1938 Competitions ! Met. and Cloud- !

SAILPLANE AND GLIDER

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The First Journal devoted to Soaring and Gliding



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THE FIRST JOURNAL DEVOTED TO SOARING AND GLIDING

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BELIEVE IT OR NOT

The following letter was sent by the Editor of *Sailplane* to the Editor of *The Times* following the recent Debate on the number of accidents to aircraft of Transport Command :—

February 16th, 1945.

To the Editor of *The Times*.
London, E.C.4.

Dear Sir,

In the debate on the distressing number of accidents to the transport aircraft of Transport and other Commands of the R.A.F., the reply of the Air Minister was more facile than true. It is not primarily a matter of the individual pilot's decision, or of the adequacy of his machine and instruments. The cause of so many of these accidents lies much deeper than that.

I am not referring to the Meteorological Branch when I state that the knowledge of intimate flying meteorology in the R.A.F. is by no means as good as it might be. It is one thing to be able to make an accurate forecast, and quite another to be able to recognise the various immediate phenomena one meets in a normal flight, and to be able to base one's flight strategy on such factors. It may be that the pressure of time has prevented so much attention being given to this important subject as otherwise might have been possible. But in the view of many qualified to judge, the reason more attention has not been devoted to the air and its vagaries, is a fundamental psychological barrier in the minds of the Higher Air Staff, who have resolutely refused to see that as in the Navy, our Admirals learned about the Sea in small sailing boats before ever they commanded even a steam pinnace, so you must learn about the Air in Sailplanes before becoming a power pilot. I know that there is a keen controversy about this point in Service circles, but I have only met one Sailplane pilot who thinks that Sailflying is no help to power pilots, whereas I have met hundreds who are firmly convinced that a Sailplane pilot makes the better and more reliable power pilot.

" Fas est ab hoste doceri " carries no weight when you have beaten the enemy, so that the fact that 100,000 German youths learned about flying from Sailflying and Soaring before the war each year is only of academic interest to-day. But in Sweden the Swedish Air Force is compelled to engage in Soaring, not for sport, but because of the insight into meteorological phenomena which the pastime or study gives its devotees.

The truth is therefore that until we get down to a real study of the air, in Sailplanes, we cannot truthfully say that our pilots are the best equipped in the world, for a vital portion of their training has been left out, and it is to be hoped that will be remedied as soon as possible.

Yours faithfully,

THE EDITOR.

British Soaring Contests—8

THE 1938 B.G.A. CONTESTS

FROM previous articles in this series it will have been seen how the annual B.G.A. Contests showed the development, and activity of gliding and soaring in this country. British gliding had been growing up fast, and whereas the 1937 competitions seemed afire with the enthusiasm and brilliant flashes of youth, those of 1938 shewed the first considered seriousness of maturity. Some of the better pilots of 1937 had stepped, without trace of doubt, into the first rank, while the others were endeavouring in a most earnest manner to improve their skill. This did not mean that all enjoyment had departed from the Contests; the outlook of the pilots had changed, the sailplane having finally ceased to be a plaything, and become an instrument for the skilled.

SEVENTY-THREE PILOTS

The 1938 Contests were held on the site of the London Gliding Club at Dunstable, with the additional use of Mr. Alan Butler's private aerodrome at Studham, which he had kindly lent for the purpose of aero-towed starts. The entry was the biggest of any B.G.A. Contest, and consisted of 30 machines flown by 73 pilots. Thirteen of the machines entered were in the high-performance class, although three did not finally turn up. There were no secondaries entered, the machines with the lowest performance being in the "Grunau Baby" category. It was not, however, the increase in the proportion of high-performance sailplanes that accounted for the number of excellent flights made, as many of these flights were those of pilots who had flown high-performance machines in previous contests. It was more likely that the lessons learnt by the British Team at the 1937 International Competitions on the Wasserkuppe had been thoroughly digested throughout the winter, and the conclusions reached put into practice during the spring and summer of 1938.

The weather during Contest week was not very good for soaring, being patchy, broken, and often quite stable, although the fickle but frequent westerly drift on to the hill permitted the spectators to see more soaring and local flying than they otherwise might have done. The total cross-country distance flown, however, was 2,342 miles.

TWO-SEATER RECORD

Before staring on the actual flights made during the contests, mention must be made of the practice day, Saturday, July 9th, when the Two-Seater International Duration record was broken by F./Lt. W. B. Murray and J. S. Sproule in the Slingsby "Falcon III." They took off at 4.9 a.m., flew for 22 hours 13 minutes and 35 seconds, and then landed by the light of car headlamps during the following night. The wind was weak and turbulent, and the two pilots had a struggle to keep up in unpleasant conditions, which included a plentiful supply of rain into the open cockpit, and the loss of their food package down the fuselage.

Sunday, July 10th, the starting day, provided drizzle and little else, so the daily prize was given for the greatest aggregate duration by any one machine. The Derby and Lancs. Club put up a very fine team show, and won with 10 hours 10 minutes flying out of a possible 11 hours, on their "G.B. II."

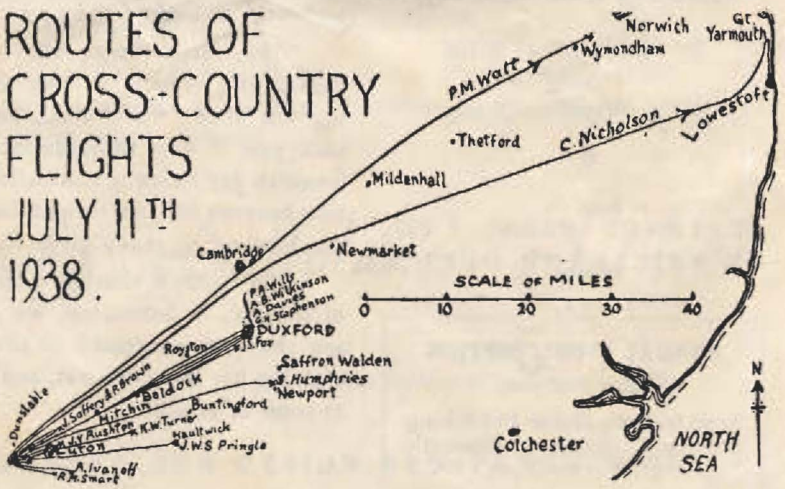
"ROSE LIKE A ROCKET"

The next day, Monday, was poor until the afternoon, when the sky burst into a rash of large cumulus with little warning. About half the machines got away, but only two pilots flew further than 33 miles. Sqn.-Leader P. M. Watt, in the "King Kite," reached Wymondham, 87 miles away, and C. Nicholson, in the "Rhönsperber," flew to the coast of Lowestoft, 106 miles. The amusing thing about this day (for the spectators anyway) was that practically all the machines went away in the same thermal, disappearing into the same rather small cloud, and all circling frantically in both directions. Into the midst of this whirlpool of pilots and plywood the "Rhönsperber" arrived "whizzing along like a destroyer," with the great Nicholson, perhaps the finest natural soaring pilot in this country, who, continuing the words of Humphries, "went into a set of tight circles, rose like a rocket, and shot into the clouds." And this after he had already spent 4 hours slope soaring. His total time in the air for this flight to Lowestoft was 6½ hours.

Tuesday, July 12th, was patchy with little lift about: an occluded front passed over the site around lunch time, and the sky remained overcast. The only flight, at any rate, was that of R. P. Cooper in the "Rhönbussard," who reached Colchester, 58 miles away, after an aero-towed start.

GOOD CROSS-COUNTRY DAY

The first good cross-country day was Wednesday 13th, when 28 cross-country flights were made,



totalling 1,026 miles, and smashing the 1937 record day of 670 miles. Of these, 2 flights are worthy of special mention. The first, by Nicholson in the " Sperber," who flew the second greatest distance with his cross-wind goal flight to Lympne Aerodrome, 87 miles, where he made the regulation circuit before landing at 110 m.p.h., flashing past ordinary aeroplanes with the greatest of ease. This flight won him one of the 2 daily prizes; the other going to J. S. Fox, who took the " Rhönadler " 95 miles to Norwich Aerodrome, the longest goal flight of the meeting, and the longest club-to-club flight that had yet been made. It is interesting that these two flights, both made around the same time, varied approximately 90° in direction, but perhaps it was because Collins's old " Rhönadler " has always remained faithful to the sights and scenes of her first successes, the " flat dark land to the East."

The third best flight was that of Iago Pasold, who flew to Ipswich in his " Rhönbussard," another goal flight, of 74 miles.

TRIANGULAR COURSE

After Wednesday's effort, the weather subsided somewhat sulkily on Thursday, only three short cross-country flights being made. There was, however, mild local excitement produced by the race for the Seager Trophy, given for the greatest number of laps round a triangular course roughly 1½ miles in length. The two chief contestants were F./Lt. R. H. Shaw flying a " G.B. II," and G. O. Smith in the Derby and Lancs. " Gull." On the afternoon of the last day, the two machines lay equal, due to the masterly flying of Shaw, but unfortunately he had to finally retire with a broken tail stud, leaving the " Gull " to carry off a few more laps, and the Trophy.

Friday and Saturday can easily be dealt with together, as due to that low cloud, rain, and general stability nothing of note happened at all. Competitors hopefully got themselves launched, and then did little else but land again.

TEAM WORK

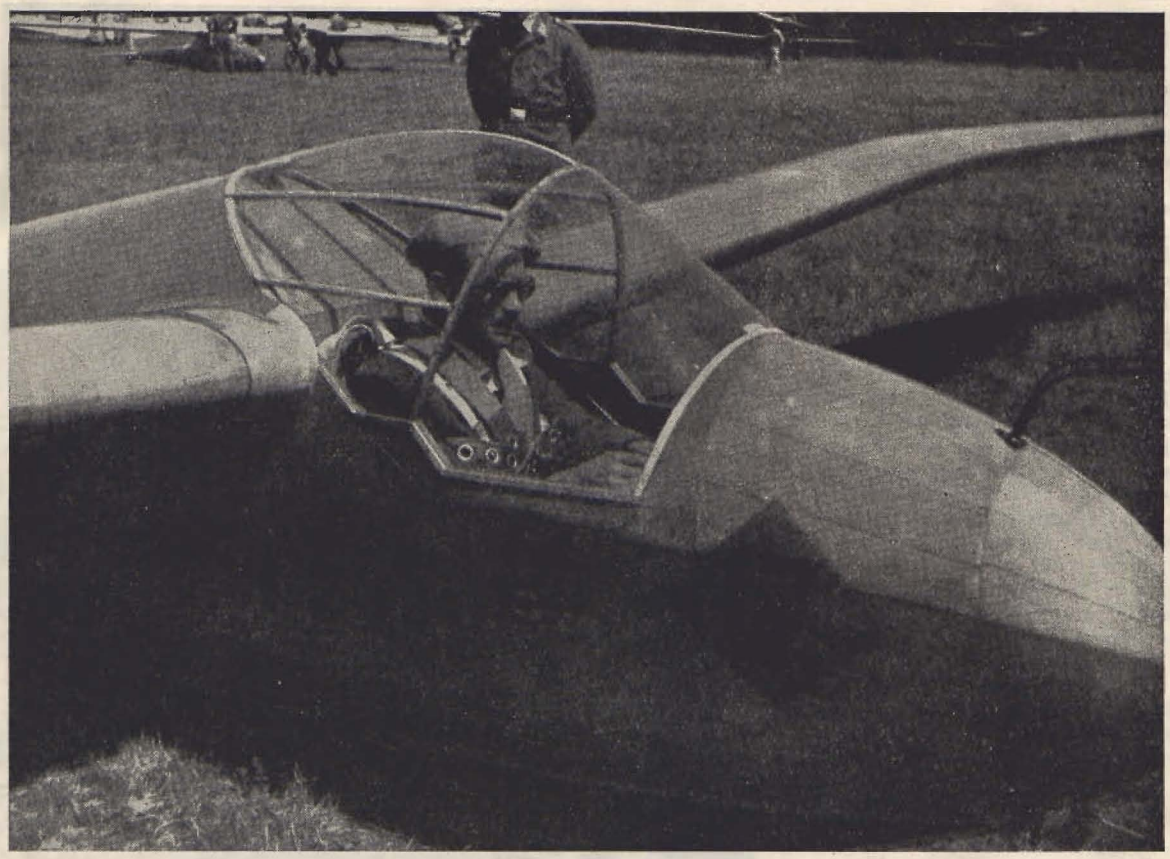
On Sunday 17th, the last day, cross-country conditions reappeared and 42 flights, totalling 737 miles, were completed. The figure of 42 flights should be noted, as there were only 28 machines actually competing: the team work in getting cross-country machines dismantled, retrieved, re-rigged, and launched once again, so that another pilot could attempt a better flight during the same day, must have been of a very high order. The best flight of this day was yet another goal flight, this time to Ramsgate, 91 miles, by Sqn.-Leader Watt in the " King Kite." This increase in long goal flights under only average conditions was a clear pointer to the increasing skill of the British sailplane pilot. It is relatively easy to just fly away down-wind, and land when the lift gives out, but goal flying requires an exact knowledge of one's whereabouts almost from minute to minute, and may entail working one's way far across wind in order to keep to the desired course, sometimes even returning several miles to go round a blank patch,

(*Continued on page* 18)



Photo: A. E. Slater.

Two sailplanes soaring just beneath a cumulus cloud, getting lift from the upcurrent which produced the cloud.
At National Contests at Dunstable, July, 1938.



A. E. Slater.

G. O. Smith in cockpit of "King Kite" Sailplane at the International Contests in the Wasserkuppe, July, 1937.

Pioneers of British Gliding.—II

THE "GOLDEN WREN" TEAM

THE "Golden Wren" has its place in history as the sailplane which opened up the hills of Derbyshire to soaring. Based on an inspired design of W. L. Manuel, it was built in a Matlock garage by two of its three owner-pilots: Gerard O. Smith, of the Rolls Royce works at Derby; and A. Louis Slater, owner of the garage (no relation of the present writer, who has often been the recipient of undeserved congratulations on his namesake's prowess).

The third owner-pilot, R. G. Robertson, started training at the London Gliding Club early in 1930; his certificate is No. 22. He passed the "C" test in twilight on July 8, 1931, landing by the light of car headlamps, and was the fifth British *ab initio* glider pilot to learn to soar. Being a construction engineer, he supervised the erection by club members of their first hangar and, later, of the original wooden clubhouse.

DUNSTABLE

Smith and Slater also received their early training at the London Club. For this purpose they would motor all the way from Derbyshire to Dunstable and camp there at week-ends, each bringing a small son, who will have grown up and become airborne before this story is finished. The two fathers persisted, off and on, from 1931 to 1933. Smith got on quicker at first and kept a "Pruefling" up for 4 minutes on February 7, 1932, but Slater obtained his "C" on October 14 the same year, whereas Smith had to wait till April 2, 1933, before one of his visits coincided with a soaring wind and he flew a "C" at last.

In August, 1933, Slater presented the club with a "Dickson Primary" which he had built, presumably, for a Matlock Gliding Club founded by him three years earlier. This gift was welcomed by all present except a dog, who seized a flying wire between his teeth as the machine was taking-off next day and caused a fracture of the rearspar—the dog it was who took off!

THE "GOLDEN WREN"

The pair of "C" pilots now became domesticated, deserted Dunstable, and devoted all their spare time to building the "Golden Wren." Before it was finished they were joined by Robertson, who had taken up a teaching job at Nottingham University within easy reach of Derby.

The "Golden Wren" was finished just in time for the 1934 National Contest at Sutton Bank. Here Robertson performed its

maiden soaring flight on September 3. The other two had their turns, then on the 7th Robertson made an out-and-return flight to Ampleforth, 5 miles each way. The machine also won the prize for aggregate duration that day. Two days afterwards Robertson won another Daily Prize by doing seven circuits round a prescribed course, after which he climbed to 2,000 feet, toured the countryside upwind under a cloud, contacted the hills again at Osmotherly, and got back to Sutton Bank after a round tour of 30 miles.

DERBYSHIRE GLIDING CLUB

By this time a Derbyshire Gliding Club had been founded, as a successor to the defunct Matlock Club. While waiting for a club trainer, the " Golden Wren " team put in two months exploring the Derbyshire hills and their upcurrents. Cocking Tor, near Ashover, was found to provide lift to over 500 feet in an east wind. At the Weaver Hills Slater practised his first circles and Smith rose 1,200 feet under a cloud. From Riber Castle, overlooking Matlock, Slater soared over his home town. Rowsley Bar was also tried, and later Mam Tor.

Then, in November, the Club " Primary " turned up, and Smith got to work as Chief Instructor. But on windy days the " Wren " still had preference, and on November 25, 1934, Robertson pioneered a site which was afterwards to become famous, when he took off near the Barrel Inn on Eyam Edge (not Egham, as printed under last month's photographs). Slater followed and got round the corner into the lift over Bradwell Edge, but it was impossible to launch off Bradwell Edge itself until the walls could be pulled down.

Negotiations for acquiring this magnificent site were started in February, 1935. In May the " Gliding Section of the Manchester Branch of the Royal Aeronautical Society " brought their " Pruefling " secondary machine, which B. A. G. Meads soared to 700 feet, and two months later the Manchester and Derby Clubs had amalgamated, and one of Britain's leading gliding clubs became established.

" SILVER C "

The " Golden Wren " had now entered the " Silver C " business. On June 11, 1935, Robertson took



A. Louis Slater in the cockpit of " Condor." *A. E. Slater.*



R. G. Robertson, Britain's Third " Silver C. " *A. E. Slater.*

off from Eyam Edge, set off across country, dropped down to 100 feet above a hill at Stockbridge, slope-soared till another thermal rescued him, climbed to cloud base at 4,000 feet, and finally landed near York after covering 52 miles. He was awarded the " Silver C " on July 20, being No. 75 on the international list and the third British pilot to get it.

The flight also won him the " Cellon Prize " of £50 (?) for the first flight of 50 miles by a glider of British design and construction ; it was offered, I believe, just after the Itford meeting of 1922 !

At the 1935 National Contest at Sutton Bank the " Golden Wren " carried off the first two altitude prizes in Class II (small-span sailplanes), Robertson getting to 3,000 feet and Slater to 2,900, and Smith took the opportunity to put in a 5-hour flight towards the " Silver C." He had already made an attempt on the distance test in July, but only got 17 miles, chiefly because the leading edge of the wing blocked his view of the clouds above ; this was therefore remedied, and a transparent leading edge incorporated with an enclosed cockpit.

LONGEST BRITISH FLIGHT

Slater spent the next winter producing a mobile winch for the new club, ready for the great Easter Meeting of 1936. At this meeting Smith made a gallant attempt to win the *Daily Dispatch* £25 prize for the first flight to Woodford aerodrome, 15 miles away ; he got within sight of it but had to land after 13 miles. Slater was stuck on duty at his garage throughout Easter, but rebounded into the air on April 19 with a spectacular flight of 73 miles to Gosberton Clough, near the Wash. During this, the longest flight yet done on a British sailplane, he reached 4,500 feet.

The remaining " Silver C " test, the 5 hours' duration flight, was polished off by Slater on September 2 during the National Contest, and he received certificate No. 291 on September 18. The Contest, held this time at the Derbyshire and Lancashire Club's site, resulted in " Golden Wren " winning the "team aggregate prize " with a total of 19 hours 6 minutes flying during the meeting. On the first day it had been looped three times by Robertson.



A. E. Slater.

The "Golden Wren " Sailplane.

COBB-SLATER VARIOMETER

It was now Smith's turn to complete the " Silver C," a feat he performed by taking the " Wren " 58 miles from Mam Tor to Ruabon (Wales) under the front edge of a remarkably persistent cumulonimbus cloud. His ability to keep in the best lift was due to the " Cobb-Slater Variometer," invented by Louis Slater in conjunction with a Matlock instrument maker, and not at that time put into production. This ingenious instrument, in which a stream of air supports a coloured ball in a conical tube, is so much more sensitive than the old membrane-and-dial type that its use has spread around the world.



A. E. Slater.

Godfrey Slater who competed in the National Contests at the age of 15.

Smith's " Silver C," granted on October 16, 1936, was the 298th international and the 11th British one.

After this the trio gradually showed signs of growing out of the " Wren " stage ; in fact, Robertson had already flown the " Rhoen-adler " at the 1936 Contests. In the following year, although the machine was again entered, and was flown 30 miles to Doncaster by Slater, all three secured shares in Eustace Thomas's " Condor II," a high-performance German type.

INTERNATIONAL TEAM

Another event of 1937 was the International Contest on the Wasserkuppe. Robertson and Smith were considered for the British team, and put in some practice on Wills's " Hjordis," but when the number of pilots was reduced from ten to eight, Robertson lost his place in the team. Smith was then appointed to one of the " King Kites," but had no chance to fly it in the Contest, as his co-pilot crashed it on the very first day.

At the end of the year Robertson set sail for Quetta, in order to help in rebuilding it after the earthquake ; alas, he has done no soaring since.

By this time Godfrey Slater, son of Louis, had reached the age of 14 and was allowed to start gliding. He passed his " A " test on April 12, 1938, and " C " on June 8, and the following Easter, on April 9, 1939, he carried out a cross-country flight of 14 miles from Leicester to Nottingham, partly inside a cumulus cloud, after his second aero-towed launch. Godfrey became a meteorologist when the war started, then transferred to flying, but we are sorry to have to record that he has lost his life on war service.

Gerry Smith's son reached the age of 14 in 1939, and obtained an " A " Certificate in May. Robertson provided British gliding with a younger cousin, who obtained his " Silver C " in 1937.

And now, it seems, the day of the " Golden Wren " is over. Its builders have been flying " Kites," " Gulls," " Condor " and " Minimoa," and I doubt if they will ever return to their old love. Romance must always give way to Progress.

A. E. S.

ABRIDGED GLOSSARY OF SOARING TERMS

Edited by ICARUS—*Continued.*

Panels, Detachable.—Small pieces of plywood or aluminium of markedly inferior performance. This can be observed by ground crews immediately subsequent to the take off.

Pedals, Rudder.—Hinged structures placed some distance forward of the pilot's feet. In club machines they are adjusted at a special angle to make the usual discomfort even more acute, thereby ensuring the machine's return after a short period for the benefit of waiting members.

Rigging.—The only surviving custom of the Spanish Inquisition but has been further elaborated by up-to-date mechanical knowledge. The latest innovation of course has been the introduction of " special tool kits." It is rash to assume any machine as being properly rigged unless one's entry to the cockpit is prevented by sundry wires and struts.

Retrieving.—Two methods are known, the pre-war and the one now in force. In the pre-war method one had a good car for the job and exercised a little patience. In the present method one prays for a good car and learns to be patient.

Spares.—See **Skids.**

Skids. — Long pieces of ash attached to the lower side of fuselage in such a way that the damage is easily inspected after a landing with slight drift. In many cases " with slight drift " can be deleted.

Struts.—Metal or wooden members inserted between the wing and fuselage on certain sailplanes. Their precise function is unknown, but it can be categorically stated that " they have practically no effect on the performance." The above sentence does not hold good when one tries to trade in a strut-braced for a cantilever machine.

Thermals.—Rising currents of warm air of particular advantage to the cross-country pilot. They are very perverse by nature and invariably become most active when the machine is being repaired or the winch cable has broken.

Trailer.—A vehicle specially designed so that it cannot be reversed by drivers of normal skill. In cases where, by super-human concentration, the driver thinks he can reverse the trailer it will be found that his enthusiasm is wasted —the trailer manufacturers, with diabolic foresight, having arranged an automatic brake.

Variometer.—An instrument of great antiquity ; reliable data seems to indicate that the first working variometer was built by Baron Munchausen. In the older types of instrument which are coupled to a thermos flask no good purpose will be served by filling the thermos with coffee.

Varnish.—A pale viscous fluid with good adhesive properties. When used to obtain high gloss finishes will be found to have a strongly marked affinity for dust, shavings and finger-prints.

Washout.—A common occurrence in gliding activities generally attributed to the club's meteorological expert having consulted the wrong sort of glass. Also a term used by technicians when measuring wings on machines they intend copying.

(*Continued on page* 15)



Orders can now be accepted for post-war delivery of the " Olympia " Sailplane. Production of this machine will continue until it is decisively out-performed.—presumably by one of our own later types.

An announcement about our full range of machines will be made as soon as conditions permit us to put into action our plans for co-operation with the post-war soaring movement.

CHILTON AIRCRAFT, HUNGERFORD, BERKSHIRE, ENGLAND.

SOARING METEOROLOGY

By J. A. SIMPSON
President, Soaring Association of Canada

III—ATMOSPHERIC INSTABILITY

In previous sections we have discussed the various ways in which surface winds may be utilised by the glider pilot. It should be recognised, however, that most soaring is carried out independently of surface winds, which are now utilised principally for soaring training and for starting; it is only rarely that the pilot descends low enough on a cross-country flight to make use of direct hill lift.

Most soaring is carried out in vertical currents which are directly due to atmospheric instability, and which may, is some cases, be indirectly caused by surface effects, but which are more often quite independent of conditions on the ground.

THE LAPSE RATE

The atmosphere is said to be unstable when masses of cold, dense air lie over masses of warmer, and therefore lighter air. A balance may be temporarily maintained, but the least disturbance will start large scale movements in the air in an attempt to achieve a more stable state.

The atmosphere receives most of its heat by radiation from the earth—the water vapour in the air has little effect on the short wave (light) radiation from the sun, but stops the long wave (heat) radiation from the earth. The result is that the air is heated from the bottom, and becomes cooler at great heights. This drop in temperature is known as the lapse rate, and its average value in the lower seven miles of the atmosphere is 3°F. per 1,000 ft.

Another result of heating from the bottom is that the atmosphere becomes less stable during the day time, and more stable at night. Thus soaring (even hill soaring in some cases) may be impossible in the stable air of early morning, but conditions will almost invariably begin to improve by 10.00 or 11.00 a.m. if the sun is shining, as the lower layers become warmer. This effect will be discussed at greater length in the section on Thermals.

ADIABATIC

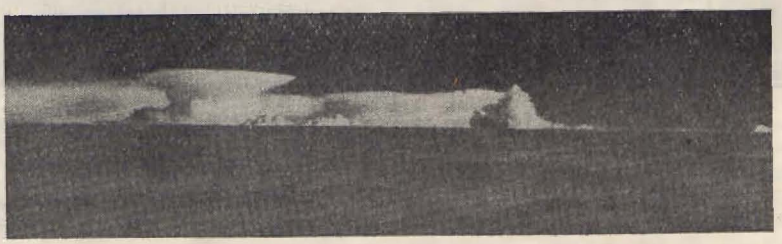
When a body of air is raised for any reason it expands, due to the decrease of pressure with altitude, and as it mixes very little with surrounding air, it cools almost adiabatically (that is with no change in total heat) at the rate of 5.4° F. per 1,000 ft. rise (for dry air). This is greater than the average atmospheric lapse rate of 3°F. per 1,000 ft. mentioned above, and thus, even if the body of air started rising because it was warmer than the air around it, under these conditions it would soon cool to the same temperature as the surrounding air and stop going up.

However, the atmospheric lapse rate is frequently greater than this average value, particularly near the ground on sunny afternoons. If it is greater than the " adiabatic lapse rate " of 5.4°F. per 1,000 ft. the atmosphere is unstable, and air that has once started to rise will continure rising, because the original temperature difference will be maintained, or even increased. Such conditions are particularly favourable to soaring flight, as up currents, once started by hill interference or thermal effects, remain strong and reach great heights.

As stated above, the night air is usually stable, and instability starts when the sun gets high enough in the morning to warm the earth. A thin layer of air near the earth is first heated, and as the day progresses this becomes thicker due to wind turbulence and thermal rising until it may extend



A thermal cloud photographed by a Recce Plane over Germany. Developing base of the cloud was at 4,000 ft., top at 31,000 ft.



A typical anvil formation.

to five or six thousand feet. The lapse rate in this layer may be very high.

INVERSIONS

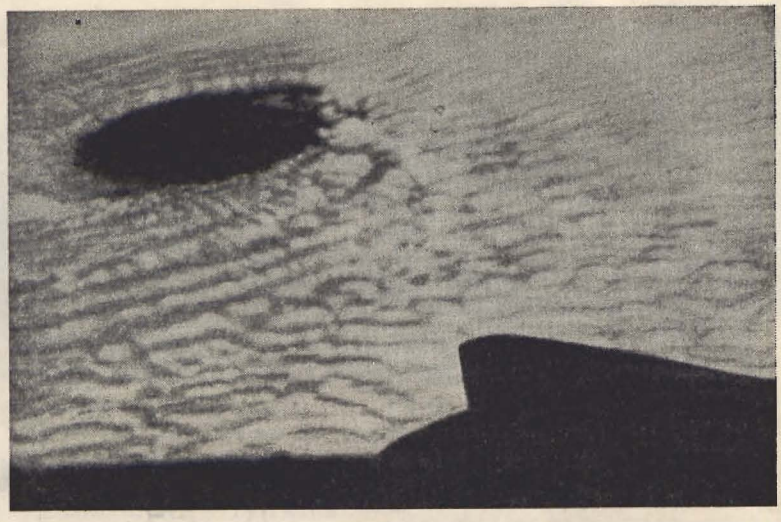
Under certain conditions the lapse rate may be negative, *i.e.* the temperature may *increase* with height, usually in a comparatively thin layer of the atmosphere. Such a layer is known as an inversion, and is very stable. If an inversion occurs at some distance above the ground (usually due to air overcoming a colder layer) it will stop vertical currents coming up from below. The former type of inversion is often indicated by a ground fog, and is soon " burned off " by the sun. The latter type is indicated by an " anvil " top on cumulus clouds, if they are present, and may persist.

AREAS OF " SINK "

As stated above, unstable air tries to reach a state of equilibrium by vertical mixing. Near the ground this may be achieved by thermal currents or wind turbulence. At greater heights, or if there is insufficient wind or obstruction to promote turbulence, mixing occurs by means of regularly spaced up and down currents of cellular pattern up in the centre and down around the sides, the down current area being approximately four times the up current area. The up currents are therefore about four times as strong as the down currents. These vertical currents have nothing to do with surface generated thermals. If cooling in the up currents reaches the dew-point, small circular clouds are formed in the case of each cell, and may be seen as a very regular pattern in the sky. Under certain conditions the down current forms the case of the cell, and the cloud will appear as a sheet with regularly spaced holes in it—in reality a series of rings touching at the edges. In either case, lift will be found under the clouds, sink under the open spots. However, the lift in this case will not be very strong.

WHEN TO LAUNCH

When these cellular vertical displacements reach to the surface of the earth they are made evident by regularly spaced lulls and gusts in the surface wind, as the wind blows horizontally from the down current area radically inward to the up current core. The up current will pass over the observer after the lull and before the gust. A glider may be launched to reach this up current.



A curious hole for Downdraft. The strato-cumulus extended for hundreds of miles off the west coast of Ireland.

When a mass of cool air blows over a warmer mass, rising occurs in rolls, with the axis of the rolls parallel to the relative wind. Alternate rolls rotate in opposite directions, and therefore up currents occur between every second pair of rolls. These are indicated by long, parallel rolls of cloud, and a sailplane may make use of such currents to fly for long distances directly down wind or up wind without circling.

If the relative velocity between two over running air masses is very low, the rolls will form at right angles to the relative wind. If clouds are present these perpendicular rolls may be distinguished from the longitudinal type by their branching and sinuous lines, whereas the longitudinal rolls are straight and parallel.

NOT ONLY CUMULUS

The formation of the strong vertical currents associated with cumulus and cumulus - nimbus clouds, which often lead to local thunder showers, will be discussed in the section on thermals. However, it is desired to point out here that strato-cumulus cloud forms often indicate large regions of up currents just as strong as those under isolated cumulus clouds.

It is impossible in this short space to do more than give an idea of the type of weather suitable for soaring. Anyone interested in learning soaring meteorology will read and re-read all of the articles referred to below. A thorough knowledge of the weather conditions producing vertical movements in the air, and of the cloud forms by which these conditions may be recognised, is essential to success in soaring.

One further point of interest: instability in the lower layers is greatly promoted by high humidity, as moist air intercepts more radiation from the earth, and therefore gets warmer than dry air. A large body of water up wind increases the humidity of the air passing over it. Thus the presence of lakes up wind of the gliding site should greatly improve thermal soaring conditions there, particularly in the dry air conditions following passage of a cold front.

References :

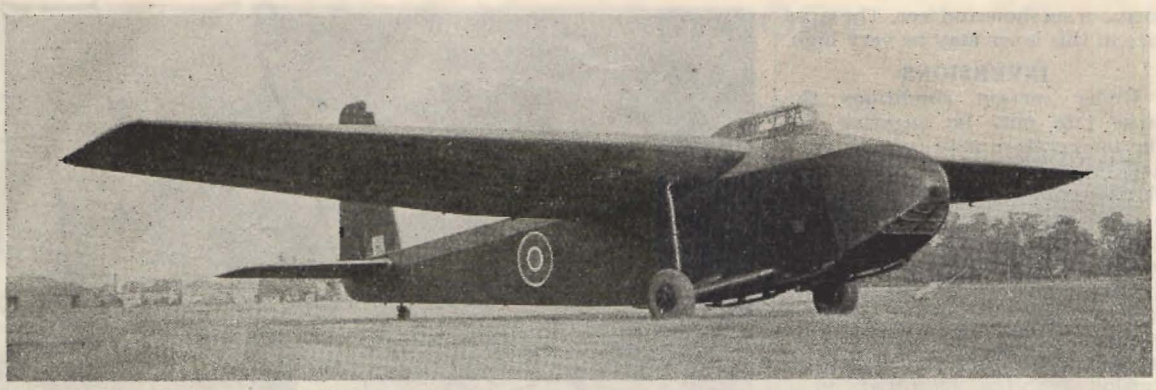
1. Cloud Formation and its Effect on Gliding, by Sir Gilbert T. Walker, Journal of the Royal Aeronautical Society, Vol. XXXVII p. 657.

2. Cloud Reading for Pilots, by Ann C. Douglas, 1943—pub. John Murray. Glider pilots must have this book.

3. The Meteorological Aspects of Gliding and Soaring Flight, by Capt. F. Entwistle, 1931, Jour. Roy. Ae. Soc., June, 1931.

4. Measurements of Vertical Air Currents in the Atmosphere, by K. O. Louge, 1931. U.A.C.A. Technical Memorandum No. 648.

5. Soaring Meteorology, by Sir Gilbert T. Walker, Quar. Journal of the Royal Meteorologcial Society, January, 1937.



TANK CARRYING GLIDER

THE " Hamilcar " Glider is the second contribution made by General Aircraft Ltd. during the war period to meet the requirements of the Airborne Division. It was preceded by the " Hotspur " Glider, designed to carry eight men and equipment and which eventually became the standard glider trainer for the Airborne personnel. The all-up weight of the " Hotspur" is 3,600 lbs. The "Hamilcar" which weighs 36,000 lbs. fully loaded, therefore constituted a major design development.

DESIGNED IN 1944

After preliminary conferences and design studies the general lay-out for the " Hamilcar " was finalised early in 1941. It was considered advisable to design and construct a half-scale flying model. A design team of over 100 draughtsmen and 20 technicians was allocated to the complete task and the resources of the Royal Aircraft Establishment and the National Physical Laboratory were made available to provide structural and wind tunnel test data. The prototype was designed and built in twelve months and successful test flights were made in the early spring of 1942. Flight trials were completed in 3 weeks.

LARGEST WOODEN AIRCRAFT

The " Hamilcar " is the largest wooden aircraft ever constructed. It was designed to carry heavy armoured vehicles, or combinations of vehicle equipment. For this to be done with structural and aerodynamic efficiency, it was necessary to select a wing loading much greater than anything previously contemplated for a Glider—21.7 lbs./sq. ft.—and the aircraft took on itself more the character of an aircraft without engines as opposed to the popular conception of the lightly loaded sailplane of pre-war years. With it developed the technique now so well appreciated in airborne operations—that the time taken to land after release from the tug aircraft should be a minimum, so that the glider is exposed to fire from the enemy ground defences for as short a time as possible. One noteworthy feature of the " Hamilcar " design is, therefore, the large and powerful wing flaps, operated by servo-pneumatic means, which enable the pilot to control at will the angle of glide, and to effect a landing in a confined space.

FOUR-ENGINED TUGS

Because of its great size, the " Hamilcar " needs our largest and most powerful four-engine bombers to act as tug aircraft, and the " Halifax " has an excellent operational record in this capacity. Apart from the engine power available in the tug, the successful take-off of a heavily loaded glider depends on the total weight of the tug-glider combination. Consequently every effort had to be made during the design to keep the " Hamilcar " structure weight within strict limits. This was done with such effect that the aircraft came out 800 lbs. lighter than the original estimate. The " Hamilcar " is able to carry almost its own weight in the form of military load.

NOSE OPENING DOORS

The decision to design the " Hamilcar " as a high wing monoplane with a nose-opening door was to ensure that, with the aircraft lowered on to its skids, armoured track vehicles could be driven straight out without needing special ramps. They could, therefore, be in action in as little as 15 seconds after the aircraft had come to rest. To assist in this rapid exit, the vehicle engine is started up in the air prior to landing, the exhaust pipes having temporary extension pipes to the outside of the aircraft, which disengage as the vehicle moves forward. In the case of tank and Bren gun carrier loads it has been arranged that the anchorages, which hold the vehicles securely in place in the aircraft, can be discarded instantaneously by pulling a lanyard from inside the vehicle. The forward movement of the vehicle then operates a mechanical device which frees the nose-door lock and automatically opens the door.

DIFFERENTIAL WHEEL BRAKES

Originally the " Hamilcar " was intended to make skid landings when used for military operations. For this purpose it had a special chassis for take-off which could be dropped by parachute (the chassis weighs ¾ ton). For more normal purposes the aircraft is fitted with a permanent undercarriage. The development of the strategy of airborne landings, however, caused a change in technique. The possible landing sites during an operation

are usually very restricted, and, in order that they may be used by the maximum number of gliders, they must be kept clear. It was, therefore, desirable that the aircraft should land on its normal chassis and use its speed, combined with differential wheel brake operation, to steer itself clear of the landing strip. Immediately it came to rest, high pressure oil in the chassis shock absorber struts was released, causing them to telescope and permit the aircraft to sink on to its skids for the vehicle inside to drive out.

LOADS

The variety of equipment which the " Hamilcar " can carry presents a formidable list and it is continually being augmented. Up to a military load of 17,500 lbs. (7.8 tons) it includes :—

Tetrarch Mk. IV Tank.
Locust Tank (American).
2 Bren gun universal carriers.
3 Rota trailers.
2 Armoured scout cars.
17 pdr. Anti-Tank gun with portee vehicle.
25 pdr. Gun with portee vehicle.
Self-propelled Bofors gun.
Jeep and Universal carrier with slave batteries.
Universal carrier for 3" mortars and 8 motor cycles.
Bailey pontoon bridge equipment.
48 Panniers containing equipment and ammunition.
Airfield Construction Equipment.
D4 Tractor with Angledozer.
Scraper with Fordson tractor.
Grader.
HD.10 Bulldozer (carried in 3 " Hamilcars ").
HD.14 Bulldozer (carried in 3 " Hamilcars ").

The design and construction of the basic aircraft has only been part of the whole problem. Each variation of load has required special study in respect to anchorage equipment. With heavy and dense loads there must be no movement during flight.

CONTROLLABILITY

Special praise is due to the expert team of works personnel who have been operating up and down the country on the various aerodromes to which " Hamilcars " were allotted. It has been their task to instal the formidable series of modifications entailed by the variety of military loads and to be on hand at all times, to advise and instruct the R.A.F. and Airborne Division personnel. During the period prior to " D " day they played a considerable part in the final preparations.

A final word for the pilots of the Glider Regiment and the men of the Airborne Division who flew in the " Hamilcar." They liked the aircraft, they liked its controllability, they felt safe in it in the event of a crash landing and learned to handle it extremely well. Their confidence and ability put the ultimate seal on the success of the " Hamilcar " in Normandy and later at Arnhem.

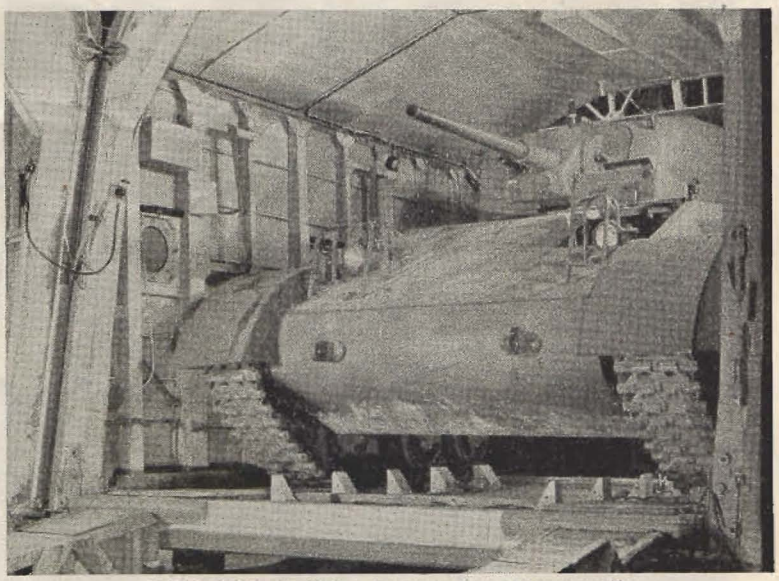
" HAMILCAR " DETAILS

Wing Span	**110 ft.**
Overall Length	**68 ft. 1 in.**
Fuselage width (external)	**9 ft. 3 ins.**
Wing Area	**1,658 sq. ft.**
Wing chord at root	**18 ft. 6 ins.**
Wing thickness at root	**3 ft. 8 ins.**
Local carrying space in cabin	**25 ft. 6 ins. long x 8ft. wide x 7ft. 6 ins. high**
All-up weight	**36,000 lbs. (16.1 tons)**
Empty weight	**18,500 lbs. (8.3 tons)**
Military load	**17,500 lbs. (7.8 tons)**



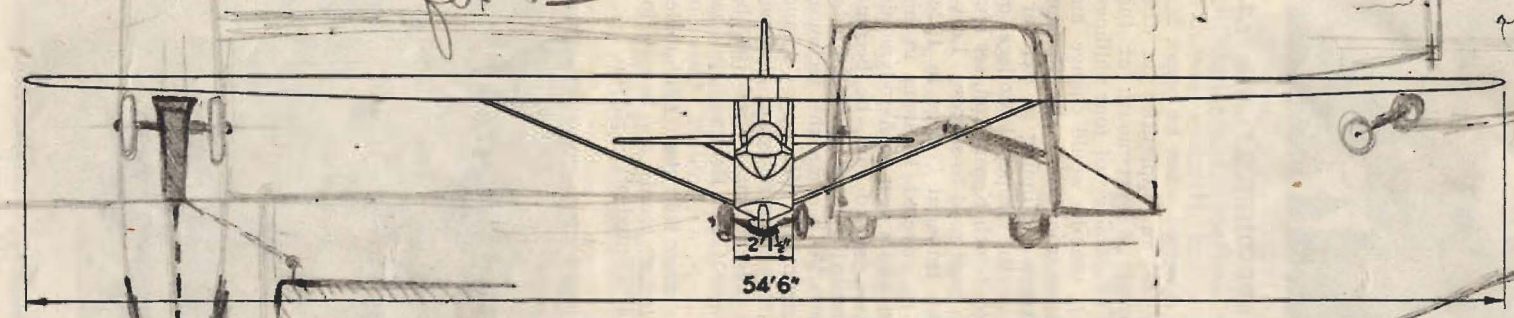
F. F. CROCOMBE, B.Sc., F.R.Ae.S.

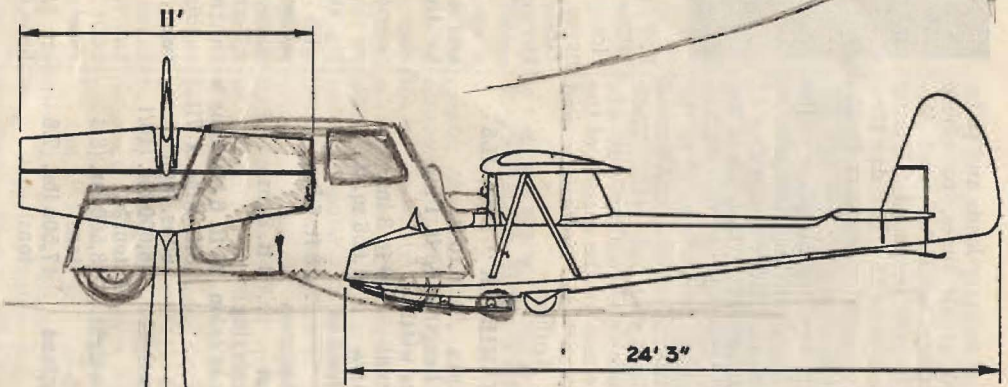
The brilliant designer of the Hotspur and Hamilcar probably never dreamed when he began his career as an apprentice in the Dockyard at Portsmouth at the substantial salary of four shillings a week, that he would change his ambitions from building battleships to barges. Winning a scholarship at the Imperial College of Science, South Kensington, set him on the high road to success. Leaving the Imperial College in 1926, with its coveted Diploma in his pocket and a year of Aerodynamic Research behind him, he became a Technical Assistant with Fairey's. In 1929 he became the technical engineer for the Monospar Co., and two years later Assistant Designer to his present firm. Since 1933 he has been Chief Designer and has built up a brilliant team of specialists to help him. His hobbies are cricket, tennis and music, for he is a talented piano player.



" TETRARCH " TANK INSIDE A " HAMILCAR."

Sample of cable for Drawing + welding.





TYPE 20

SLINGSBY SAILPLANES LTD.,
KIRBYMOORSIDE,
YORKS.

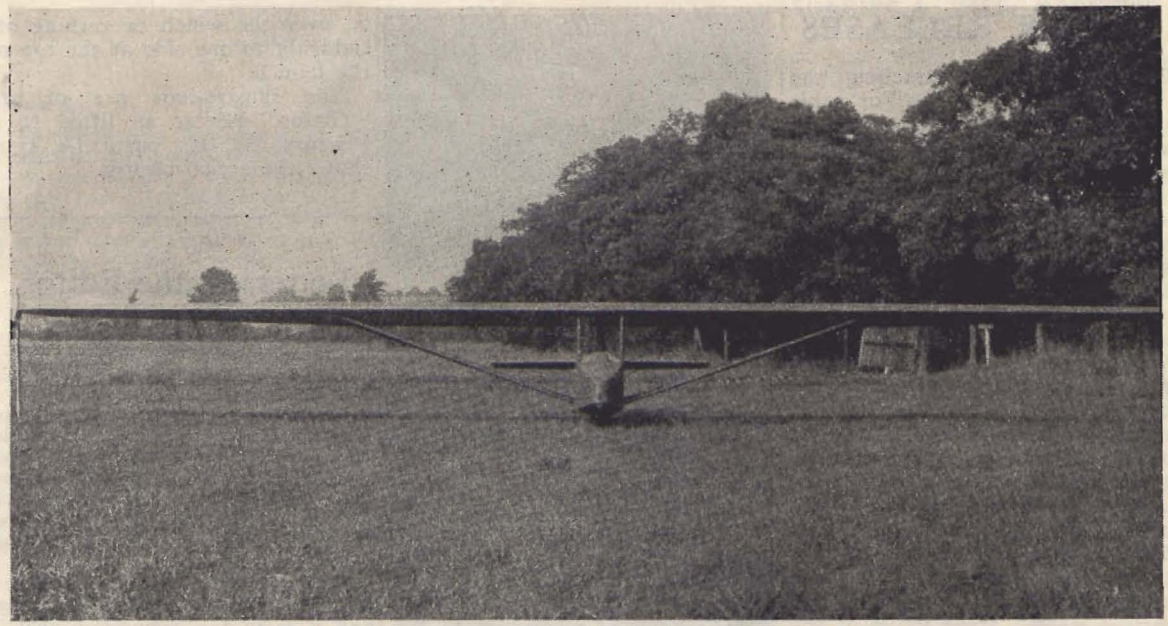
TANDEM TWO SEATER



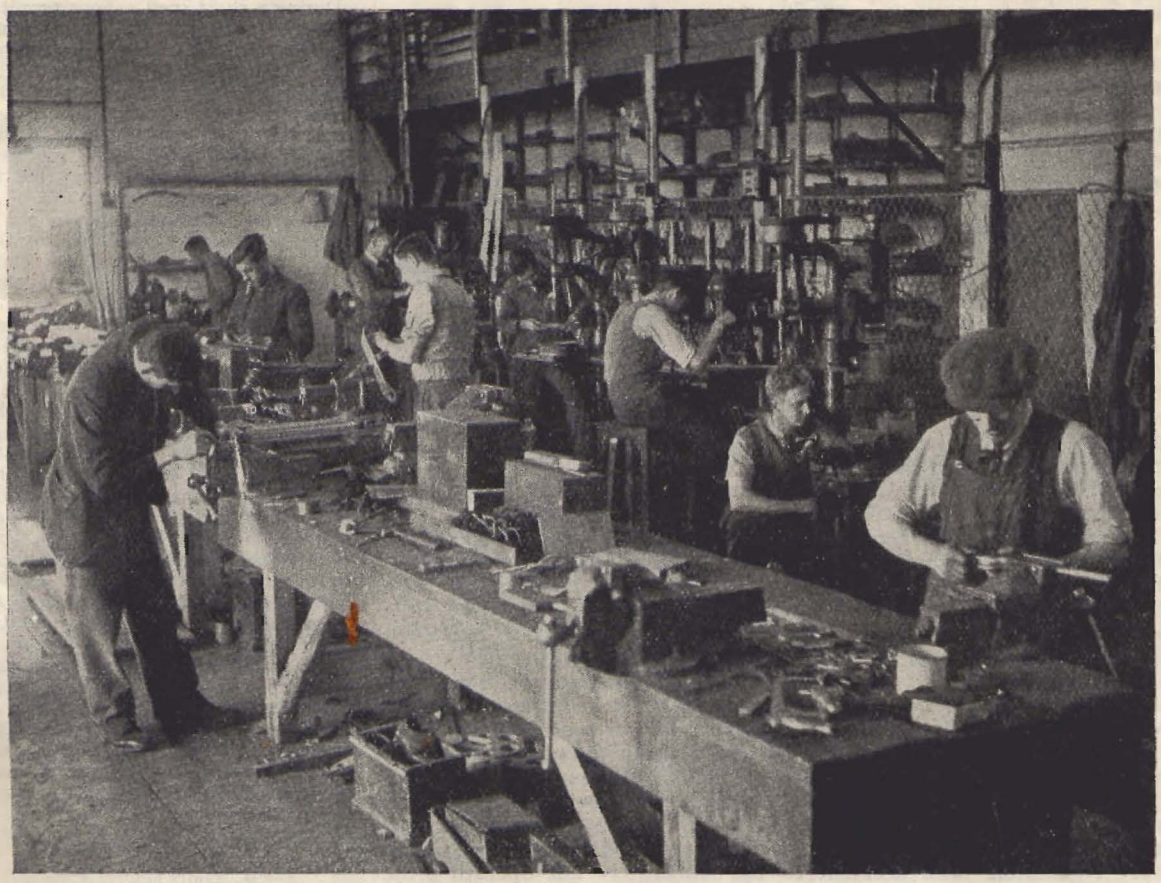
The latest "Slingsby" Tandem Two-seater Training Glider known as the "Type 20"

Span - - 54' 6" Tare weight 507 lbs.

Aspect ratio 10 Best flying speed 35 m.p.h.



Type "20" Tandem Two-Seater.



Slingsby's Metal Shop.

GLIDER RELEASES

THE method of attaching the launching " bunjy " or cable to a glider has gradually evolved as the style of launching has advanced.

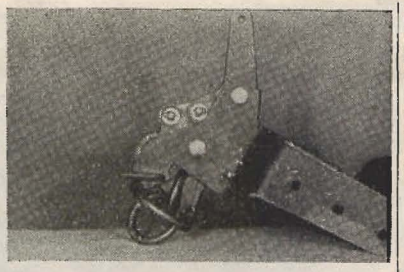
In the days of " bunjy " launching, an open hook at the nose facing downwards was a simple and safe fitting which required no attention and no thought on the part of the pilot, for the ring just fell off as the tension slackened. When winch launching came into prominence, open hooks soon became obsolete because any unsteadiness on the part of the winch or the glider might allow the ring to fall off sometimes with very awkward results. The " closed hook " then appeared in numerous forms, all of which aimed at two things—(1) a firm dependable connexion and (2) a positive and certain release, irrespective of the strength and direction of the pull.

These two requirements were fairly simple to attain separately, but the combination called for all sorts of ingenious ideas which more or less finalised before the war in the type of release requiring a pair of rings, one large and one small at the end of the cable, to be inserted through a circular orifice on to the actual hook.

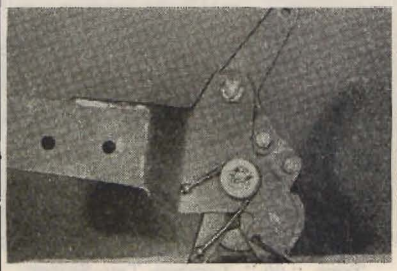
MODERN TYPE

This release was certain and positive *if* used properly, *i.e.* providing two interlocking rings of the correct sizes were used on the cable and providing the release was so placed that these rings could function properly. The two rings on the wire and the circular orifice formed a sort of universal joint so that no matter what the direction of pull, the load on the hook was always in the same direction. When the release was operated, the hook was positively withdrawn from the small ring and at the same time the small ring is pushed partly out of the body of the release, eliminating almost all possibility of jamming.

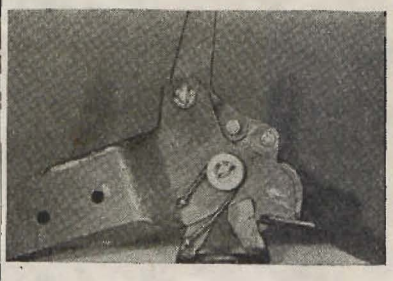
An improvement on this type was the positive locking of the hook by " knee action " levers so that no normal pull could force the hook open, yet it would open readily at a pull by the pilot. This combination seemed ideal until the very regrettable fatal accident to Frank Charles made it obvious that an automatic release was desirable to avoid the rare possibility of a pilot forgetting to " pull the plug " or inadvertently pulling the wrong one.



No. 1. The release at rest in normal flying position.



No. 2. Manual release operating.



No. 3. The " automatic " in action.

AUTOMATIC

The " Ottfur " release originated by Squadron-Leader Eric Furlong, and perfected and brought to a practical state by Mr. Ottley, does all the things required as explained above, and in addition has a very simple and definite automatic release action if and when the cable is pulled from *any* direction more than 90 from the normal direction of flight. It has been tested by many thousands of launches, and S/L Furlong has on many occasions demonstrated the automatic action by deliberately not operating the release and either flying straight on over the winch or turning off suddenly to one side at the top of the launch.

The illustrations are of an " Ottfur " release as fitted to a Primary, as this particular type shows the action clearly.

Letters to the Editor.

AT ANCHOR.
27/1/45.

DEAR SIR,

Please accept my hearty congratulations on keeping the SAILPLANE in an up-current during the past twelve months. It is a God-send to fellows like myself who have not felt the stick for more than five years and who have little chance of talking with other enthusiasts.

No doubt others besides myself are thinking in terms of post-war gliding, and it is in this connection that I venture to offer criticism. Either very little is being done, or it is being done on a hush-hush policy.

During a short spell ashore recently I heard rumours of a powerful club being formed in the South with a large capital, but no details seemed to be forthcoming. Is it the fear of the scarcity of materials or what ? That there will be a great scarcity seems most probable, whilst new methods of construction become available to the few understanding their use.

Personally, I would like to see a Gliding and Soaring School run by the B.G.A., and independent of any club, where private individuals and club members can learn to glide, soar, or take advanced training, club fees being based on the type of certificate held by a member. Thus the cost of attending such a school would to a great extent be returned by the reduced cost of club membership. It should be possible for a member to complete his course in more than one term where circumstances prevent him from attending for more than one week at a time. Furthermore, this would enable us to recruit members from a new source of supply. I refer to the Merchant Navy, several of whom have attended gliding exhibitions in the past and have regretted that their calling prevented them from taking up a sport so close to sailing. I personally know a number of Merchant Navy officers and cadets who would willingly attend say, a two weeks' course if they were reasonably assured of gliding facilities during later spells ashore.

With best wishes for the future,

Yours sincerely,
CECIL PALMER.

54, GROSVENOR ROAD,
ALDERSHOT,
9/2/45.

DEAR SIR,

Doubtless you and many of the readers of the SAILPLANE AND GLIDER have seen Horsley's article in a recent AEROPLANE. Judging by the sudden rise in price of gliders and bits and pieces of same I should say quite a few people have taken it to heart.

However, I should like to enquire as to the basis on which the prices or value were calculated. I think it is pernicious, to say the least, to publish bald figures like this without some evidence of the way in which they were estimated. Labour costs, as can be seen from Government figures, have increased by some 50—70 per cent., the higher wages above this increase being accounted for by overtime, etc. In normal times the aim of workshop organization is to avoid overtime rates by completing jobs in scheduled time.

As regards materials, this is a different kettle of fish. The present situation is such that it is difficult to estimate costs. However, if costs are 75 per cent. above pre-war figures I think this may serve as a figure on which to base estimates.

I append a list of figures based on Slingsby's 1939 catalogue and Horsley's article. Assuming the per cent. profit on kits on complete account to be the same, the labour costs are seen to be from 40—45 per cent. of the total. Thus my own estimated costs for post-war gliders the price should be 160—170 per cent. of the pre-war.

The second table shows the increase according to Horsley. These vary from 170 per cent. to 240 per cent. of the 1939 figure ! Agreed, the higher percentages are for machines which require more labour, but this item seems to be smaller than material costs. I know the overheads have been neglected and doubtless the economists would pull me to pieces, but this is how the situation appears to me.

Yours sincerely,

ARNOLD PIERCE.

	Kit Cost.	Complete.	Labour, etc.	Labour, etc., as % of complete cost.
"Primary" ..	£35	£60	£25	42
"Kadet" ..	£55	£95	£40	42
"Tutor" ..	£56	£100	£44	44

	New, 1939.	Horsley's estimate.	% increase on 1939.
"Gull"	£188	£450	240
"Petrel"	£260	£500	192
"Grunau" replacement	£150	£250	167
Two-seat instructional .. ("Falcon III")	£220	£500	228

Strange discrepancy !

SOARING A "MILES MAGISTER"

Our Cover Artist, F./Lt. Robson, of the Newcastle Gliding Club, recounts in a letter to the Editor that in April 1942, he managed to climb from 4,200 ft. to 7,800 ft. in a "Maggie," engine throttled right back and with about ¼ to ⅓ flap down. There was a passenger as well, and the flight, which occupied 25 minutes, took place at the Northern end of Lake Thirlmere, with a very well-determined lift area. "But how I wish I had been in a 'Grunau'," concludes F./Lt. Robson.

(*Continued from page* 7)

Weight.—There are four forms of this expression, viz.: Quoted Empty, Quoted Loaded and Actual ditto ditto. To find actual empty weight add 50 lb. to quoted figure; to find actual loaded weight subtract 50 lb. from quoted figure.

(*Continued from page* 16)

One reason why flying never gets tiresome is the fact that no two flights are the same. There is always something that happens to present new problems or thrills. One of these thrills and problems combined is landing down-wind in a good stiff breeze of about twenty-five miles or better per hour. In addition to your forty or fifty miles per hour cruising speed, you have the speed of the wind added.

(*To be concluded*)

ARGENTINE NOTES

A NEW form of competition has been evolved in the Argentine which is having a great effect in stimulating the members of the Planeadores Albatross Club of Buenos Aires to greater efforts.

The competition is run on the monthly medal basis, with a Gold Cup for the best season aggregate. The season runs (in the Southern Hemisphere) from October 1st to April 30th. Points are given for height, time and distance, and members have to be in all three to qualify. The competition is limited to high-performance sailplanes so that a high level of competence is expected.

Below is the position at the end of the second month (November).

As each member's flight is superseded, it comes off the board and the better one goes on.

Two Silver C's were gained in the Christmas holiday period, four sailplanes flew to the same destination 80 miles away on one day and six on another day. One pilot, San Martin, believed to be flying the new "Spahlinger" sailplane, flew to Uruguay. Details of this flight are awaited and will be published in SAILPLANE in due course.

Mrs. Platt, after a disappointing start, including one "Grunau Baby" thermal flight of 23 minutes, finally encountered a thermal in a blue sky, and from a 1,000 ft. aero-tow launch rose to 9,000 ft. SAILPLANE readers cabled her their congratulations through the Editor. A gallant effort by the mother of four stalwart sons.

Height.		Metres.
Pagliere ..	26.11.44	1350
Widmer ..	28.10.44	1050
Noizeux	15.11.44	1000
Laplace	25.11.44	1000
Laplace	10.12.44	900
Widmer ..	12.10.44	800
Pagliere ..	8.12.44	700
San Martin ..	12.10.44	650
Widmer ..	25.11.44	520
Galusser	13.10.44	500

Distance.		kms.
Finochietti ..	9.12.44	122
San Martin ..	9.12.44	120
Galusser ..	13.10.44	114
Laplace ..	9.12.44	74
Widmer ..	12.10.44	67
Noizeux ..	11.11.44	55
Picon	9.11.44	37
Widmer ..	9.12.44	37
San Martin ..	12.10.44	30
Pagliere ..	—.12.44	18

Time.		hrs. mins
Laplace ..	7.10.44	5.40
Pagliere ..	26.11.44	5.02
Laplace ..	15.10.44	4.15
Galusser ..	13.10.44	3.24
Laplace ..	26.11.44	3.10
Finochietti ..	9.12.44	2.52
Laplace ..	10.12.44	2.46
Widmer ..	12.10.44	2.24
San Martin ..	12.10.44	2.17
Noizeux ..	5.11.44	2.15

I Learned to Fly a Glider

By FREDERICK W. RUBLE, Jr.

(Continued)

THIS is another point that proves glider flying is not only the safest way to fly, but it makes very good pilots. My instructor had nothing to say, as he knew that I was aware of my mistake, but just told me to make another turn, only to the right. This I proceeded to do just as I had done the previous one, but continued on around the turn and levelled out for a straight glide and landing. I made two more turns—one to the right and one to the left, and two one hundred and eighty degree turns. My last one hundred and eighty degree turn made thirty-one flights in all.

My instructor, Mr. Kunz, said that I was ready for " winch-towing," which amounts to being towed by an engine-driven "spool " with about four thousand feet of cable. The cable is drawn out by a tow car and hooked on to the glider, which is as far away from the winch as the cable will permit. The cable is then reeled in at about fifty miles per hour, thus providing a very convenient means for a take-off.

WINCH ADVANTAGES

The glider may go as high as about one-fourth the length of the cable, or about one thousand feet. On my first winch-tow I went up to about three hundred feet, but that, compared to one hundred feet, seemed plenty high enough for me. One of the wonderful conveniences of winch-towing is the fact that the winch is stationary, thus eliminating the dust, which makes take-offs most uncomfortable, especially when the ship you are flying is an open cockpit model such as ours.

Another advantage of winch-towing is speed, which gives full control. On an average tow the glider will leave the ground in less than fifty feet. It has taken only ten feet on windy days. This speed is very necessary in gaining altitude rapidly before an excess of cable has been reeled in.

THREE DIMENSIONS BECOME TWO

After a couple of flights at about three hundred feet, I went on up to a little over five hundred feet. I made my release and then a " one-eighty " degree turn. From the air things do not look the same, and when I looked for my landing spot I could not find it. My take-off had been between two medium-sized hills, but when I looked for them at five hundred feet, they had shrunk in size and everything was stretched out before me like a checkered map. This is a most peculiar feeling.



SENIOR COMMANDER PHILIP WILLS, C.B.E.
NEW YEAR HONOURS LIST, 1945.

Most everyone has seen aerial photographs, but when you view one with your own eyes, and especially by yourself, with the wind whistling in your ears in a thin, shrill tone, you imagine you are dreaming. This continues until you get worried as to the position of your landing spot. Then you look desperately to find it, and after you have, you try your best o land in the approximate vicinity.

DO IT AGAIN

After you land you are most anxious to " get back up there " and see it again. After this has happened two or three times you begin thinking of getting up much higher. Then you pull back a little harder on the stick and go up to eight hundred feet. This gives you enough altitude so that you have more than enough to fly straight back to the landing spot, so you make a few turns and take in the sights before you head back for a landing. Then you reach about the one thousand foot mark, where your ears start popping from altitude, and the wings give off a shriller whistle than at lower altitudes. After this has been accomplished, you still look to the clouds way above you, and begin looking for another means of getting higher ! Also, you begin to wonder if there is some way to stay up a while longer and see how things look, instead of having to come back down in about five minutes and land, and whether you are over the landing spot or not, you still must come down.

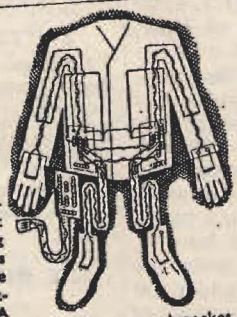
These prolongations of flight and gains in altitude are possible only by means of " thermals," or rising columns of warm air.

LIVELY AIRCRAFT

It is a very peculiar feeling to enter a thermal. First you are flying along calmly looking at various sights when your ship jumps as though it were being tied down and wanted to go somewhere. You feel a definite upward surge, and it feels as if someone were pushing you upward with a pole. Then you go into a series of spirals trying to get into the core of the rising thermal. As the ground tilts, and things begin to look blurred, you start to rise. Sometimes you gain only a couple of hundred feet, but at other times you may go as high as eight or ten thousand feet, which is not even near the altitude record. In this manner it is possible to go cross-country just as though you were flying a power plane, only you get a tremendously greater thrill while flying the glider.

(Continued on page 15)

The Windak suit in use . . . . . No. 3



'Turn on the HEAT'

Electrical arteries circulate warmth to every part of the WINDAK flying suit (officially known as SUIT BUOYANT) Simple press studs connect electric gloves and boots. A plug has only to be pushed into the plane's supply socket for the whole outfit to function at once. Other WINDAK features are comfort, freedom of movement, ventilation, quick release, flotability. Ample pocket room.



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I wonder if WINDAK will adapt this idea for post-war motoring?
YOU BET THEY WILL!



Radio Gillette calling! Hullo, to all of you back home. We can take it, out here. Blue Gillettes are temporarily 'out of action'. Meanwhile, at home, you'll find the Standard Gillette Blade can take it, too — on the chin! They're steeling our morale. As keen as ever — though a bit deployed!

Gillette in battledress

Gillette "Standard" Blades (plain steel) 2d each, including Purchase Tax. Fit all Gillette razors, old or new.

Sometimes difficult to get — but always worth finding. Production still restricted.

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SOUTHALL 1870



A Great Ulster Pioneer

THE most grievous loss suffered by the British Nation through the tragic disappearance of an aeroplane, *en route* from Rome to Brindisi on 23rd January, with two Members of Parliament on board: Mr. Robert Bernays, Liberal National for Bristol North, and Mr. J. Dermot Campbell, Conservative for Co. Antrim; recalls the very active participation of the latter in the introduction of gliding to Northern Ireland.

FOUNDED GLIDING CLUB

The exceptional interest of Mr. Campbell in sporting flying was reflected in Founder Membership



The late

J. DERMOT CAMPBELL, M.P.

of the Ulster Gliding Club which originated in 1930, and by invaluable service upon the Committee until the Club safely surmounted the numerous obstacles associated with the inauguration of the venture in a very provincial area then much isolated from Civil Aviation. His considerable pre-experience of solo-flying in England was most selflessly and generously devoted to the urgent needs of the Club in the Office of Honorary Co-Instructor in conjunction with Mr. H. C. Wynne, who later became Honorary Chief Instructor to the Midland Gliding Club.

FIRST CLASS INSTRUCTOR

Apart from his inestimable services as Honorary Instructor, Club Captain, and Chairman of Committees, Mr. Campbell wholeheartedly engaged in the constructional side and saved the Ulster Club much expense, during a very trying period, through personal interest in repair and maintenance work. His munificence also extended toward transportation problems; and his car, fully loaded with less fortunate Fellow Members, with glider on trailer in tow became the symbol of all gliding philanthropists. As an Instructor, he possessed the essential gift of inspiring confidence in nervous ab-initio pupils; and, on the other hand, of tactfully dissuading optimistic folk from exceeding the limitations of their capabilities. The inherent flying ability of Dermot Campbell soon became evident to admiring observers of his superb skill in the handling of gliders in the air.

"SAILPLANE" CONTRIBUTOR

Mr. Campbell's involuntary relinquishment of his many gliding activities in 1932, owing to pressure of business, was a matter of great regret to his colleagues who very substantially benefited from the inexhaustible patience, scrupulous justice, outstanding capabilities, and infectious enthusiasm which always remained inseparably attached to him under the most adverse conditions. Early readers of THE SAILPLANE will be interested to learn that some of the preliminary notes anent the activities of the Ulster Gliding Club came from his able pen.

ELECTED M.P.

Appreciation of numerous altruistic services in other spheres was shown by a majority of 25,118 votes, over two opponents, in the election caused by the death of the former Member for Co. Antrim in 1942. He was appointed a Deputy-Lieutenant and held Office as High Sheriff for the County in the same year. Formerly he was A.D.C. to His Grace the Duke of Abercorn, K.G., K.P. Governor of Northern Ireland; and served with the Royal Artillery during the Great War.

At the tine of their ill-fated journey, Mr. Bernays and Mr. Campbell were Members of the British Parliamentary Delegation visiting British Troops in the Italian Theatre of War. C,A.B.

CLUB ANNOUNCEMENTS

LEICESTER GLIDING CLUB

Fixtures.—March 16th, Victory Hotel Dance; March 23rd, General Meeting. For details contact Secretary. Theory and construction classes, with wind tunnel models, now enrolling. Prepare now for your post-war soaring. Secretary, Park Road, Blaby, Leicester. Wigston 89289.

THE MIDLAND GLIDING CLUB LIMITED

The Secretary invites enquiries *re* post-war programme at Long Mynd. Subscription rates, etc., forwarded to those interested on application to:—F. G. Batty, F.C.A., 2, Lombard Street West, West Bromwich, Staffs.

DERBYSHIRE & LANCASHIRE GLIDING CLUB, GREAT HUCKLOW, TIDESWELL, DERBYSHIRE

Still on the active list. Club activities will commence as soon as civil flying is permitted. Full particulars, booklets, etc., from Secretary, 87, Fargate, Sheffield, 1.

NEWCASTLE GLIDING CLUB, Ltd.

(founded Feb. 1930)

Applications for Membership now invited in Reorganised Post War Club.

Special Registration Fee 6/-

Ensures Membership when activities restart.

Further Particulars apply

HON. SEC., 25, HOLME AVENUE, NEWCASTLE 6

THE 1938 B.G.A. CONTESTS

(*Continued from Page* 3)

or to wait for better conditions.

The contests were won, and most deservedly, by the "Rhönsperber" of Nicholson and Dewsbury, the former also winning the Manio Cup and the Carpmael Prize. Sqn.-Leader P. M. Watt came second in the "King Kite," also obtaining the Firth-Vickers' Trophy; while third place was taken by the veteran "Rhönadler," flown by J. S. Fox and P. B. N. Davis.

WILLS' "GOLD C"

The major annual trophies for best height and distance during the year, the De Havilland Cup, and the Wakefield Trophy, went to P. A. Wills for his two British Record Flights, which had also gained for him the first British Gold C, with the low International number 3.

THE NEWCASTLE GLIDING CLUB.

CLUB NOTES

EVERY effort has been made to keep in contact with all of our members, but there are a few whom we have never been able to contact. If these members are readers of the SAILPLANE again, will they please get in touch with us.

Obituary. It is with deep regret that we announce the loss of the following members on active service :—

P./O. W. Welch and P./O. F. Wood. Killed in air operations.

F./Sgt. Noel McClean. British altitude record holder June 1939. Lost during air attack on German battleships in Channel ("Gneisenau" and " Scharnhorst ").

Lieut. Peter Cochran Carr. Killed in action at sea.

Lieut. John Whittaker. Killed in action against the French on Madagascar.

Major Ken Morton. Drowned as a result of a flying boat crash-landing near Brisbane.

Capt. Philip Taylor. Killed in road crash on " D " day plus 12.

Awards.—Mr. S. C. O'Grady, who has now returned to King's College, was awarded the A.F.C. while a squadron leader in the South African Air Force. We think he also has the M.C. from the last war.

F./O. Bill Thompson was awarded the D.F.C. in 1943.

Personal.—It is with deep regret that we have to announce the sudden death on January 24th of Mrs. G. L. Coates. George was married only last November, and his wife was a sister-in-law of Lionel Tate.

Bob Savage sailed for his home in Australia during the first week of November.

Lieut. John Allan is most anxious to return home from East Asia so that he can get busy on the design and construction of sailplanes. He has many original ideas for a constructional section, and with the possibility of the high prices of sailplanes continuing for a long time after the war it seems likely that he will be given every opportunity to develop his ideas.

Ken Wood and Fred Ruck are giving their services to A.T.C. Gliding Schools in the south, and Bob Sinclair is doing likewise at the local A.T.C. Gliding School.

Fred Ruck has been made a Fellow of the Royal Meteorological Society, and has made some valuable meteorological observations in connection with the establishment of new aerodromes.

Club Library.—During the war we have built up our library of gliding and meteorological books, and have increased this to over 80 books, with another 15 still on order but unobtainable.

We have also increased our stock of lantern slides to nearly 200, and have acquired our own projector.

Membership.—New members are now enrolling at a fairly high rate, and our membership exceeds the pre-war figure by 20 per cent.

Post-War.—Members were invited in November 1943 to submit proposals for the reconstruction of the club in post-war. The schemes received cover many thousands of words, and are being considered by a special sub-committee appointed last June. This sub-committee will prepare a final plan which will be submitted to all members and considered at a General Meeting as soon as possible after the ban on gliding is raised.

This plan cannot at present be completed due to the lack of any official information on the future of the movement.

DERBYSHIRE & LANCASHIRE GLIDING CLUB

87, Fargate,
Sheffield, 1.

DEAR SIR, 19th January, 1945.

In spite of the war we have managed to carry on as a club, although gliding activities did not recommence until the A.T.C. gliding scheme came into operation. About half-a-dozen of our pre-war instructors are now engaged every week-end in giving gliding training to the A.T.C. The clubhouse hangar and all workshop facilities have been kept in full working order, as members have been able to attend at the club every week-end since the war began. On Sunday, January 7th, we held a meeting under the chairmanship of Lieut.-Commander Basil Meads to discuss our post-war gliding programme, and arrived at the following conclusions :—

(1) On the resumption of gliding activities we intend to provide training facilities up to soaring stage on club machines with or without Government subsidy.

(2) Members will have to form their own groups for the purpose of the more advanced type of sailplane until the position of the club is stabilised, but the club will assist in the formation of groups and will provide full pre-war facilities as soon as the position warrants it.

(3) If finances permit we intend to extend the present club premises or alternatively to build a new clubhouse.

(4) Although it seems likely that our subscriptions and flying charges will have to be increased, we do not anticipate that gliding will cost very much more owing to the increased number of hours which will be possible with the improved equipment which will be available.

(5) You may be interested to hear that we have recently started a scheme whereby A.T.C. cadets may register as members of the club for a fee of £1. 1s. 0d. No further fees will be payable until the commencement of gliding, when the fee already paid will be taken into account in arriving at the first year's subscription. Cadets joining the club under this scheme will not, of course, enjoy the full privileges of membership at the moment.

Yours sincerely,

BERNARD THOMAS.

THE MIDLAND GLIDING CLUB.

IN answer to many enquiries from past members, the Secretary of the Midland Gliding Club has written to all old members on the intentions of the Club. The letter appreciates that before a programme can be considered it is necessary to know the approximate number of members to be catered for.

" It is unlikely that there will be a Government subsidy, at any rate to begin with, and this will necessitate a revision of the terms of membership. For an interim period, therefore, it is proposed that the Annual Subscription should be £4. 4s. and the Entrance Fee for new members, £2. 2s. ; the subscription for non-flying members remaining as before, at £1. 1s.

" It will help the Club if subscriptions are paid at once, it being understood that if this is done the subscriptions would run for one year from the commencement of flying operations.

" The whole of the old Club Fleet has been impressed, and this will mean obtaining new machines as and when available. The trench obstructions on the Club's ground are in process of being filled in ; the hangars have come through in fair condition

" New members will be welcome."

SOARING

Your Emblem

Have you earned a gliding or soaring certificate? Then you have something which very few people in the country, and even in the world, possess.









SOARING BADGES

The A, B, C, Silver C and Golden C badge you received is different from the usual emblem you see people wearing. In most cases the buttons in people's lapels signify that their subscriptions are paid up. In your case it means more than payment of dues. It means you've done something. It means that, without a motor, you are striving to outdo the flight of birds. Wear your badge—and wear it proudly!

ROYAL AERO CLUB GLIDING CERTIFICATES

		Gliding School	*Date taken*
	"A" *Certificates* (58)		
2283	Thomas Curtis Phillips	E.103 E.G.S., Honnington	10.12.44
2284	N. O. Cornwall	C.121 E.G.S., Halton	8. 4.44
2285	Norman Holmes	186 E.G.S., Speke	1.10.44
2286	Terence Peter Garrod	S.W. 83 E.G.S., Moreton Valence	8.10.44
2287	Geoffrey King	L.146 E.G.S., Fairlop	2.12.44
2288	Charles Michael Stafford	M.48 E.G.S., Bretford	25. 8.44
2289	Richard Geoffrey Morgan	M.50 E.G.S., Hereford	14.10.44
2290	Austin Frank Alden	S.W. 83 E.G.S., Moreton Valence	24.12.44
2291	Francis John Hopwood	L.146 E.G.S., Fairlop	2.12.44
2292	Derek Gordon Bown	L.145 E.G.S., Colchester	24.12.44
2293	Basil Robert Clark	N.45 E.G.S., Meir	6. 9.44
2294	Leslie George Clarke	C.129 E.G.S., Waltham Cross	30. 9.44
2295	Desmond John Saunders	W.70 E.G.S., Swansea	29.10.44
2296	Grahame Henri Moreau	L.145 E.G.S., Colchester	24.12.44
2297	Terry Vincent Ford	W.65 E.G.S., Cardiff	31.12.44
2298	John Robert Kinnersley	L.146 E.G.S., Fairlop	3.12.44
2299	John Henry Walsh	W.65 E.G.S., Cardiff	31.12.44
2300	Eric William Barnett	M.45 E.G.S., Meir	6. 9.44
2301	David Cyril Clifford Watson	L.148 E.G.S., Southend	31.12.44
2302	Ivor Edward Moss	S.W.83 E.G.S., Moreton Valence	31.12.44
2303	Walter Karl Schultes	Ditto	31.12.44
2304	E. R. Glew	M.45 E.G.S., Meir	7.10.44
2305	Noel Cameron Crighton	L.148 E.G.S., Southend	17.12.44
2306	John Frederick Bowman	Ditto	31.12.44
2307	Alan Frank Griggs	Ditto	31.12.44
2308	Albert George Free	Ditto	31.12.44
2309	Arthur Rex Byford	Ditto	31.12.44
2310	George Nelson Roberts	Ditto	31.12.44
2311	Derek James Thomason	Ditto	31.12.44
2312	Reginald Edwin Smith	Ditto	31.12.44
2313	George Frederick David Thornton	Ditto	31.12.44
2314	John Askew William White	Ditto	31.12.44
2315	Norbert Raymond Golding	Ditto	31.12.44
2316	Edward Herbert Lawrance	Ditto	31.12.44
2317	Walter George Clarke	Ditto	26.11.44
2318	Norman Albert Delahay	Ditto	26.11.44
2319	Albert George Lawrence	Ditto	26.11.44
2320	Barrie Ernest Frederick Faulkner	Ditto	26.11.44
2321	Harold Bailey	N.W.185 E.G.S., Barton	24.12.44
2322	Norman Anthony Bartlett	S.W.83 E.G.S., Moreton Valence	24.12.44
2323	Louis Richardson	C.124 E.G.S., Aldenham	7. 1.45
2324	Peter John Barnes	Ditto	29.10.44
2325	Peter Frederick Victor Moore	Ditto	30.10.44
2326	Oliver Robert Hampden Wall	C.124 E.G.S., Aldenham	29.10.44
2327	Peter Leigh Baxter	Ditto	29.10.44
2328	Frank Bull Heuson	E.103 E.G.S., Snailwell	31.12.44
2329	Edward Roy Tuffen	Ditto	31.12.44
2330	Edward Banham	Ditto	31.12.44
2331	Frank Oakley Robbins	M.43 E.G.S., Walsall	21.10.44
2332	Howard James Davies	Ditto	22.10.44
2333	Peter Rankin Wilson	183 E.G.S., Woodford	12.11.44
2334	Philip Hubert Le Bas	L.144 E.G.S., Hounslow Heath	18.11.44
2335	Barry Theodore Gould	Ditto	18.11.44
2336	Peter Frederick Channing	L.144 Hounslow Heath	26.11.44
2337	Peter Bentley	Ditto	26.11.44
2338	Anthony John Chester	E.103 E.G.S., Snailwell	31.12.44
2339	Peter John Silverton	M.50 E.G.S., Hereford	24. 9.44
2340	Percy James Watkins	E.103 EG.S., Snailwell	31.12.44
	"B" *Certificates* (9)		
2073	Leonard Charles Layzell	L.148 E.G.S., Southend	23.12.44
2072	Bruce John Jefferys	Ditto	23.12.44
2292	Derek Gordon Bown	L.145 E.G.S., Colchester	24.12.44
2044	Harry Wright	184 E.G.S., Woodford	26.12.44
2294	Leslie George Clarke	C.129 E.G.S., Waltham Cross	8.10.44
2226	Edmund Attwood	C.124 E.G.S., Aldenham	7. 1.45
2267	Eric Francis Burchell	187 E.G.S., Stretton	24.12.44
2277	Hubert Bywell Sadler	L.147 E.G.S., Bulphan	24.12.44
2305	Noel Cameron Crighton	L.148 E.G.S., Southend	23.12.44

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By **A. E. SLATER**

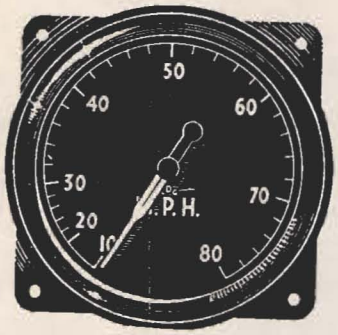
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PIONEERING



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LET'S RECOLLECT

One of a series of reminiscences from British Aviation history which will appear from time to time in SAILPLANE & GLIDER and, it is hoped, prove interesting to readers



Captain Hubert S. Broad, A.F.C. won the 1926 race on one of the early Moths G-EBMO which was finished in pure white and vivid red — the racing colours of the late Lord Wakefield.

THE KING'S CUP

In 1922 His Majesty King George V presented a cup for an all-British air race, and until 1939 the contest was an annual event. Ex-service aircraft predominated until 1925 when civil types took part. By 1930 light aeroplanes reigned supreme, new models making their debut each year. F. L. Barnard won in 1922 flying a converted D.H. 4a at an average speed of 123 m.p.h. over a course of 810 miles. In 1938 the winner was Alex. Henshaw with a Percival Mew Gull at an average of 236 m.p.h. over a course of 1,000 miles. In fair weather or foul, over long courses or eliminating laps, from Croydon, Hounslow or Hatfield, the King's Cup was the leading sporting and social event in the aviation calendar for 17 years. Postponed indefinitely in 1939 but one day . . . . .

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