eight hour week-end in October. By the way, we were carrying a parachute and recording barograph, but the turn and bank is having an overhaul.

Pilot.	*Take Off.*	*Max. Height.*	*Time.*
H. Ryan	12.45 p.m.	1,000 ft.	4 minutes.
M. Waghorn	1.05 ,,	900 ,,	4 ,,
S. Newbigin	1.19 ,,	1,000 ,,	6 ,,
M. Warner	1.58 ,,	2,400 ,,	23 ,,
L. Schultz	2.31 ,,	1,000 ,,	3 ,,
Dr. Heydon	2.50 ,,	900 ,,	6 ,,
H. Ryan	3.17 ,,	1,200 ,,	5 ,,
M. Waghorn	4.06 ,,	1,200 ,,	6 ,,
S. Newbigin	4.33 ,,	1,200 ,,	6 ,,
M. Warner	4.51 ,,	1,200 ,,	5 ,,
L. Schultz	5.08 ,,	1,200 ,,	6 ,,
H. Ryan	5.24 ,,	1,200 ,,	4 ,,

Schultz, Warner and Ryan all indulged in loops and stall turns when it was found that there was no lift about. We hope to have the 'Kite II' in action again shortly, but much remains to be done on our winch."

VICTORIA

THE GLIDING CLUB OF VICTORIA

NEW MACHINE TESTED

A " Utility Trainer Type " glider designed by N. J. Hyde was successfully test-flown on 17/9/44 at Fawkner flying ground. One flight—a winch launch—was made by the designer just as darkness set in. Height of 300 feet was reached on tow in flat calm conditions and a circuit of the field made. This machine has a wing span of 34 feet and a chord of 4 feet 6 inches. Wing tips are curved and fuselage is constructed of ½-inch diameter 20-gauge steel tubing with airwheel and ash skid, rubber blocked. Actual construction commenced on 11/7/44. Fuselage is fabric covered.

VICTORIAN MOTORLESS FLYING GROUP

Mr. H. G. Richardson has advised of the following flights made in his " Golden Eagle," all from winch launchings at Mordialloc Flying Ground

13/8/44. Conditions—low cloud and rain variable wind. Flying started 1.40 p.m. :—

Pilot.	*Height.*	*Time in air*
H. G. Richardson	1,000 ft.	5 mins.
W. Iggulden	700 ,,	4 ,,
J. Iggulden	940 ,,	5½ ,,

Skid was damaged on W. Iggulden's landing, but temporary repairs were made. Flying was suspended at 4 p.m. when retrieving car broke axle.

10/9/44. Conditions—overcast—west wind 10.15 p.m. Flying commenced 3.10 p.m. nad finished 6.5 p.m. 3,500 feet of winch cable was used. There was a complete absence of lift and the pilots indulged in mild aerobatics thus accounting for the poor times for the heights reached.

Pilot.	*Height.*	*Time in air*
H. G. Richardson	1,500 ft.	6 mins.
W. Iggulden	1,100 ,,	5¼ ,,
J. Iggulden	1,175 ,,	5 ,,
H. G. Richardson	1,100 ,,	4½ ,,
W. Iggulden	1,200 ,,	5 ,,
J. Iggulden	1,300 ,,	8 ,,
H. G. Richardson	1,200 ,,	5 ,,
W. Iggulden	1,200 ,,	6 ,,
J. Iggulden	1,300 ,,	7 ,,

The Group intends to hold a 10-day camp at the Belmont Common Aerodrome, Geelong, over the Christmas holidays, providing that arrangements can be made with Mr. P. J. Pratt.

KEEPING POSTED

(*Continued from page* 11)

Don C. Stevens, American Transport Corps, recently " picked up " a Hamilcar from the Nijmegen Front. That is, he was the pilot in the glider picked up. He has one or two records to his name. He has looped a CG4 (WACO) 70 times in succession and done a 16-mile glide in one, from 22,000 ft.

It is also reported that one of the leading manufacturers of wooden aircraft in this country has estimated that in five years after the war there will be 5,000 gliders of all types in Great Britain. This is about twelve times the number at the outbreak of the present war.

Dudley Hiscox has ordered two of the new side-by-side two-seaters for the London Gliding Club from Slingsbys.

Chilton Aircraft have received many orders for the " Olympia," including five from one well-known Club.

Mrs. Platt is expected to return to this country for good in January next. She will be a tower of strength to whatever Club she joins.

The Brabazon Committee met in London on December 13th, and was attended by representatives of private flying and gliding clubs. It is believed that the Government do not propose to control gliding except as to Soaring areas.

An interesting letter has been received from **Capt. L. C. Dugdale,** late of the Midland Club, who is now in " Paiforce," where, having read Major C. P. Kaye's article on visible thermals, he went across to see him and cemented a friendship based on mutual interests. They knew each other before, but neither suspected the other of being interested in Soaring.

He has also sent an intensely interesting article on his observations and deductions from watching gulls and flying fish on the sea journey to Iraq. This will be published next month and is an important contribution to our knowledge both of these birds and fishes and also of velocity gradients over sea waves.

Terence Horsley, whose book is now expected at the end of January, was previously stationed at the Admiralty Press Division. We believe that he asked to be returned to flying, and has rejoined his beloved "Stringbags" at Arbroath.

We hear that a plan is afoot by **Rangers (Senior Girl Guides) to** form Gliding and Flying Clubs. We have been waiting for this. It is about time someone did something for the girls. They are heartily welcome, and we are sure everyone will do all they can to help them.

The R.A.F. are definitely stated to be taking up Soaring after the war. Whether that is true or not we hear of more than one Station which is forming its own Gliding Club for the benefit of all ranks. Our "Sailplane Bureau" is busy trying to find them Sailplanes, as these are private venture clubs.

A Company is being formed to handle the **"Sailplane Bureau"** of this office, as the business offered is too great for the Editor to handle. A further announcement will be made next month.

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MIDLAND COMMAND PUBLIC SCHOOLS GLIDING COURSES.

(*Continued from Page* 20).

both by actual flying experience themselves, and by giving them the incentive to observe clouds and air flow effects for themselves. All the instructors felt that while these Courses had been very hard and exacting work, it had been well worth while, and it is hoped to hold a larger number next year.

C. E. H.

ROYAL AERO CLUB
GLIDING CERTIFICATES

"A" *Certificates* (91)		*Gliding School*	*Date taken*
2150	Norman John McDonald Fraser	L.146 E.G.S., Shenfield	1.10.44
2151	Harry Roy Holloway	S.W.81 E.G.S., Yeovil	13. 9.44
2152	Eric James Chipps	C.126 E.G.S., Booker	15.10.44
2153	Ernest Arthur Black	M.48 E.G.S., Bretford	10. 9.44
2154	John Bernard Stack	203 E.G.S., Newtownards	8.10.44
2155	Arthur Carlyle Palmer	M.41 E.G.S., Knowle	1.10.44
2156	Geoffrey Devas Everington	162 E.G.S., Hamsey Green	15.10.44
2157	Gordon Walter Bleasdale	M.48 E.G.S., Bretford	25. 8.44
2158	Basil George Almond	M.44 E.G.S., Bretford	17. 8.44
2159	Douglas Leonard Geoffrey Young	E.107 E.G.S., Lincoln	15.10.44
2160	John Raymond Denley	S.W.81 E.G.S., Yeovil	1.10.44
2161	Guy Warren Beauchamp Gibbs	C.123 E.G.S., Bray	27. 8.44
2162	Alan Frederick Cook	Ditto	7. 8.44
2163	Gerald Sydney Barnett	W.65 E.G.S., Cardiff	22.10.44
2164	Denis Cyril Ratcliffe	167 E.G.S., Fairoaks	30. 9.44
2165	Arthur Edward Ashwell	Ditto	10. 9.44
2166	David Alaric Bond	M.48 E.G.S., Bretford	16. 7.44
2167	George Burgess	M.47 E.G.S., Great Hucklow	7.10.44
2168	Peter Vernon Bush	M.48 E.G.S., Bretford	23. 7.44
2169	Alan Willis Hunt	S.W.81 E.G.S., Yeovil	11. 9.44
2170	Michael Stanley Hebditch	Ditto	10. 9.44
2171	Kenneth Percival Sherry	Ditto	10. 9.44
2172	James Hurrion	Ditto	8.10.44
2173	Kenneth James Lock	Ditto	6. 8.44
2174	Dennis Randolph Pook	Ditto	22.10.44
2175	Roy Kenneth Waddington	M.44 E.G.S., Rearsby	10. 9.44
2176	Desmond David Gay	W.65 E.G.S., Cardiff	22.10.44
2177	Alan Mundy	S.W.88 E.G.S., Wroughton	22.10.44
2178	Kenneth Eric William Hislop	Ditto	22.10.44
2179	Richard Desmond Smith	M.41 E.G.S., Knowle	1.10.44
2180	Maurice Raymond Seward	C.126 E.G.S., Booker	15.10.44
2181	Denis William Heightman	L.145 E.G.S., Colchester	22.10.44
2182	John Derrick Bones	Ditto	22.10.44
2183	Herbert John Adams	C.122 E.G.S., Harrow	30. 4.44
2184	Norman Henry Augustus Clark	W.70 E.G.S., Swansea	16. 8.44
2185	Stanley William Clark	C.123 E.G.S., Bray	21.10.44
2186	Leonard James Bull	Ditto	10. 9.44
2187	Joseph Lucas	M.43 E.G.S., Walsall	21.10.44
2188	Alan Wilson	M.47 E.G.S., Great Hucklow	15.10.44
2189	John Lewis Morgan	N.W.185 E.G.S., Barton, Manchester	23. 7.44
2190	Percy Nadin	M.45 E.G.S., Meir	1.10.44
2191	John Sadler	Ditto	1.10.44
2192	Frederick Hampton Ogden	Ditto	1.10.44
2193	Reginald James Dolman	S.W.92 E.G.S., Yate	13. 8.44
2194	Norman John Thomas	C.128 E.G.S., Theale	14. 8.44
2195	Gordon Fowles	M.45 E.G.S., Meir	17. 9.44
2196	Edward Thomas Gregson	203 E.G.S., Newtownards	8.10.44
2197	Raymond Pixley	N.E.26 E.G.S., Greatham	12. 9.44
2198	James Stevenson	SE163 E.G.S., Portsmouth	1.10.44
2199	John Colbert	167 E.G.S., Fairoaks	1.10.44
2200	Frederick Joseph Plaskett	M.45 E.G.S., Meir	17. 9.44
2201	David Spencer Bradbury	Ditto	17. 9.44
2202	Patrick John Henry Maher	Ditto	17. 9.44
2203	Ronald John Davis	S.W.83 E.G.S., Moreton Valence	22.10.44
2204	Wyndham Parry Williams	M.50 E.G.S., Hereford	24. 9.44
2205	Henry Phillip Craig	167 E.G.S., Fairoaks	20. 8.44
2206	Frank Ogden	S.E.161 E.G.S., Brighton	16. 7.44
2207	Derrick Peacock	186 E.G.S., Speke	22.10.44
2208	Kenneth Edward Deslandes	Ditto	22.10.44
2209	Leonard Addison	Ditto	22.10.44
2210	Roland Billinge	Ditto	22.10.44
2211	Desmond John Victor Greene	S.W.83 E.G.S., Moreton Valence	8.10.44
2212	John Ward	S.4 E.G.S., Abbotsinch	30. 9.44
2213	Robert Bruce	M.48 E.G.S., Bretford	25. 8.44
2214	Stalney Walter Howard	L.145 E.G.S., Colchester	23. 8.44
2215	Eric Gordon Griffiths	166 E.G.S., Ashford	22.10.44
2216	Leslie George Waters	SE 163 E.G.S., Portsmouth	1.10.44
2217	Elliot Alexander Keay	167 E.G.S., Fairoaks	29.10.44
2218	Alan Arthur Wood	NE.22 E.G.S., Kirbymoorside	8.10.44
2219	John Bryan Williams	Ditto	8.10.44
2220	Joseph Walter Provins	Ditto	8.10.44
2221	Harry Mappin	Ditto	8.10.44
2222	Henry Tresh	S.W.81 E.G.S., Yeovil	15.10.44
2223	Bertram Eugene Joseph Garmeson	M.48 E.G.S., Bretford	25. 8.44
2224	Gordon Harris	W.70 E.G.S., Swansea	29.10.44
2225	John Denys Venables	Ditto	29.10.44
2226	Edmund Attwood	C.124 E.G.S., Aldenham	15.10.44
2227	William Harrison Armstrong	S.E.163 E.G.S., Portsmouth	1.10.44
2228	Samuel Gordon Dales Wright	M.51 G.S., Long Mynd	26. 8.44
2229	John Neild Walker	M.45 E.G.S., Meir	1.10.44
2230	Walter Bruce Carmalt	M.41 E.G.S., Knowle	1.10.44
2231	Andrew Gordon Low	Ditto	1.10.44
2232	Frank Eric Randall	M.48 E.G.S., Bretford	29.10.44
2233	Norman Charles Smith	M.43 E.G.S., Walsall	22.10.44
2234	John Douglas Hazell	M.48 E.G.S., Bretford	29.10.44
2235	Douglas Guy	Ditto	29.10.44
2236	Donald Frank Hughes	S.W.83 E.G.S., Moreton Valence	22.10.44
2237	Harry Stanley Peirce	L.143 E.G.S., Croydon	10. 4.44
2238	Brian Shaw	N.E.24 E.G.S., Netherthorpe	12.11.44
2239	Peter John Warburton	Ditto	12.11.44
2240	Geoffrey Barton Toussaint	M.43 E.G.S., Walsall	29.10.44

(*Continued on page* 20)

MIDLAND COMMAND PUBLIC SCHOOLS GLIDING COURSES.

THE two Public School Courses organised by Midland Command A.T.C. took place in consecutive weeks in August. The Commanding Officer of the first course was F./L. Alfred Hughes, ably assisted by four other instructors, chiefly drawn from the Leicester area. Seventeen cadets in all turned up, from an average selection of Midland Public Schools, and seventeen got their "A" Certificates, one with a flight of over one minute.

TWO-SEATER FLIGHTS

While weather conditions were very favourable, the early part of the Course was made more difficult by the temporary absence of a Primary, and for the first two days the early slides and low hops had to be done on Kadets. On the face of it, this appeared pleasant for the boys owing to the efficiency of the secondary machine being such as to lessen the feel of the air flow, and by giving a feeling of security owing to the closed cockpit. Nevertheless, at this stage, it proved very hard on the machine, which began to develop mumurs of protest as the slides mounted up. These ill-effects, however, were somewhat mitigated by the excellent efforts of F./L. Coleman, who took the bulk of the boys in the B.A.C. two-seater on circuits of about four minutes' duration, to demonstrate to them—(*a*) the flying note of a glider in the air; (*b*) the small amount of control that is necessary to fly a machine on a straight course.

EGG LAYING LANDINGS

On the second day, all the cadets were airborne, and owing to careful winch driving by P./O. Rice this difficult phase was weathered without damage. By the Wednesday medium hops were commenced, and it was at this stage that the pupils showed signs of the lack of appreciation of air speed owing to the relatively small physical signs of flight of the Kadet: *e.g.* rushing air and whistling wires, that are so helpful to the beginner on a Dagling. Semi-stalled and stalled flights began to be noticed and skids were damaged. It was at this point that the instructor pointed out to the cadets that only the domestic hen flies in a semi-stalled condition and then only when it wanted to lay, which checked the tendency to too slow flying for the rest of the course, coupled with instructions to listen carefully to the flying note and to err on the fast side, and everything shaped well again with the excellent results that have been recorded above. High praise is due to all instructors and winch drivers, and it can safely be said that each pupil learned as much on this week's course as would have been communicated in six months' ordinary week-end gliding. Catering and sleeping arrangements for the Course, at Church Lawford, were admirable in every way, and the A.T.C. are grateful to the Commanding Officer and the Liaison Officer for their most efficient help.

SECOND COURSE

The next Course was commanded by F./L. Coleman, late of the Derby and Lancs. Club, and assisted by F./O. George Lane, of Walsall, with four assistant instructors. The weather for this week, however, was unkind and only four full flying days were forthcoming. The same procedure was followed as in the previous Course, except that a Dagling was forthcoming from the start. F./L. Coleman got busy with the B.A.C. two-seater again on approximately four-minute circuits up to 800 feet, the boys taking over on the straight. The party was split up into two—four boys being allotted to the two-seater at a time, and the rest with F./O. Lane on the Dagling. There is no doubt that this short two-seater circuit was a great help in giving the boys the right control outlook at an early stage of their flying. Of the sixteen cadets in this Course, fifteen took their "A" Certificates, and the degree of enthusiasm and intelligence was remarkable.

APPRECIATION

Letters were received after the Course by instructors, which included such sentences as these:—"Thank you very much indeed for getting me my Certificate. It was honestly the finest week's holiday I have had in my life." And again from Burley, Oakham: "I feel sure I should not have made the standard if it had not been for your marvellous instruction. You made us all feel at home and gave us confidence in ourselves. It is the finest holiday I have ever spent." And: "Do you think we shall have a chance to take our "B" Certificate next year? This is my one ambition, to fly a glider again."

Thus, thirty-one Cadets got their "A" Certificates out of a total of thirty-two attending, which represents just over 16 per cent. of the total "A"s taken during the year by Midland Command Elementary Gliding Schools; the grand total in all being just under two hundred (197) "A" Certificates.

THE IDEAL MEDIUM

During the bad weather, talks were given to the boys on "Air and Air Flow" and on the theory of flight, and a high level of intelligence was noted. It would appear that, as the glider is the only aircraft in which air structure can be clearly felt and learned, it is the ideal medium for teaching our youth the important laws of air and air flow at a young age.

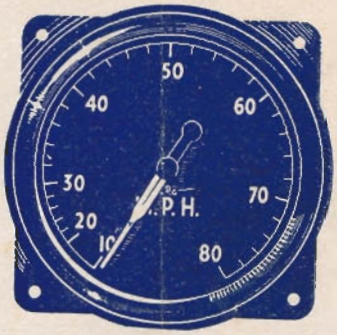
(*Continued on page* 19)

GLIDING CERTIFICATES—*continued.*

"B"	*Certificates*	*Gliding School*	*Date taken*
1817	Harry Johnson	S.W.83 E.G.S., Moreton Valence	15.10.44
2150	Norman John McDonald Fraser	L.146 E.G.S., Shenfield	1.10.44
2088	Sydney George Reginald Hart	S.W.83 E.G.S., Moreton Valence	15.10.44
2184	Norman Henry Augustus Clark	W.70 E.G.S., Swansea	18. 8.44
2190	Percy Nadin	M.45 E.G.S., Meir	1.10.44
2191	John Sadler	Ditto	1.10.44
2193	Reginald James Dolman	S.W.92 E.G.S., Yate	20. 8.44
2194	Norman John Thomas	C.128 E.G.S., Theale	10. 9.44
2214	Stanley Walter Howard	L.145 E.G.S., Colchester	26. 8.44
2229	John Nield Walker	M.45 E.G.S., Meir	1.10.44
2237	Harry Stanley Peirce	L143 E.G.S., Croydon	28.10.44

BADGES.

Badges for the holders of Gliding Certificate "A" are now available, and may be obtained from The Royal Aero Club, 119, Piccadilly, London, W.1, price 1/- each.



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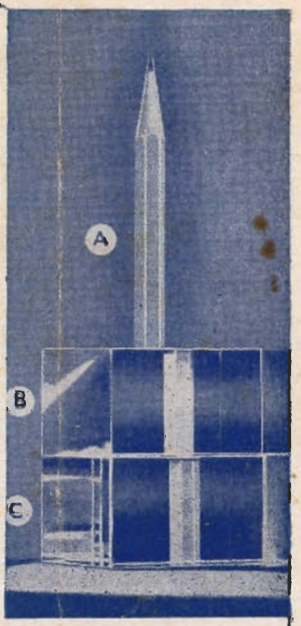

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