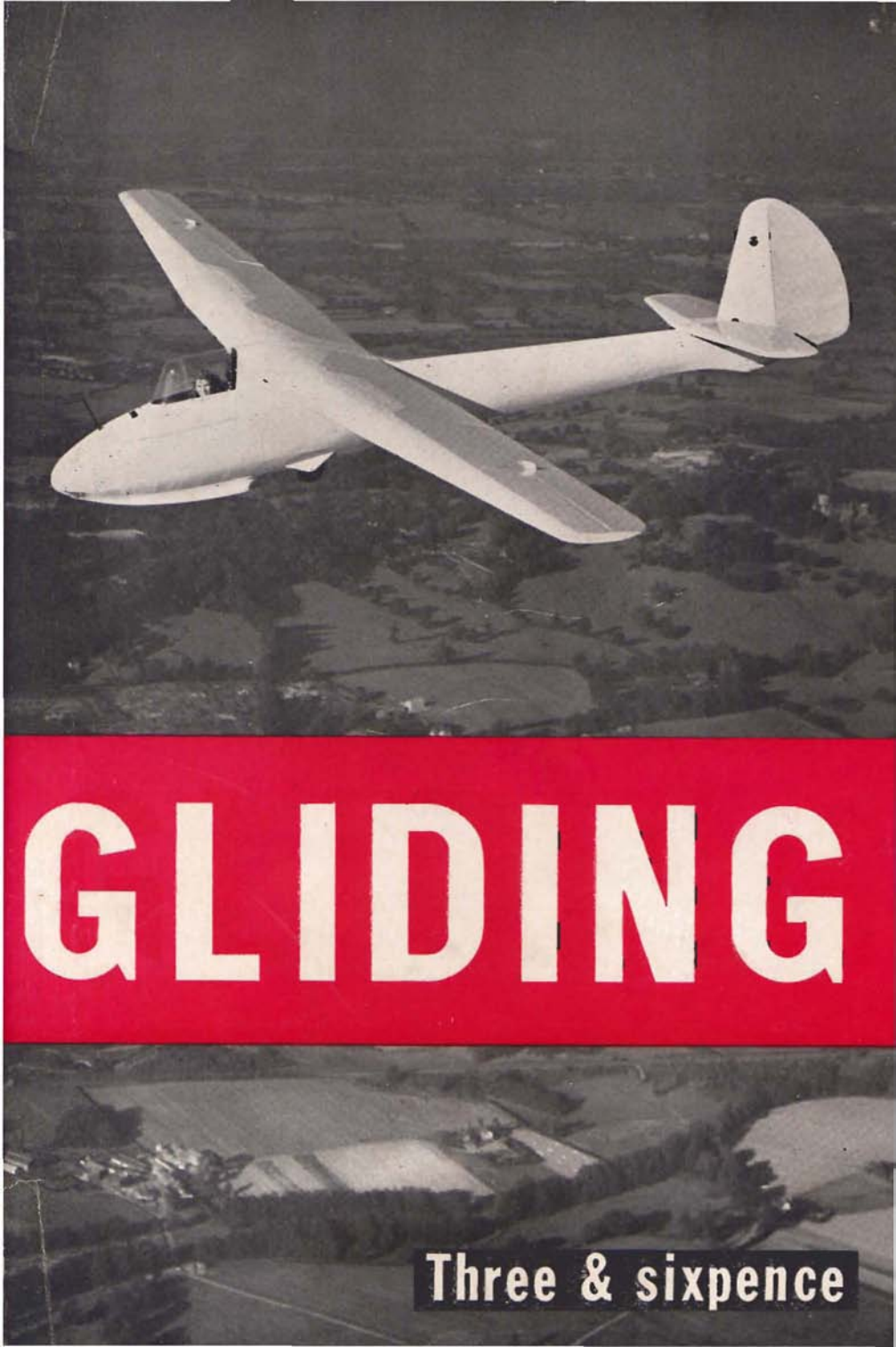

GLIDING

Three & sixpence

GLIDING IN BRITAIN

Edited by Jacques Cochemé

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Cover—A photograph by Charles Brown of the Slingsby Gull IV. British designed and built high performance sailplane, flown by Ann Douglas.

GLIDING IN BRITAIN

This survey of the post war growth of sailflying in this country portrays the two outstanding features of the movement : its tenacious endeavour and its fine achievement. The endeavour of the gliding clubs which, gathering the bits left after the war, voluntarily rebuilt organisations which now make it possible to glide anywhere in the British Isles. The endeavour of sailplane pilots planning their effort with such care that, at the sole expense of the energy of the atmosphere, England has been crossed in soaring flight from south to north, west to east and east to west during the last year.

Severely these performances are analysed by their authors who want to share their experience with others, and also to achieve even better flights.

But sailflying is not only the most fascinating sport of this modern age. It is the key to a knowledge of the atmosphere in which many otherwise accomplished power pilots are lacking. This is born out by the study, not only of report on accidents, but of the many occasions when loss of time and money has been caused by the inhibitive action of the weather.

In the shape of things to come fast jet aircraft are looking more and more like sailplanes and less like biplane elementary trainers. It is with satisfaction that we note that the Services are becoming more aware of the formative qualities of gliding and soaring.

We hope that to many of those who share the delights of soaring flight this little book will bring a greater understanding of its art and, also, a greater knowledge of each other.

The Sailflying Press and The Editor of GLIDING thank all those who have contributed articles and illustrations to this issue.

Does Gliding Help in Power Flying?

by J. C. Neilan.

This is not a very difficult question to answer, as I see it, but it is more difficult to give factual examples. There can be no doubt that the more man knows about the behaviour of the air which supports his craft, be it aeroplane or glider, the safer pilot will he be if he takes heed of what he has learnt. And the behaviour of air currents, particularly near the ground, is brought home to one in a much more forcible way in gliders than in aeroplanes. A down current which might ditch a glider may have hardly any noticeable effect on a jet fighter which crashes through it in three or four seconds, but ignorance of its presence and of its possible or likely strength might be responsible for one more of those ever-recurring verdicts—pilot's error of judgment. I have seen aeroplane pilots do foolish things—and get away with them by luck—which I am sure they would not have attempted had they realised the risks they were running. I have read of plenty others who did not get away with it.

A forced landing due to engine failure in a single-engined aircraft is a situation of much potential danger. It is impossible to examine the surface of the field to see if it is suitable. Your forced-landing technique may be perfect, but your wheel runs into a soft patch of ground or a hidden ditch ; the aeroplane swings or even tips up on to its nose and, before you know what it is all about, you and your aeroplane become unpleasant news to the insurance under-writers and your family. A forced landing is well worth avoiding if you can, I mean a genuine one, not a practice on a known field. And so I was very pleased to have had enough soaring experience to be of use to me in 1935 when I was ferrying a British Klemm Swallow from Aberdeen to London. The air was just sufficiently moist and cold to give rise to a slow accretion of ice in the induction manifold. It got to the stage when, at full throttle, there was just insufficient power to keep in level flight. I was over the Lammermuir Hills, there was a brisk westerly wind blowing, and I was able to maintain my height by flying in places I thought would have some hill lift. Then there was a twenty mile gap between Duns and Wooler where I gradually lost height, but after crossing it I was able to soar along the ridge of hills which was later used by the Newcastle Gliding Club. Near Alnwick I chose a really first class field and landed. Five minutes on the ground was sufficient to melt the ice on the manifold, and I continued my journey without further trouble. My soaring knowledge had enabled me to use the wind and the hills to prolong my flight some fifty miles before being forced to land, and to do the landing in good country instead of on some desolate and probably boggy moorland. About five weeks later I made the same journey in another Swallow, and encountered the same trouble, ice in the manifold reducing the power. Again I was able to soar across the Lammermuir hills, though this time the wind was more south-westerly, and I had an appreciable component of head wind to cope with. Again I lost height approaching Wooler, but was able to gain the Chillingham ridge. I was just thinking of making for my favourite field when the engine gave a gulp, swallowed the ice, and gave me full power once more, so this time the forced landing really was avoided, and I continued my journey to Cramlington, which was then the airport of Newcastle.

Another occasion when I found gliding knowledge helpful was when I was demonstrating a Flying Flea (or Pou du Ciel). This one, the first in Scotland to fly, was amateur-built, and, well—lets be kind and say it was a trifle under-powered. I could never get it much more than three or four hundred feet off the ground, and even then I had to be careful which side

of trees and houses I flew. This particular day I was up at my ceiling of three hundred odd feet when I felt a familiar pressure on the seat, a thermal! I whipped it round and finding the lift fairly widespread, opened my circle out into a figure of eight pattern. In a few minutes I was somewhere in the region of fifteen hundred feet, and the engine was running sweetly at reduced revs. That was the only flight I did in that Pou where I was really able to treat the engine decently. Ordinarily I had to keep it going nearly flat out to keep airborne.

Then there was all that fun I was able to have up near Perth, where I was doing my Reserve training. I was playing about in a Tiger Moth, practicing aerobatics. I was pretty ropey at slow rolls, and always lost about five hundred feet per roll. But I saw a lenticular cloud nearby, at about five thousand feet, and made for the windward edge of it, where I got lift which quickly brought me up level with the cloud crest. I then did a series of attempted slow rolls right along the edge of the cloud, finishing up, after about six rolls, at five thousand feet. This wave had enabled me to get twice as much practice at rather less than the same cost to the R.A.F., for I had avoided all those long weary climbs back to aerobatting height. Just for fun, I flew over the cloud to the rear edge, and there encountered extremely turbulent air, and a down-current against which I was unable to climb even at full throttle.

Scotland seems to have been rather a happy hunting ground in my case. During the war I did a certain amount of test-flying there on various types, fighters, flying boats, etc., and would frequently make use of hill or wave lift to hasten my climbs up to the height required for the test. In many cases I had difficulty in finding a piece of atmosphere devoid of vertical currents, which I required for doing the performance check.

The smaller and slower your aeroplane, the more you will be affected by lift and down-currents, and the more use you can make of your gliding knowledge. But even when flying forty ton airliners

John Neilan, British silver C No. 5, flies as captain for Skyways on world wide charter in Skymasters, and when time permits for fun with the Surrey Gliding Club. War-time test pilot. Total flying hours 7 800. Club, Caterpillar.

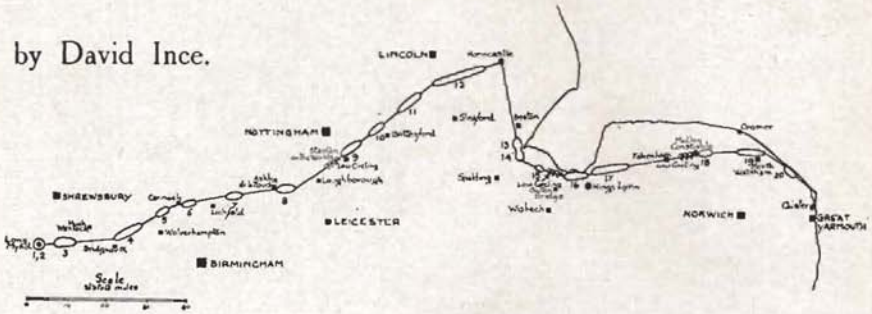
one's gliding knowledge is useful, particularly in hilly districts and in circuit at aerodromes set amongst hills. Kai Tak aerodrome at Hong Kong is one such example, where hills varying from two hundred feet to eighteen hundred feet high come right down to the perimeter on three sides of the aerodrome. The ability to visualise the probable airflow in different wind directions makes for safer flying at such a place. Damascus, in Syria, is another, where the runway is parallel to and immediately at the foot of a ridge about twelve hundred feet high, down which a katabatic wind frequently blows with much vigour.

A knowledge and experience of gliding cannot help being an advantage in dealing with such places, whether your craft is an H.17 or a Brabazon.

Native gold and diamond

a roundabout goal flight from the Mynd to the North Sea.

by David Ince.



The forecast for Tuesday, 9th August, 1949, seemed to offer the very conditions which I had been long awaiting: 4/8 small cumulus, developing to 6 000 feet, bases about 4 000 feet, wind 260°/25 knots at 2 000 feet. Ambitiously I declared Caister, north of Great Yarmouth, as my goal and a few minutes later found me airborne over the Mynd.

I was desperately anxious to get on my way and soon the opportunity occurred as I spiralled up to cloud base in gentle lift, only to discover that the turn and bank batteries were incorrectly connected. How incredibly stupid one can be in the air! Instead of reversing a plug conveniently situated between my legs, I struggled with battery terminals over my right shoulder losing cloud and upcurrent and wasting valuable time.

Shortly afterwards at 12 30 British summer time, drifting back over Church Stretton, I again reached cloud base at 4 700 feet. (I shall talk in heights above sea level throughout), but this cloud, like almost every other one that I was to encounter, was most unco-operative. Turning eastwards, speed was increased to 65 ml/hr and I was off.

My next cloud, a few miles south-east of Much Wenlock, looked good for at least 7 000 feet and growing visibly, but the lift petered out 300 feet inside and I emerged at 5 500 feet, to find depressing miles of clear sky ahead.

At 12 50 Bridgenorth passed below with the altimeter dropping back to 3 000 feet. In front, but tantalisingly far away, a great cloud street stretched eastwards a few miles north of Wolverhampton, now clearly visible ahead. However, at 2 300 feet I struck gentle lift which increased to a comfortable 8 ft/sec and soon cumulus were popping up everywhere around me.

Now the going was easy: great shadows lay downwind across the countryside, now 4 000 feet below; as I spiralled up to the base of one cloud, and pushed on with all speed to the next, in seemingly endless succession, the miles reeled off behind. First Wolverhampton at 13 15, then Cannock, and now Lichfield, a round speed of over 50 ml/hr, this was better than my wildest dreams. But I was worried, that confounded bit of south in the wind was pushing masses of decayed cloud from Birmingham across my track and edging

me slowly northwards. Worse still a great belt of altostratus had drifted across Wolverhampton in the early morning, and must now be lying somewhere ahead like a barrier across my path, but where? Soon enough I was to know.

As I neared Ashby-de-la-Zouche it became manifestly apparent that both lift and cumulus were on the wane, and there, ahead, lay the altostratus, perhaps 20 miles wide. Beyond it, impossibly far away, were blue skies and more cumulus. Behind it, as it travelled eastwards, were a few feeble puffs of cloud gradually merging into the main mass now receding behind me. There was perhaps one glimmer of hope: northwards, beyond Nottingham, where the altostratus ended, the sky was full of cumulus, unbroken to the east.

Here was my dilemma: to press on at all costs, to travel even further north of a track already too far north itself, and then head eastwards in an attempt to round the belt of upper cloud at its northern end, or to remain at the highest possible altitude, with the van of the main cumulus, drifting with the wind, and waiting for the altostratus to move out to sea.

I chose the former alternative, swung north-eastwards and ate my lunch on the strength of it, meanwhile passing a few miles north of Loughborough, shortly before 2 o'clock.

The combination of lunch, trying to maintain a high ground speed and being too far ahead of the main cloud mass, was too much—even for an Olympia—and before long I was down to almost 1 500 feet, due south of Nottingham. What saved me on this occasion, and on two more later on, is well worth discussing more fully.

I now found myself close to the lee edges of the shadows cast by the large cumulus moving eastwards behind me. Still in ominously calm air, I flew straight for the sunlit ground ahead to encounter immediately slight turbulence, and greatly reduced sink. Circling very carefully, I found it just possible to maintain height, but seemed to be continually slipping out of the lift on its upwind side; and then the explanation occurred to me, the cloud shadows, moving over the fields of standing crop below, were of course producing a continuous line of weak lift along their leeward edges, *but* this was moving with the velocity of the cloud above and the 5 000-6 000 foot wind, whilst I, drifting at practically constant altitude, with the 1 500 foot wind, was being left behind all the time. And so I ovalled precariously onwards, biasing each circle carefully downwind, until, at Stanton in the Wolds, a thermal collected itself together and took me to 2 500 feet.

A short straight glide, another climb over Bottesford and I was now back in the land of large cumulus and cloud streets. I reached 4 400 feet at the base of another cloud and turning eastwards headed for a large and active-looking cumulus a few miles south-east of Lincoln, soon climbing in smooth lift at 10 ft/sec, reaching cloud base at 5 200 feet and to my pleasant surprise, continuing the climb uninterrupted to nearly 8 000 feet before the lift fell off and I emerged from the cloud near the top of its south-east side.

Everything, except the top of the cloud just abandoned, seemed to lie below, a magnificent sight, with visibility practically unlimited. Now I realised my mistake: the altostratus was drifting north-eastwards over the Wash and Horncastle lay below, cumulus was sprouting eastward as far as Sleaford and Spalding, and over Norfolk, east of King's Lynn, it was the same. Only in the area Spalding-Wisbech-Isle of Ely was there no cloud. The influences of the clay belt, perhaps?

Blind flying?

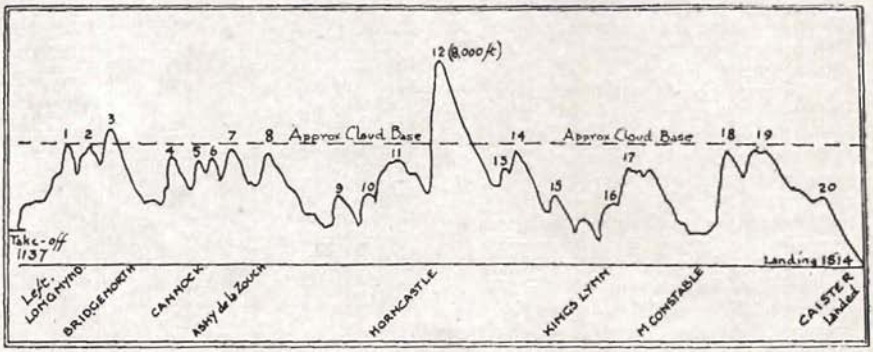
But this was no time to be studying geology. Here was I, on the wrong side of the Wash, 125 miles from the Mynd, with 7 900 feet below me, and running out of land. At 3 o'clock in the afternoon of such a day, there was only one thing to do—or at least to try—the odds were long, but off I went at 70 miles an hour in the direction of Boston.

Near Spalding two very rough dry thermals took me slowly back between them to 4 600 feet, but it was hard work, not aided in the least by the playful efforts of a Lancaster, which kept coming up from behind in a most alarming manner, and in a highly stalled condition, sundry members of the crew making traditional and apparently rude signs from behind their Perspex enclosures. Needless to say those were returned from mine!

Now I was on the west side of the Wash, travelling under a sky of small and seedy-looking cumulus, and trying to push the speed up until, about 4 o'clock, I found myself down to 1 200 feet doing the now familiar and hair-raising oval circles in weak cloud-shadow thermal, between Sutton Bridge airfield and the nearby bombing range. The wind by this time had, fortunately, swung almost due west; nevertheless, my progress towards King's Lynn was precarious in the extreme. As my cloud shadows drifted too far east I had to break off circling, and come inland again. I was, however, slowly going up and had reached 2 600 feet before crossing the mouth of the Ouse, on track for Cromer, at 16 48.

I was now passing over gently undulating and thickly wooded country bathed in sunlight and almost immediately struck a wide smooth dry thermal which took me up at a steady 6 ft/sec to nearly 4 000 feet. Thus fortified, I again foolishly increased speed and headed slightly southwards towards some rather suspicious-looking cumulus. I had boobed badly and soon afterwards found myself passing over Fakenham, still in shadow at 1 800 feet. Finally, I cleared the shadow at 1 200 feet, being fortunate to find the old familiar turbulence again and so passed another period of careful and precarious circles, each of which I expected to be the last, whilst farms, woods and roads gyrated below, in the late afternoon sunshine, in alarmingly close proximity. It is perhaps sufficient to say that the barograph chart shows at least 9 minutes of almost constant altitude and by now I realised that the aid of one good thermal would make it possible to put 300 kilometres behind me. When it did arrive and I started to go up, at first imperceptibly, Melton Constable slid below and I was practically ready for a padded cell! However, by the time the altimeter was registering 4 300 feet I had recovered sufficiently to take stock of the situation.

Norfolk, south of a line King's Lynn-Cromer, lay almost completely in the shadow of dying cumulus, Norwich and Great Yarmouth now being clearly visible. To the north, and, over the coastline from King's Lynn to Hunstanton,



there was bright sunshine, but from there southwards, except for an occasional gleam of light, the coastline and a few miles out to sea were in shadow too.

My goal was now within striking distance, and I decided to fly very carefully, using every piece of available lift to just south of Cromer, about gold C distance from Long Mynd, and then to head down the coast to as near Caister as I could get. Another thermal between North Walsham and Cromer took me back to 4 300 feet. Now I was sailing along parallel to and over the coast in almost dead calm air. Although under a lifeless overcast which was slowly decaying, I encountered small areas of slight lift or low sink in which I was able to delay my descent. Gradually I lost height to below 2 500 feet and being, by now sure of my goal explored further out to sea and back again diagonally hoping to find a sea breeze effect—with no result. Caister was finally reached in a 50 ml/hr glide at 1 200 feet and I landed at 18 14 on the racecourse. The hospitality of the nearby Caister and Great Yarmouth Golf Club was magnificent!

There are a good many lessons to be learned from this trip:

(i) The necessity to use one's speed range intelligently, instead of going, as I did, like a bull at a gate, and nearly coming unstuck as a result. This seems particularly important late in the day.

(ii) The surprising manner in which one was able to remain airborne ahead of advancing cloud shadows and the technique involved in so doing.

(iii) The difficulty of approaching each cloud at optimum speed (particularly if this is high) and then recognising and getting into the lift without undue fiddle and waste of time in the down-current areas.

(iv) The very bad mistake made in trying to circumnavigate the altostratus belt to the north—a map and simple calculation before take off, based on the 10 000 foot wind, would have given me my answer.

It is instructive to consider what would have happened had I got round it, only to be trapped, between coast and overcast, while, with the Wash at my back, I worked my way between Boston and King's Lynn. This story might indeed have had a very different ending.

The Portsmouth Gliding Club

THE Portsmouth Gliding Club is one of the oldest clubs in the country, having been originally formed in 1930 with a membership of 73. Like most clubs formed in that first wave of enthusiasm it soon became apparent that enthusiasm, without experience and the necessary technical knowledge, was not enough to ensure the success of the club. The membership gradually dwindled down to a handful of diehards who carried on in the face of many difficulties until the outbreak of war, when the machines were taken over by the A.T.C.

Upon cessation of hostilities the club got going again and as prices for new aircraft were prohibitive it was decided to build our own, in accordance with the spirit of the early German gliding movement.

In those early days learning to build gliders was looked upon as being just as important as learning to fly them, and Schultz, Kegel, Schmidt, Dittmar, Hirth and Hoffman, all pilots of the highest order, were also designers and expert constructors.

This policy of self help has proved to be sound for a variety of reasons not the least being the superior performance of the aircraft due to individual attention to detail that would be uneconomical for a manufacturer.

The performance of our nacelled Dagling is higher than that of a Cadet and circuits of over 5 minutes have been obtained with her; whilst our modified Grunau has a performance which appears to be on a par with the Louis Desoutter Grunau of pre-war fame.

It has been found that club construction fosters a better sense of handling aircraft both on the ground and in the air, which cuts down the risk of damage considerably.

British Gliding Association

by Ann Douglas.

The British Gliding Association is the central body which acts as liaison between the clubs and the government and other organisations. It also controls competitions and records by delegation from the Royal Aero Club.

The association is made up of clubs in the British Isles divided into two groups. The Member Clubs, which pay an annual subscription of £15. And the Associate Member Clubs, which pay an annual subscription of £7 10 0.

The association is run by a council whose members are drawn from the member clubs. The councillors do not, however, represent the views of the club from which they have come, but are regarded as individual experts competent to make decisions for the good of gliding as a whole.

The council forms committees to do specialist work on its behalf. The committees report back to the council which issues results on its own responsibility. The three standing committees are, (i) The Flying Committee, which deals with record attempts, competitions, flying regulations, and all other matters dealing with the operation of gliders when airborne. (ii) The Technical Committee, which looks after matters affecting the structural safety of gliders, airworthiness requirements, the qualifications of the test groups, and the design of winches and ground equipment. (iii) The Research Committee, which co-ordinates investigation into meteorological and other allied matters.

In addition to these committees there are the Instructors Examining Panel and the Accident Analysis Panel, notes about which follow. Other committees, such as the International Contests Committee, are formed from time to time to undertake specified jobs.

The income of the association comes from certificates and the sale of badges, and from the subscriptions of its members. As there are only a few active clubs in the country the income is small, and in spite of the fact that as much of the work as possible is done by voluntary help, the association has great difficulty in making its income keep even with its outgoings. In this problem, of course, there is the usual vicious circle. If the association had more money it could launch new clubs which would bring it the income it needs to work really effectively.

That a national association is necessary to act on behalf of individual and, in many cases, isolated clubs, no one will doubt. The need is specially great when the clubs themselves are neither numerous nor strong, as is the case at present.

Portsmouth (cont.)

The gliding movement is very sick at the moment, and it is felt that, apart from bad instruction, the main cause is that there are far too many people who are intent on taking a lot more out of gliding than they ever put into it.

We are now busy building a secondary glider which should be finished in time for Easter. All bulkheads, wing ribs, rudder, tailplane and elevator are completed together with most of the metal fittings.

Our subscription is 5 gns. per annum, out of which one guinea is paid over to the Aero Club for the use of their Club House facilities. There is no entrance fee.

Flying charges range from 6d, for auto towed ground slides to winch launches in the Grunau Baby, at 2/6d., including the first 15 minutes for soaring.

We are rather proud of the fact that during our 19 years of existence we have never received any subsidy or outside help and to-day are in a sounder financial position than we have ever been. This is due entirely to our policy of constructing our own equipment and adopting a strict instructional standard for its use.

The club is indeed fortunate in having Mr. Parslow as Chief Flying Instructor and it is largely due to his untiring efforts that the club is in its present healthy state. K.F.

Accident Analysis Panel

by Ann Douglas.

The Concise Oxford Dictionary defines an accident as: "Event without apparent cause" and analysis as: "Resolution into simple elements." These definitions explain both the reason for, and the method of accident analysis. Thus they define the task of the British Gliding Association Accident Analysis Panel. It is the aim of the panel to discover, if possible, the cause of every accident reported to it.

Accidents are costly, in some cases the cost is life. In most cases, they cost time and money; and in all cases they damage, not only the reputation of the club where they happen, but gliding as a whole. It follows that everybody interested in gliding should, not only themselves avoid accidents, but help others in any way they can to avoid them as well.

If clubs report their accidents carefully and thoroughly, they give the panel the opportunity to pass on valuable knowledge which may help others to avoid repeating mistakes made elsewhere. This is the first, and probably the most important contribution which the B.G.A. Accident Analysis Panel can make towards reduction of accidents. For example: the panel, as a result of one club report, has already been able to recommend modifications to a well-known machine which will undoubtedly be of benefit to all clubs.

Next we have the comparative treatment, both of clubs and of accident causes. The first involves difficulties and demands tact. If, for example, club A is prone to a large number, or to a particular type of accident, whereas club B is not, then the inference is that conditions exist at club A which are absent at B. The panel has no intention of publishing invidious comparisons; but it is quite clear that it may help club A in making reductions in its operating costs, and so help its members to get more flying for less money. The second comparison involves seeking out the most frequent causes of accidents. It is independant of the relative merits of clubs; and the greater the number of reports available the more accurate the analysis is likely to be. The result, so far, of this sort of comparison indicates that deficiency in training, or in supervision of partially trained, or even fully trained, pilots is the most prolific accident cause. Thus the line of attack which will pay the biggest dividend to clubs is indicated. The panel, as a result of this particular piece of analysis, has been able to make recommendations to the B.G.A. which, it is hoped, may result in considerable help to clubs.

Finally, let us return to the dictionary definition of accident as an event without *apparent* cause. Nothing happens without a cause; and in a review of a large sample of accidents, which it took as its first task, the panel came to the conclusion that in every case the cause of the accident was one that could be eliminated. Forethought, better planning at some stage, more trouble taken at a particular moment: more thorough instruction, or more heed paid to the rules would, in each case, have prevented the accident.

What this represents in actual cash is not known. In the writer's opinion, the cost of the accident in this sample batch alone would provide free operation for one medium-size club for one year. That, perhaps, is the way to think of accidents: as an appalling waste.

Accident are the biggest handicap from which gliding suffers. The aim of the Accident Analysis Panel is to help clubs discover why accidents happen, and to eliminate the causes. With the help of the clubs it may be possible for it to prove one day that ALL ACCIDENTS ARE AVOIDABLE.

The two secretaries after landing outside the field in the two-seater.
"We were so busy talking about accounts"
(from a club's line book):

The Bristol Gliding Club

by T. Rex Young.

THE Bristol Club was actively revived in the Autumn of 1946 after nearly twelve months preparatory work by six enthusiasts round a table, such were the immediate problems of post-war gliding.

Possessing only £50 in assets handed over by two surviving members of the pre-war Club, this organising Committee secured the use of a redundant airfield, acquired a tow-car and a Kirby Cadet, organised a rota of six voluntary instructors, and started primary training for beginners after enrolling some sixty members at an inaugural meeting at which the Motto 'First come—first served' was the only promise made to enrolling members.

With this minimum of equipment, flying was started in September 1946, and auto-tow launches on the spacious runways of Lulsgate Bottom airfield, six miles from Bristol, saw the first course of learners on the road to their Certificate A or B, with the six instructors (all with war-time A.T.C. experience and skilled in modern methods of instruction) doing all possible to provide a high quality of training.

Club policy, simply and clearly defined at the start, was to provide gliding facilities to all comers for the lowest possible subscription and an equally low launching fee; to concentrate entirely on ab initio training with the aim of securing a minimum of fifty trained pilots by the end of the first year; to augment equipment and facilities as rapidly as immediate post-war conditions allowed; and, as the long-term aim, to lay the foundation for a steady development and expansion of the Club, with Silver C and Gold C flights as the ultimate target of flying training.

This enthusiastic beginning was soon encouraged by the British Gliding Association, who allocated an ex-German Grunau 11B sailplane to the club on favourable terms, and made available at low cost an ex-balloon winch from disposal sources. The Grunau needed re-building, and the winch converting for glider-launching, but these tasks and many others were all keenly tackled, with the result that early in 1947 the Club possessed a training and a soaring aircraft, two tow-cars, and a winch which provided 1 000 foot launches above the wide expanse of Lulsgate airfield, where a large blister hangar housed all Club equipment, and a group of four interconnected Nissen huts served as clubhouse, canteen, workshops and stores.

With the Club thus actively in operation, the announcement of the Kemsley Flying Trust, signalling Lord Kemsley's generous aim to assist private flying and gliding by the grant of loans to the clubs, encouraged the Committee to submit comprehensive development proposals to the Kemsley Trustees, with the result that in August of the same year, the Club was the first in the country to receive a grant from the Kemsley Fund.

This was used for the purchase of further aircraft: a Cadet, a Tutor, and an Olympia sailplane, and the Club was thus well set up with aircraft, and could continue its policy of providing adequate facilities for ab initio training, as well as catering for the needs of its soaring pilots, now growing in number.

This well-marked step forward in Club development, coming less than a year after its initial start, was duly celebrated by the holding of an 'At Home' on Lulsgate airfield, an event which, favoured by good weather and well patronised by notable visitors from other clubs, attracted wide attention in the West Country and resulted in a further intake

At this display the new aircraft from Slingsby's were flown down by air in the hold of a 'Bristol Freighter' and erected and test-flown on the airfield within fifteen minutes of their airborne arrival, this

unique 'kangaroo' delivery and its sequel being the first of its kind on record.

The end of the first flying year saw the Club with a record of 2 502 launches made against a target of 2 500; with a total of 54 R.Ae.C. certificates of A, B and C category; and with a roll of more than a hundred flying members. Having thus well maintained its first-year training policy, a launch-target of 5 000 was set for the second year, with a continuance of full-scale ab initio training, combined with all possible thermal soaring for the more advanced pilots.

The Club was by then launching by auto-tow, winch, and aero-tow, and an additional balloon-winch had been purchased and was in course of conversion into a two-wheeled mobile unit of modern design. Launching facilities were thus fully secured.

Early in the year a complete manual of Flying Notes was produced by the Club instructors. This manual, one of 44-pages complete with numerous diagrams, covered the whole range of Club training from ab initio to Silver C flying, with specific instruction for each type of aircraft flown, and was made available to all flying members with the aim of supplementing the verbal instruction given on the airfield.

During 1948 negotiations were completed with the Bristol Aeroplane Company whereby 50 members of their staff were accepted for gliding training up to B certificate stage. This scheme was run parallel with the training of light-aeroplane pilots by the Bristol & Wessex Aero Club at Whitchurch nearby, and proved to be an interesting and worthwhile experiment. It was found that the glider-trained ab initios made a very good showing when they passed through for their power-flying courses, and that the power trained pilots likewise took easily to gliding when they came through to the Club from Whitchurch.

A further activity was the holding of a series of weekly Summer Holiday Gliding Courses for beginners at Lulsgate, for which applications were received from all parts of Britain, and which resulted in 81 holiday members receiving gliding training, with 57 certificates secured.

Team spirit and intelligent leadership, the wealth of the Bristol Gliding Club.

Launching facilities were also largely augmented during the year. The new mobile winch came into action in the Summer, an additional Ford V-8 tow-car was purchased, and the Cambridge club's method of piano-wire auto-tow launching was adopted, giving up to 1 200 foot launches, and with a saving in cable-cost to boot. By the end of 1948 the Club had exceeded its target of 5 000 launches with a total of 5 766 for the year, with 269 hours flown, and with a total of 162 Certificates gained, which included 146 Certificates A and B, 6 Silver C, and 10 Silver C 'legs' of qualifying category.

This truly remarkable rate of progress brought "Bristol" very high in the list of British club results for the year, i.e., first in A and B Certificates, second only to London in number of launches, and third in volume of membership. Thus the Committee looked back on a period of solid achievement which augured well for the prospects of 1949.

For this year, with more than 60 soaring pilots now active, it was decided to fix a lower target of launches (2 500), and a higher target of flying hours (500), this to encourage the further progress of the Club's advanced pilots towards the goal of Silver C.

Moreover, since all Club flying records had so far been secured on a flat airfield site, without any opportunities for hill soaring other than had been made possible by several organised visits to the Midland club at Long Mynd, it was decided to negotiate for a soaring site at Roundway Hill, Devizes, and thus fully extend the scope of Club facilities.

These decisions have been duly implemented during the year; and meanwhile the Summer of 1949 has seen a continuance of successful flying activity at Lulsgate. Several cross-country flights have been made, another Silver C has been gained, and the standard of the Club's advanced pilots raised to a high level by a considerable number of local thermal soaring flights over the airfield. One such flight of 4¾-hours, and two of more than five hours duration, have clearly shown that the Duration requirement for Silver C can be met from a flat site if the spirit is willing.

With the acquisition of a Type 21B two-seater which is now augmenting solo instruction, the adequate training of the younger pilots is still further assured. The Club now has a rota of twelve experienced instructors with six assistants; a fleet of eight aircraft with adequate ancillary equipment; and a roll of more than 150 flying and associate members.

And what of the future? Three years progress at Lulsgate has not only placed "Bristol" among Britain's major clubs, but has determined its Committee to undertake the additional work of establishing the hill-site at Roundway without further delay. This admirable site has now been secured, including an adequate launching area and a group of farm buildings eminently suited for development as clubhouse and workshops, and before the end of next year it is hoped that the Club will be able to offer full hill-soaring facilities at Devizes in addition to maintaining Lulsgate for large-scale ab initio training.

As a soaring site the full possibilities of Roundway have yet to be thoroughly explored; but it has a good soaring record, and has been regularly visited by enthusiasts—among them the Cambridge club—since 1934. The unique features of the hill, and its location in ideal thermal-soaring country, give every promise that it will prove to be a first-rate hill-soaring location, and by tackling its development as such in the same spirit as has been shown hitherto, the Club hopes that it will be enabled to make yet another worthwhile contribution to British soaring history.

A dear old gentleman in a country hotel speaking to the proprietor.

"Who are those people always talking in the bar?"

"Oh! they are glider pilots, they glide for a hobby"

"I am so relieved to hear that, I thought they were communists"

The B.G.A. Instructors Panel

by Ann Douglas.

THE objects of the B.G.A. Instructors panel is to obtain and maintain a high standard of instructing in their own clubs by circulating information, producing handbooks, and holding meetings where opinions and experiences can be exchanged ; to examine instructors for categories, to advise and assist trainee instructors, and to help new clubs.

The panel consists at present of eight members, five of whom are examiners. It holds two meetings a year, as well as the Annual Instructors Conference. These take place at different clubs so that there is every opportunity to see the methods, difficulties and points of view of others.

Applicants, provided they have the necessary basic qualification for categories, are examined at their own club by one of the examining members, usually one that lives in or near their area. No examiner, however, may examine an instructor in his own club ; the fee for a category is 7/6d and at present the examiner pays all his own expenses.

During this year the ordinary instructor categories have been altered, owing to the increase in the use of two-seaters, and now consist of a B 1, Solo Instructor, and a B 2, Dual Instructor category, in which the instructor has to be experienced in both types of training. Applicants should apply direct to the B.G.A. giving evidence of fulfilling all the relevant qualifications.

The first document produced by the panel was : The B.G.A. Basic Syllabus of Glider Training. This is now being followed by the Two-seater Instructors Handbook, which is due to be published in the immediate future.

It has always been a rule of the panel that its members must be active practicing instructors, as it is only in this way that the panel can remain a progressive and helpful body, and it tries to have as even a distribution of members over the country as possible, so that its members can not only be in touch with progress in their locality, but are at hand to help with new clubs.

The present composition is
Ann Douglas, chairman.
H. T. Testar
L. Welch
G. O. Smith
P. Blanchard
M. Chantrill
D. A. Smith
S. C. O'Grady

CLUBS OF THE B.G.A.

FULL MEMBER CLUBS

Bristol Gliding Club
Cambridge University Gliding Club
Derbyshire and Lancashire Gliding Club
Imperial College Gliding Club
London Gliding Club
Midland Gliding Club
Newcastle Gliding Club
Scottish Gliding Union
Southdown Gliding Club
Surrey Gliding Club

ASSOCIATE MEMBER CLUBS

Air Headquarters Gliding Club, B.A.F.O.
Army Flying Club
College of Aeronautics Gliding Club
Combined Services Soaring Club
Furness Gliding Club
Gloucester Gliding Club
Handley Page Gliding Club
Luneberg Gliding Club
North Wales Cross Country Soaring Club
Oxford Gliding Club
Perak Flying Club
Polish Air Force Association
Portsmouth Aero Club
Royal Artillery Aero Club
R A E Technical College Gliding Flight
R E Flying Club
Royal Naval Gliding and Soaring Ass.
Shoreditch Training College Gliding Club
Ueterson and District Gliding Club
Ulster Gliding Club
12 Group Gliding Club

A goal flight to Lympne

Described by Lawrence Wright in a way very much his own.

On the 10th April, 1949, Minimoa being at Redhill wrapped in red tape, I had bagged the club Gull IV. The wind was light north-west, and the sky spawning infant cumulus. As I strapped in, a later arrival remarked that conditions looked so flat that I might soon prefer to land, and give him the machine for not more than half an hour. He did not smile as he said this.

Wheatcroft offered Hawkinge or Lympne as a goal. I chose Lympne for the ignoble reason that more people know how far away it is. Kit Nicholson had made the same flight to win the Manio Cup in the 1938 competitions. My maps were in Mini, except for one filthy sheet among the rubbish in the car, which proved to be the right one. I was not serious enough to study it or draw a track on it, as I ought to have done. I was winch-launched at 12 15 hours.

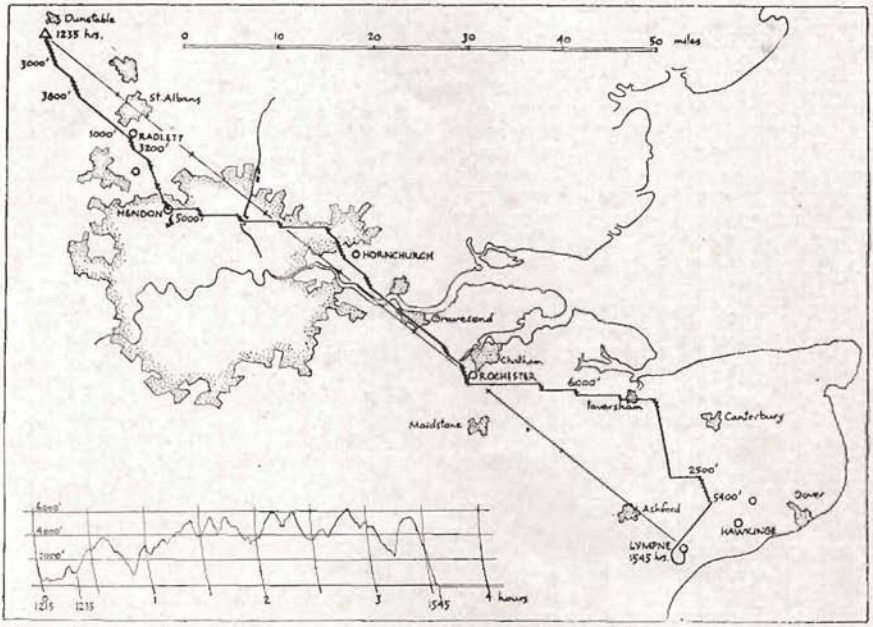
I made for the power-line slope, a sure source of thermals when there is any north in the wind. There was not much hill lift. After ten minutes on this short beat, content to be lower than the others for the time being, I had wriggled up to circling height and thence in the first real thermal to 1 400 feet.* Back at the hill at 1 000 feet, I immediately got another at 5 ft/sec. I noticed the Blue Gull circling above me.

In about ten minutes I was at 3 000 feet, but trying all I could, I could not outclimb Geoff Arnold in the Blue Gull. Things looked better down wind, so I passed under him, going south-east. At 3 800 feet the lift petered out, but the sky was so promising ahead that I pressed on at once. I had lost about 1 000 feet when I saw Geoff turn back of London and landed near Tunbridge Wells). This left me feeling lonely and (he eventually went round the west side rather rash. The red ball came well up, and I flew at 60 towards some distant clouds, which seemed to be going down-wind faster than I was: they were still well ahead when I spotted Radlett aerodrome. (Not having yet opened my map, I vaguely thought of it as Hatfield.) I entered the circuit at 1 000 feet in dead air, working out a depressing plan for a towed retrieve.

I never omit to pray on these occasions, and the dear Lord (assisted perhaps by the fact that I was down-wind of a warm runway) answered me with a flicker of lift on which I expended all my efforts. After some hard work, resisting the temptation to try to improve my position until I was above 1 500 feet again, I got back to 3 000 feet. I seemed now to have even less drift: Radlett was still alongside, and what little wind there was seemed to have more north than west in it. If all went well, I would soon have to work eastward to avoid London. Cloud base looked unusually high, which was a fine thing. Also the day was young (13 15 hours B S T) and the sky pattern ahead most promising.

A series of careful searches and modest climbs, interpersed with short dashes across the open for a few miles, brought me progressively nearer to cloud-base. The lift increased with height up to 3 000 feet, but above it always gradually decreased. During all this circling I had drifted slowly south of my required track (which was still only a vague mental one) and was somewhere near Elstree. Above London the clouds were building up well, but over the semi-country immediately north of London the sky was comparatively uninviting, and I decided to sample the active air above the chimney pots before working eastward. The Welsh Harp showed up well through the haze, and I began to use the map. The straight flying needed more attention than the circling (to avoid blundering

*All heights above take-off.



through an unobserved thermal at speed, or confusing the variometer by letting the A S I wander) so I found it better to do the map-reading when comfortably tucked into a circle. The Gull IV, though not as good a Mini in this respect, needs little attention once she is going round tidily.

A big—but not apparently very thick —cloud right over Hendon airfield received me gently and rather reluctantly at just 5 000 feet. None of the clouds this day reached down to snatch one inside: most of them just refused, by fifty feet or so, to be entered. Last season, all my clouds had been nearer 3 000 feet, and this extra 2 000 feet was a welcome luxury. I did a little Married Man's Blind Flying straight through the undulations of cloudbase, where there was little to be gained by lingering. Meanwhile I started working eastward, always with at least one airfield in mind and in reach. (It is a comforting thought, that from 5 000 feet one has some 1 200 square miles of ground to choose from.)

Somebody has laid down that on any given day there is a height below which one must not allow oneself to sink. It is a good rule. I decided that today's minimum should be 3 000 feet, and that if I sank near that level I must concentrate solely on regaining height before pressing on. To those that have, it shall be given and for about two hours I was able to keep to my rule.

I crossed the Lea near the reservoirs at Tottenham. The lift was seldom more than 5 ft/sec, but reliably distributed: clouds about half a mile across, with a few clear miles between, which I would cross at 55-60. The last few hundred feet of height was not really worth waiting for: it was better to fly slowly on one's way until the red ball came up. The Thames was emerging from a grey haze, and as the time was only 14 15 hours, Lympne began to seem a proposition. I determined not to hurry, but within reason to follow Rattray's advice —never to leave lift until you have got the last drop out of it. Time is of course the essence of a long flight, but 87 miles is not, alas, a long flight by today's standards. So I dawdled in the gentle lift between 4 000 and 5 500 feet,

not ashamed to circle in 2 ft/sec, spending a little height now and then in a dash from cloud to cloud, with the comfortable feeling of living within my income. I circled until I was giddy with watching the world reeling past the pitot head. The patches of sink were almost welcome, offering a few minutes' straight flying, but all too soon I would be dizzily revolving again. I found it more restful to gaze down the inner wing, and fortified myself with my cheese roll and my Mars Bar.

It came as a sobering thought, that within every hour of a soaring flight, one has to gain a total of some ten thousand feet of height.

I crossed the Thames (at nearly 6 000 feet) at Gravesend, conscious that I was adding at least an hour to each trailer journey. Beyond the Isle of Dogs, London disappeared in the grey. The river looked magnificent in the stormy light and smoke. But for my declared goal, and for having forgotten my Leica, I could have taken half an hour off for a safe circuit of St. Paul's. Resisting such frivolity, I concentrated again on the Object of the Exercise, until I was diverted again at Chatham by jolly little rows of cruisers and submarines in a tiny dock, all beautifully to scale.

Kent looked featureless and hazy, its nearer forms camouflaged by cloud shadows: it seemed time to navigate. An obstinate fold in the map denied me a bearing on Lympne, until I opened it completely, when it filled the cockpit. Finding that the little control required could be applied through the bulge in the map which represented the stick, I kept it there.

I could now comfortably locate, fill and light my pipe, and take the green ball for granted. Somewhere, I felt, I had known this situation before—and I recalled Wilbur Sparrow, lounging in his Mickimoa.

The course for Lympne proved to be south-east, but in that direction lay miles of sunlit ground without a cloud shadow. I could not see the Maidstone-Ashford road, which pointed the way, but along the Canterbury road (visible but running too easterly) a good cloud street was arranged. I drove along this road-and-

Lawrence Wright in the Slingsby Gull IV.

street as far as Faversham, getting the best height of the day on the way at just over 6 000 feet. (Re-reading Kit's account since, I noticed that he made the same detour.) Past Faversham, I was at about 5 000 feet, but twelve miles north of track, and it seemed time to brave the gap. I turned south-south-east and at once picked up the opposite coastline some eighteen miles away. It agreed comfortingly in shape with the map, and a straight glide to Lympne seemed possible. But I like to reckon my range, in a light wind, by first deducting 1 000 feet for safety margin and approach, then allowing four miles per thousand. By this formula, I would be cutting it fine.

For a "mauvais quart d'heure" I flew through steady sink, relieved only by a few nearly fruitless circles. As the altimeter visibly unwound, the high spirits of the previous hour evaporated. The air, which had been fizzing merrily all day, changed from schweppervescence to ditchwater, and in horrid silence I slid down and down. It felt like a hilltop descent on a wet afternoon in November. I had still not located Lympne, though

The Royal Naval Gliding and Soaring Association

by Lieutenant Commander Goodhart.

THE Royal Naval Gliding and Soaring Association was formed in July 1947 with the aims of providing gliding and soaring as a recreation for naval officers and ratings, to advance the art of airmanship, and to provide a common ground for closer understanding between the aircrew, aircraft maintenance and other personnel.

The present chairman of the R.N. Gliding and Soaring Association is Captain D. R. F. Cambell, its technical adviser is Lieutenant Commander Sproule and Lieutenant Commander Goodhart is its secretary.

In the summer of 1947, Lieutenant Commander Sproule collected a team of pilots and took a circus of ex-German Kranichs and Olympias round to the Naval Air Stations where he aroused much enthusiasm and clubs were formed at various stations: training started using Primary Eons and S.G. 38's. Some of the clubs failed to keep going, for a variety of reasons such as changing personnel and Air Stations being closed, but in 1949 there were four active clubs, all of which are still in being, at Gosport, Lossiemouth, Stretton and Eglinton. A few lines about each will be given later on.

A campaign, already lasting nearly 3 years, is being waged to get agreement that gliding in the Navy should be recognised as an organised sport in the same way as, say, football. The point about this is that accidents incurred while taking part in an organised sport are considered to be whilst on duty and therefore the Admiralty holds itself responsible for injuries and any pensions payable. At present all naval personnel taking part in recreational gliding have to sign a most sinisterly worded form of indemnity, or Blood Chit, as it is popularly known, and this formality has discouraged many potential glider pilots from joining one of the clubs.

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the coastline gave its rough position, and I was vague as to how far off the coast really lay. The only decent cloud within possible reach was miles away to the east. If I turned aside to it now, and it did not work, I could not make Lympne. If I pressed on, I ought to see the airfield in time to get in—I might not. I turned east towards the cloud.

I was down to 2 500 feet when I arrived upwind of it, and it looked very small and very high up. For the second time I resorted to prayer. The green ball promptly shot up to the top of the tube and stayed there. I circled with all the "g" I could take—which is not perhaps very much—and although I broke a fingernail tapping the Cosim, nothing would shift the green ball. I think it had indeed stuck: the barogram shows only a climb from 2 500 to 5 000 feet in five minutes, of which even so I would not complain. In gentler lift above I finally found my ceiling at 5 400 feet, with Hawkinge alongside and Lympne obvious, and life on the whole worth living.

I nursed my ridiculous reserve of height whilst I checked and counter-checked with the map: the coastline, the canal fork, the racecourse, the castle. Finally I banked well over and read the word LYMPNE in beautiful capital letters just a mile underneath.

However, it now appears that the campaign may soon be won and we have high hopes of being on a level footing, if not in time for football, at any rate with cricket in 1950.

The Portsmouth Naval Gliding Club.

This club has its headquarters at Gosport and was formed in May 1949, being the resurrection really of the previous year's Siskin and Collingwood club on the station. The field for membership covers all ships and establishments in the Portsmouth Area and in consequence membership is only limited by the facilities available

The chairman of this club is Lieutenant Commander Goodhart (who has been gliding with the Surrey Gliding Club since October 1948) and its secretary is Lieutenant Hayes. Membership, to date, is 20 officers, and 45 ratings of whom 4 are Wrens.

So far flying has been restricted to solo basic training, using winch launching. The fleet, such as it is, consists of a Primary Eon, a Cadet and a Grunau IIB. When the new season starts this spring the club has high hopes of————. Well, rather than tempt fate, perhaps the hopes had better remain nameless until they become facts.

The Black-cap Gliding Club.

This club functions at Stretton in Lancashire with Captain Miers as its president and Lieutenant Hardy as secretary. Launching is by winch and the fleet is one Primary Eon and a half share (with the Fulmar Club) in a Grunau. It hopes very soon to have its own Grunau.

The Fulmar Gliding Club.

Lossiemouth is the home of this club, which has Lieutenant (E) Leeson as its secretary. Winch launching is used with a Primary Eon and the other half share of the Grunau mentioned underBlack-cap.

The Gannet Gliding Club.

This club at Eglinton, Northern Ireland, has Commander N. K. Cambell as chairman and Lieutenant (E) Goodridge as secretary. Launching of the one Primary Eon is by auto-tow along the long runways, although a winch should soon be available.

Technical Adviser.

The R.N. Gliding and Soaring Association's technical adviser is Lieutenant Commander Sproule, who, being the only person still in the Navy who was really soaring before the last conflict, deserves a paragraph on his own. Until recently he was also secretary of the R.N. Gliding and Soaring Association, but he has induced Lieutenant Commander Goodheart to take over the paperwork while he gets on with real sound advice to the various clubs.

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Photo : Collingwood Begbie, Hove.

Seven Sisters Soaring Cliffs. A glider's eye view.

The Southdown Gliding Club

by W. F. Jordan.

A LITTLE more than a quarter of a century ago the first successful soaring flights in England were carried out a few miles to the north-west of the present site of the Southdown Gliding Club, and in the early twenties and again in the early thirties the experience of pilots flying above the Sussex Downs contributed a great deal to the early development of the movement in Britain. Undulating hills and a plentiful supply of suitable fields were an ideal setting for these pioneering experiments; it was therefore to be expected that after 1930, when the nation-wide interest in the sport led to rapid increase in the number of prospective pilots, this part of the country should have its full share of the new clubs then being formed. Of these, the only one in Sussex to survive was the Southdown Club, formed in 1932, into which several of the others were eventually amalgamated.

Various locations on the northern and southern slopes of the South Downs have been tried in turn, but the present site above the Seven Sisters at Friston has been in use only during the past three years. The only other site where an agreement now exists for the use of land as a launching point for gliders is the same ridge over Firle where gliders participating in the great Itford meeting of 1922 gave a decisive impetus to the work of those who believed that prolonged flights such as had hitherto been confined to Germany might be made in England.

Then, in a single week from October 16th to 21st, the pessimists who had maintained that suitable sites in Britain did not exist had their theories dramatically disproved. On the final day a Frenchman set up a new world duration record. The *Daily Mail* had offered £1,000 for the longest flight, with the proviso that it should not be less than thirty minutes, but many lacked enough confidence to hope that this minimum qualification would be fulfilled. A large crowd, however, gathered to watch the attempt. Itford Hill is a spur on the Downs, with western and northern slopes, facing towards Lewes from the head of the Ouse valley leading to Newhaven, and during much of the week the north-easterly wind was barely sufficient for those who were deft and quick enough to learn a new technique. On the first day it seemed that nobody would remain airborne for more than a minute or two. Then, at the end of the day, when many of the spectators had already left for home, A. H. G. Fokker had his glider launched further east along the hill, near Firle, and stayed in the air for 37 minutes 6 seconds. As so often happens, the most interesting flight of the day was unexpected. F. P. Raynham on the following day did 1 hour 53 minutes and, on the last day of a week that had been marked by several expensive accidents to gliders, Maneyrol flew for 3 hours 22 minutes.

Not every meeting was such a success. Nine years later, on October 3rd and 4th, 1931, when a B.G.A. contest was held at the Southdown Club's first site at Balsdean, the longest duration was 6 minutes 56 seconds and the longest distance 3 miles. But at least one other flight of historical interest was made from Firle. In June, 1930, Kronfeld made the first long cross-country flight in England when he almost reached Portsmouth in his "Wien." Even today it would be considered a remarkable feat. There are several gaps in the South Downs along what would otherwise be an easy cross-country route throughout the year, and Kronfeld was adding two of the most difficult gaps by starting his journey on the east side of Lewes instead of to the west. But the full measure of his achievement can only be reckoned when it is remembered that for the sake of the crowd that had come to see demonstrations

of gliding he delayed his departure until 17 30 and did not land on Portsdown Hill until nearly three hours later, when it was almost dark.

About this time gliding was already being organized in Sussex on a club basis. The Southdown Skysailing Club was formed in 1930; and the Southern Counties Soaring Club, which became the Southdown Gliding Club in 1932, was formed in 1931 with over fifty members. Its Chairman was R. F. Dagnall, father of the "Dagling," and the Vice-Chairman was H. Verdon Roe who helped to found the famous aeroplane company. The Hon. Secretary at that time, and founder of the Club, A. York Bramble, continued in office until January, 1939; and since that date he has, as a vice-president, continued to take a close interest in the Club's affairs.

The first sites to be used were Balsdean, north of Rottingdean and only two miles from the edge of Brighton, and Ditchling Beacon. One may judge that the former was reasonably adequate from an account, which appeared in a contemporary issue of *The Times*, of C. J. Longmore looping the loop there on November 29th, 1931. In 1933, by which time the Club fleet included a B.A.C. two-seater, a move had to be made to Lancing; and two years later a hangar was erected at the Devil's Dyke, to the north-west of Brighton, which continued to be used until the beginning of the War.

The ground at the Dyke, like the equipment located there, suffered unduly from wartime dilapidations, and the few members who have built the Club up again discovered, in the ex-R.A.F. aerodrome at Friston, a site that has not disappointed their expectations. The field, on top of an exposed hill 320 feet above sea level, possesses two level landing areas of which the best is nearly a mile long. Hill soaring is provided by a cliff rising vertically from the sea and facing south-west; by a western slope, also adjacent to the aerodrome, down to the Cuckmere valley; and by a wooded slope facing north on the other side of the Brighton-Eastbourne road. It is thus only in still air or in an easterly wind that there is no hope of hill soaring.

The cliff will, at its best, give soaring up to about 1 000 feet above the aerodrome; if the direction of the wind allows Birling Gap to be crossed, where the cliff is less than 50 feet high, a 4-mile beat will take a glider along the coast as far as Beachy Head. The lift here and over the much shorter west slope is almost always exceptionally smooth. By contrast the air over the wood to the north can be rough and is much less reliable.

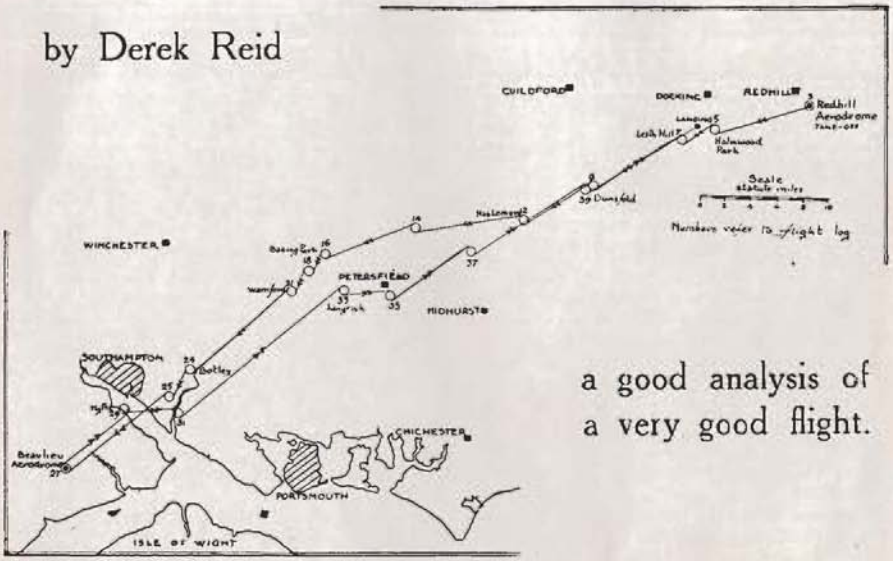
One by one the difficulties of reconstituting what is mainly a week-end club are being surmounted. At first a small shed had to suffice for housing the aircraft; then, in 1948, members dismantled the old hangar at Devil's Dyke and rebuilt it in a chalk pit, below the sky-line, at Friston. A winch was built and another is under construction. The aircraft are two S.G. 38's, a Cadet, two Tutors, and a Slingsby T.21b two-seater. The aim of 2 500 launches a year was achieved easily in 1949 but it is not planned to raise this figure greatly until the Club's position has been consolidated by the completion of the present phase of increasing capital epuipment to an optimum level. Of the pre-war members who still fly at the Club, and to whom much of the credit for its post-war development is owed, one must mention Ray Brigden, the C.F.I., and Johnny Billeness, and the Chairman, S. G. Stevens. The Club is very fortunate also in having the support and advice of its President, Air Marshall Sir John Salmond.

Two changes are planned for the coming year. Complete dual instruction ab initio is to be tried and, if successful, will become a permanency; and soaring at points farther from the sea, using a trailer based at Friston, will explore the possibilities of better thermal activity. In connection with these plans, the types of aircraft owned will be suitably amended. While Friston's unrivalled suitability for training will continue to be exploited, it is hoped this year to prove that the inland sites provide thermals as readily as they offer hill-lift.

W.F.J.

Redhill-Beaulieu-Dorking

by Derek Reid



a good analysis of a very good flight.

ON the 20th July, 1949, the Airmet account of the situation promised a good soaring day, with light westerly winds tending to increase, as a weak warm front approached the Midlands from the west. The Larkhill ascent of 03 00 Z showed that the convection would reach 6-7 000 feet before being damped out by the subsidence inversion due to a weak ridge over the country.

This meant that one could reasonably expect to reach Dover, but would not have enough height to cross the Channel, while an out and return flight in that direction would be made difficult by the wind increasing later. It was therefore decided to go westwards, keeping as far south as possible in the hope that the upper cloud would be thinner there than on the route directly westwards towards Andover.

Beaulieu was declared the goal for an out and return flight—if completed, this 134 mile flight would comfortably break the record set up by Charles Wingfield the previous year (Redhill-Welford-Redhill).

Cumulus commenced to form about 09 30, but owing to some delay in getting aircraft serviceable, I was not towed off until 11 05. Shortly after release at 11 19, I found a thermal which took me to cloud base at 4 800 feet and, the cloud being thin, I immediately headed towards Leith Hill. The day was remarkable for the number of columns of smoke which could be seen going almost vertically upwards in the calm conditions.

A man burning hedge trimmings near Holmwood provided the indicator for the first thermal away from Redhill, lift being strong and narrow.

A spell of easy soaring below increasing cumulus followed, cruising at 55 ml/hr between thermals. I failed to make good use of a thermal just east of Haslemere, and wasted some time waiting for thermals to come off the sandy soil of Longmoor Camp. Being down to 1 600-1 700 feet above the ground at this point, it seemed foolish to continue further westwards over some rather gren marshy ground ; after a few minutes searching I was rewarded by finding a very strong thermal, which I lost for some minutes and then found again. It seemed to be

composed of several narrow cores.

Another spell of simple soaring near cloud base followed, and I put the speed up to 65 ml/hr between thermals as the wind seemed to be blowing from the south-west, though at less than 5 ml/hr. The cloud appeared to be very flat strato-cumulus, with very ragged edges, about 6/8 and 1 000 feet thick.

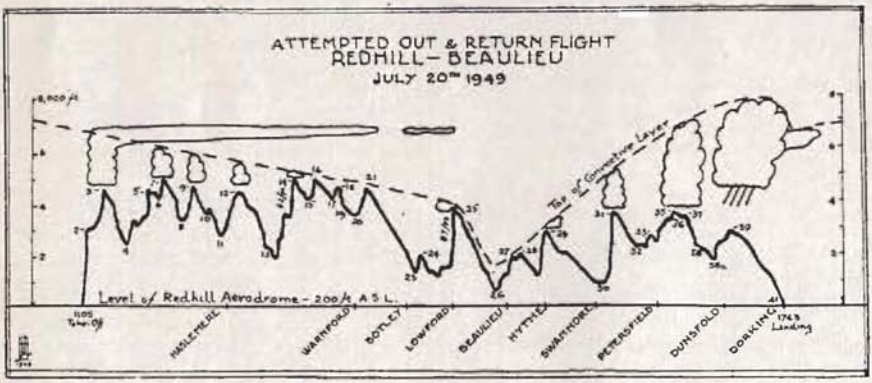
However, all good things come to an end, and this easy period did with a vengeance. To the south-west of Warnford the layer cloud cleared completely, and a thin sheet of low medium cloud or high strato-cumulus at about 7-8 000 feet stretched some 15-20 miles further south-west where it also cleared. A few very small patches of grey cumulus, apparently much lower than that which I had been using, relieved the gloomy picture. They were at least 10 miles away, but the only thing to do seemed to be to press on, hoping to contact one of them.

A perfectly straight glide from 4 800 feet followed; at 2 500 feet an Auster, G-AKIR, passing 300 feet below me on a northerly heading. At 1 400 feet over Botley, where there was a patch of sunlight, hope revived and I got up to 2 100 feet again and then headed south-west where the shadows were rapidly dispersing. After another period of fumbling in patches of weak lift over the Lowford area, a good thermal whisked us up to cloud base at 3 900 feet, the cloud having formed when we were about 1 000 feet below it.

Without a care in the world I crossed Southampton Water, taking photographs of a flying boat taking off from Hythe and of one of the Queens—I forgot to count the number of funnels.

On the other side Beaulieu aerodrome could be seen in the distance beyond its village. The air was deadly smooth, without a cloud in sight ahead. We passed over Beaulieu Abbey at 1 000 feet, and decided that we could just scrape in to land by the control buildings. Then an Auster appeared in the circuit, and I decided to land in the north-east corner to avoid obstructing his approach. Some gulls were circling over two small meres, and at 600 feet I contacted good lift there which took me up to 2 100 feet before dying out. After flying over the hangars and picking up another thermal which did not go beyond 2 200 feet, I set off home again, immediately noticing the improvement in performance when going downwind, which was now about 10 ml/hr from the south-west.

I arrived at Hythe at 1 400 feet and nearly lost the thermal I found there through variometer trouble. The Weihe carries two variometers, a Cobb-Slater and a German Horn and as the green ball of the Cobb-Slater had jammed at the top of its tube while on aeratow, I had been flying on the Horn. The green ball now become unstuck and the two variometers started a furious argument; I eventually disregarded the Cobb-Slater and flew on the Horn. We found later a leak in the plumbing of the Cobb-Slater after a month



Reid, one of our very few soaring meteorologists, in the Surrey Weihe at the National Contests.

of searching. The thermal took me to 3 200 feet and I recrossed Southampton Water. Having tried without success to work two more thermals on the other side, the position really became critical once more, the only hope being the undulating rising ground ahead.

Navigation having temporarily gone by the board, I can only surmise that it was by the Swanmore area that I found myself flying up a spur, at about 3-4 000 feet above the ground, with an escape valley with good fields in it to one side. By the windward side of a wood there was a puff of lift, but prospects seemed better a little further on, where some bonfire smoke was going up. A hawk was also circling near this place and we both went round together for several turns before he left it. Lift continued to increase despite the hawks ideas on the subject and I got back to cloud base at 3 900 feet having been well below this for the previous hour and a half.

The sky had completely changed back to a healthy looking cumulus along the line of the South Downs and beyond, base 3 900 feet, tops about 6 000 feet. The lift became strong but variable, but I could not manage to get into cloud. Beyond Petersfield the clouds lost their cauliflower tops and began to spread out into high strato-cumulus on top, which increased until it almost covered the sky.

I headed for the Devil's Punchbowl in the hope that it might be setting something off, but it was not until I had gone a further three miles that the lift it had caused appeared. In the next 18 minutes I drifted 6 miles nearer home, circling in puffs of very weak lift under a completely covered sky of very dark high strato-cumulus, from which occasional raindrops fell and which, in several places, showed a mammatus structure on its underside, indicative of down currents.

I commenced to sink once more just north of Dunsfold and a long straight

glide at 40 ml/hr followed. I prospected Leith Hill on the way without avail, and so continued to the eastern end, where the best fields are and where I had picked up my first thermal of the morning.

We cleared the last ridge with 150 feet to spare, selected an uphill field round the corner, did a long straight approach, but with a little too much dive brake : the port wing lightly brushed a hawthorn bush and we ended up 100 yards from the hedge with 200 yards uphill to the far hedge. An undershoot, but my first outlanding in the Weihe and proof positive that it can be put down in a small space.

John Jackson, who had done his silver C cross country to Lympne in the afternoon and had been aerotowed back came with Lorne to retrieve me. Both he and Dave Scallon, who had also soared to Lympne, had found good cumulus with a base around 5 000 feet as they went to the east.

CONCLUSIONS

1. The lower minimum sinking speed of the Weihe compared to the Olympia was very noticeable, enabling weak lift to be used.
2. I went the wrong way. It should have been well possible to return against the light wind. In the west the soaring conditions steadily deteriorated, and three separate zones of cloud conditions can be derived from the log ; a very approximate cross section has been drawn on the barograph chart to illustrate this.

At first conditions were well represented by the Larkhill ascent of 09 00, which shewed an inversion at 790 millibars, limiting cloud tops to some 7 000 feet, where they tended to spread out. The tops gradually lowered south-westwards with a patchy layer of higher stratocumulus above. Then in a belt of intermediate air, which may have had its humidity increased by passage over the sea, the cloud base lowered to 3 900 feet. On my way out there were only a few small isolated cumulus forming in this zone, but later this same moister air gave rise to the swelling cumulus with the same base over the Petersfield area.

In the third zone over Beaulieu the top of the convective layer lowered to 2 200 feet and the thermals did not reach condensation level so no clouds formed.

On my return the conditions improved again and some of the cumulus east of Petersfield must have broken through the inversion to give rise to the small shower which I passed through near Dunsfold and which probably was the one which gave a slight form of rain at Dorking about half an hour after I had landed.

3. After Hythe on the return flight I met two areas of weak lift and did not stay to work them, with the result that I nearly came unstuck inexcusably.

BALANCE SHEET AND AVERAGES.

CLIMBING.

			Rate of climb ft./min.	ft./sec.
Out	16	800 ft. in 132 mins.	128	2.13
Return	8	050 ft. in 71 mins.	114	1.90
Total	24	850 ft. in 203 mins.	122	2.04
Aerotow	3	800 ft.		
	28	650 ft.		

DESCENDING.

			Rate of descent ft./min.	ft./sec.
Out	18	400 ft. in 109 mins.	169	2.82
Return	9	860 ft. in 72 mins.	137	2.28
Total	28	260 ft. in 181 mins.	156	2.60
		390 ft. height of landing.		
	28	650 ft.		

It is of interest to see that when allowance has been made for the different heights covered the time spent climbing was 1.5 times that descending on the outward trip and 1.2 on the return.

AVERAGE SPEEDS.

Outward	67 miles in 241 mins.	—16.6 ml./hr.
Homeward	59 miles in 143 mins.	—24.8 ml./hr.
Total	126 miles in 384 mins.	—19.7 ml./hr.

FLIGHT LOG.

Obs. No.	Time B.S.T.	Time since release hrs. min.	Mins. since last obs.	Height Feet A.S.L.	Height gained or lost	Distance Miles	Position
1	11 05	—	—	200	—	—	Take off Redhill.
2	11 19	—	—	3 800	3 600	—	Release over aerodrome.
3	11 28	9	9	4 800	+1 000	—	Set course.
4	11 38	19	10	2 600	—2 200	7.3	Holmwood Park.
5	11 52	33	14	4 900	+2 300	—	—
6	11 57	38	5	4 400	— 500	10.8	Leith Hill tower.
7	12 02	43	5	5 300	+ 900	—	—
8	12 12	53	10	3 400	—1 900	19.2	1 mile north of Dunsfold.
9	12 18	59	6	4 900	+1 500	—	—
10	12 24	1 05	6	3 800	—1 100	23.6	4 miles east of Haslemere.
11	12 31	1 12	7	2 900	— 900	25.6	2 miles east of Haslemere.
12	12 43	1 24	12	4 600	+1 700	—	—
13	13 00	1 41	17	2 100	—2 500	32.4	Longmoor Camp.
14	13 15	1 56	15	5 100	+3 000	—	—
15	13 21	2 02	6	4 300	— 800	—	—
16	13 28	2 09	7	5 100	+ 800	40	Basing Park.
17	13 35	2 16	7	4 400	— 700	—	—
18	13 40	2 21	5	4 800	+ 400	—	—
19	13 43	2 24	3	4 000	— 800	—	—
20	13 46	2 27	3	3 700	— 300	—	—
21	13 58	2 39	12	4 800	+1 100	—	Warnford area.
22	14 10	2 51	12	2 500	—2 300	—	—
23	14 16	2 57	6	4 400	—1 100	53.6	Botley.
24	14 22	3 03	6	2 100	+ 700	—	—
25	14 45	3 26	23	3 900	+1 800	56	Lowford (Bursledon Towers).
26	15 02	3 43	17	600	—3 300	66	Ponds to north-east of Beaulieu Aerodrome.
27	15 04	3 55	12	2 100	+1 500	—	—
28	15 20	4 01	6	2 200	+ 100	67	Turning point.
29	15 33	4 14	13	3 200	+1 000	74	Hythe (having been down to 1400 feet)
30	15 59	4 40	26	900	—2 300	85.6	Swanmore.
31	16 13	4 54	14	3 900	+3 000	87	Cloudbase.
32	16 22	5 03	9	2 600	—1 300	92.2	East Meon.
33	16 33	5 14	11	2 900	+ 300	94	Langrish.
34	16 40	5 21	7	3 400	+ 500	96	South of Petersfield.
35	16 43	5 24	3	3 950	+ 500	97	Cloudbase 1 mile south-east of Petersfield.
36	16 53	5 34	10	1 700	—2 250	103	Milland area.
37	16 57	5 37	4	3 200	+1 500	—	—
38	17 00	5 41	3	2 600	— 600	108.6	Devils Punch Bowl.
38a	17 07	5 48	7	2 300	— 300	112	Sandhills.
39	17 25	6 06	18	3 000	+ 700	114.6	1 mile north-west of Dunsfold.
40	17 35	6 16	10	1 500	—1 500	121.6	2 miles west of Leith Hill Tower.
41	17 43	6 24	8	390	—1 110	126.3	Landed Chadhurst Cottage, Coldharbour Lane, Dorking.

The Newcastle Gliding Club

by S. C. O'Grady.

THE Editor has asked for a short post-war history of our club and its aims for the future.

History should be either amusing or instructive. We have been little amused since 1945 therefore this story from the North will give for the benefit of others our mistakes, our failures and our little triumphs.

There are lines from Paradise Lost or the Aeneid that would describe our earlier wanderings through the miasmic negations of government departments, with our good flying field lying idle and empty in their clutches. Not until it was taken over by a contractor, with whom we quickly and easily came to terms, did we resume flying training, and then only for a few months as he soon required it for his own purposes.

So from 1945 until August 1948 we were Ishmaelites; gipsying at Hartside, a little aero towing at Woolsington, and planting our aircraft 70 miles away with the courtesy of the Yorkshire Club.

All such activities being inevitably limited to the few members who had soaring qualifications.

Much hard work coupled with some pleasant soaring was put in at Hartside testing various sites as a training ground, but we were forced to the conclusion that the district is far too difficult to develop for anything but a casual site for occasional west wind visits and for Helm wind investigations.

One successful venture in training during our Ishmaelite years must be recorded. At Easter 1948 we ran a fortnight's camp partly at Sutton Bank and partly at the neighbouring aerodrome of Wombleton. During this period we trained entirely on a T 21 two-seater, and we were fortunate enough to continue it on occasional weekends for some months at Sutton Bank, thanks to the courtesy of those who control the T 21 at the Yorkshire Club.

This venture taught us:

(i) The immense value of dual instruction.

(ii) Its popularity.

(iii) The advantages of dual instruction from a flat site using high launches.

In the meantime the frustrations of our negotiations with government departments were beginning to yield to something more than hopeful, and in August 1948 we entered formally, if with rather uncertain tenure, on Morpeth aerodrome with an excellent hangar, a club house and fine runways.

No doubt, as the Buddhists say, we acquired merit during our years of denial: at least we acquired a little wisdom; from private firms and individuals (especially farmers, quick and effective decisions can be obtained: in dealing with government departments use some sort of contact man, it's no game for amateurs.

At Morpeth all the enthusiasm leashed for so many years burst out and broke through the thousand and one snags which all members of gliding clubs know only too well to need reiterating here.

During the following winter the battle of two-seater training was waged and won. In April 1949 we got delivery of our T 21 and have had a crash free record of club aircraft since. We have learnt that auto-towing is the cheapest, and quickest method of launching. We use a not so hard solid steel wire and parachute. (This is not the place to go into detailed technical particulars).

Since dual training has been adopted the improvement in flying has been very noticeable. It has not proved so sound financially as we had anticipated, but we feel that this is due to many faults in organization which have now been weeded out, and to the fact that hitherto we have not encouraged passenger flying. Those faults had to be dealt with first. We

considered it a poor policy to advertise passenger flights without a sound flight organization.

One other point we failed on : we did not realize that the T 21 required a forty horse power car to launch it satisfactorily in a calm ; this we put right with the purchase of a Rolls.

Now for the social side : thanks to the foresight and work of those officials who were in Newcastle during the war we emerged in 1945 very sound financially, but with no home of any sort. So, we secured a house in the centre of Newcastle. Here there are workshop and store room accommodation, a yard for trailers, plenty of recreation and committee rooms, and, of course, a bar.

11 Lovaine Place held us together and kept our morale flying during our dark days of no flying training (and very difficult soaring). Now it is the seat of our social and managerial activities. The workshop has been a disappointment. The management anticipated that damaged parts would quickly be repaired in the evenings. This has not proved to be the case. It may be a fault in organization.

About our aims for the future. We propose concentrating on our flat site, C certificates being taken from auto tows or aero tows into thermals. For silver C distance we must use winds other than westerly, but we are hoping for the triangular course on calm, unstable days. Duration may be a problem. For to long distance aspirants there are the unstable north easterlies and perhaps north-westerlies of the spring and early summer. Our first aim, now nearly achieved, is efficient launching equipment for the two seater and solo aircraft. We have still to think out someway of keeping soaring aircraft on the move without interfering with the two seater and solo training aircraft.

Records of activities are invidious, but perhaps, bearing in mind our long years of endurance without a field, ours may bear publishing.

Post war to 31. 10. 49. T 21 over 1 000 launches and 80 hours Solo 900 launches and 212 hours and 660 slides (the last named have been abandoned since the arrival of T 21). 3 silver C duration, 3 silver C height, 1 silver C distance and 2 silver C completed. There were various other flights of interest or amusement, an upside down flight in a cumulus, a silver distance by hedge hopping, several wave flights and many, many soaring flights just for the pleasure of blue sky, white cumuli, and silence.

Prospecting at Hartside. The Newcastle Gliding Club with their Olympia.

Handley Page Gliding Club

by Peter Rivers.

THE Allied victory in World War II was not many days old before gliding and soaring began to attract the attention of a group of employees of Handley Page Ltd, and with the enthusiastic encouragement of Sir Frederick Handley Page, a committee was elected in December 1945 to investigate ways and means of launching the H.P.G.C. Messrs. Handley Page Ltd agreed to the use of Radlett aerodrome and offered hangar space. Sir Frederick has been the club's patron since its conception and it was through his financial help that two Hawkridge Daglings were ordered and an ex-balloon winch procured in the summer of 1946. The severe winter of 1946-47 delayed conversion of this, and it was not until the early summer of 1947 that the club held its first flying meeting.

Under the tuition of an ex-A.T.C. B certificate instructor, so much progress was made (2 500 launches with no damage but broken rudder bars) that it was soon obvious that more advanced aircraft were essential, and in March 1948 a Cadet and a Tutor were bought from the London Gliding Club.

It was soon after this that one of the Daglings was written off, and in spite of several abortive schemes to turn bits into a ground slider, its remains have come in useful only as spares.

In May 1949 an opportunity to buy a Scud III at an extremely reasonable price arose, and one week-end, three club members journeyed from Radlett to Fleetwood, Lancs, to collect it by car. Much could be written of this non-stop there-and-back journey, including first experiences of towing a glider trailer at night, but the pleasure in having, at last, a really soarable aircraft offset any minor discomfort and loss of sleep that the long trip entailed. The Scud was not long with the club, however, as in August last it was swopped for a Rhonbuzzard, the swopper being very keen on fitting an engine to the Scud—as in its original design. This was not, however, before the first thermal flights had been made from Radlett.

In the summers of 1948 and 1949, visits were made to Dunstable with the Cadet and Tutor ('48) and the Scud and Buzzard ('49) in order to gain soaring experience only obtainable as thermal flights from Radlett.

Apart from the Dagling write-off, major damage has been done to the second Dagling once, and the Cadet and Tutor twice each. One of the latter accidents being due to a gust overturning the parked aircraft.

For security reasons, only employees of Handley Page Ltd are allowed on to the aerodrome, and hence in the club; but there have been open days held twice —once in September 1948 when the Hermes was demonstrated to the firm's employees and their families, and again in June this year on the occasion of the 40th Anniversary of the founding of Handley Page Ltd. On this latter day some members of the London Gliding Club were the guests of the club.

The club's greatest difficulty, apart from the financial one which is ever present, has been in making good, small repairs and in general maintenance of equipment. It has enough technical talent in its ranks, drawn from the firm's design offices to draw up modifications and repair schemes, but the main task of carrying out the work falls on the enthusiastic few who form the hard core of the club.

In spite of this, however, the club is likely to continue to function reasonably efficiently and safely; the Dagling still has a stream of everchanging pilots, which behoves well for the future.

A photographic record of the club's activities is constantly being added to, both in still and movie, monochrome and colour—in fact we have reason to believe that, even if it is difficult to recognise another Philip Wills in our midst, Cecil Beaton and J. Arthur Rank come nowhere!

The London Gliding Club

by Dudley Hiscox.

THE London Gliding Club, besides being the largest, is the oldest in the country.

After a brief nomadic existence, it became permanently established below Dunstable Downs, Beds, 32 miles north-west of London, and has just completed its 20th year.

The site consists of some 130 acres, the freehold of which the Club owns unencumbered. Whipsnade Zoo is a neighbour.

The permanently constructed club house, hangar and workshops are of very interesting and modern architectural design. They are the work of the late Christopher Nicholson, M.A., F.R.I.B.A., and were featured in the Architectural Review, of June, 1936

There is accommodation for 14 to 16 fully rigged gliders and sailplanes.

The fully equipped club restaurant seats 60; there are changing rooms with hot and cold running water, adequate offices and a garage for club vehicles.

Another 10 to 12 sailplanes, syndicate owned, are kept in trailers on the club's grounds.

In separate buildings there are dormy houses to sleep 40 members or more. One is reserved for ladies and is electrically heated.

Another permanent building houses a second workshop. This is rented to an aircraft firm, and repairs and major overhauls can be carried out on the spot. Temporary buildings shelter another 6 to 8 de-rigged machines, and provide

accommodation for syndicate members wishing to do work of adjustment on their machines.

A good concrete road provides access to the club buildings from the Icknield Way, a mile out of Dunstable in the Tring direction. The Downs rise a quarter of a mile in front of and to the East of the hangar, the intervening space being part of the 90 acre landing and launching ground. These Downs are part of the Chiltern range of hills, grass covered, with an escarpment facing west-north-west, only 250 feet higher than the launching place and 850 feet above sea level. These deflect winds from south-west to north-north-west, and provide smooth lift for ridge soaring up to 800 feet above the launching point. The chalk sub-soil quickly dries and warms in the sun, giving rise to abundant thermal activity. Thus the site is an excellent springboard for cross country flights of up to 100 miles, which is the distance to the sea coast in an easterley direction. Starting from here one pilot exceeded the distance by crossing the Channel to France. No doubt others will follow.

For aero-tow launching on days when there is no wind, or when it is off the hill, arrangements have been made with the Flying Clubs at Luton Airport and Elstree Aerodrome.

The landing ground at Dunstable is traversed by two 800 yards grass run ways, 12 yards wide, running in south-east to north-west and south-west to north-east directions. These were made primarily to facilitate winch cable retrieving but they also provide good landing strips for light aircraft. However, pilots are advised to have a good look first as the terrain is not level.

A separate winch line is run for ab-initio training and this side of the club's activity receives the constant and careful attention of the permanent staff.

This staff consists of two highly qualified glider maintenance engineers and a professional instructor who works under the honorary Chief Flying Instructor.

The C.F.I., has some sixteen years gliding experience, is a categoried R.A.F. Instructor, and an Examiner Instructor of The British Gliding Association.

In addition to the professional instructor, he has experienced members as assistants. All work to clearly set out Flying Regulations and use the " patter " of the club's syllabus of instruction.

The restaurant is staffed and run by an independent caterer, and there is a club stewardess in charge of the well appointed bar.

Membership of the club has steadily increased since it recommenced flying after the war. It now stands at 250 flying members and 30 associate or non flying members.

There is an entrance fee for flying members of £5 5 0., but no entrance fee for associate members.

The annual subscription rates are £6 6 0., and £2 2 0, respectively.

The club year is from February 1st to January 31st.

The registered office of the London Gliding Club (Pty) Ltd., and of London Sailplanes, Ltd., the owners and operators, are both at 22, Half Moon Street, W.1., and the Secretary is Arthur Sweet, F.C.A.

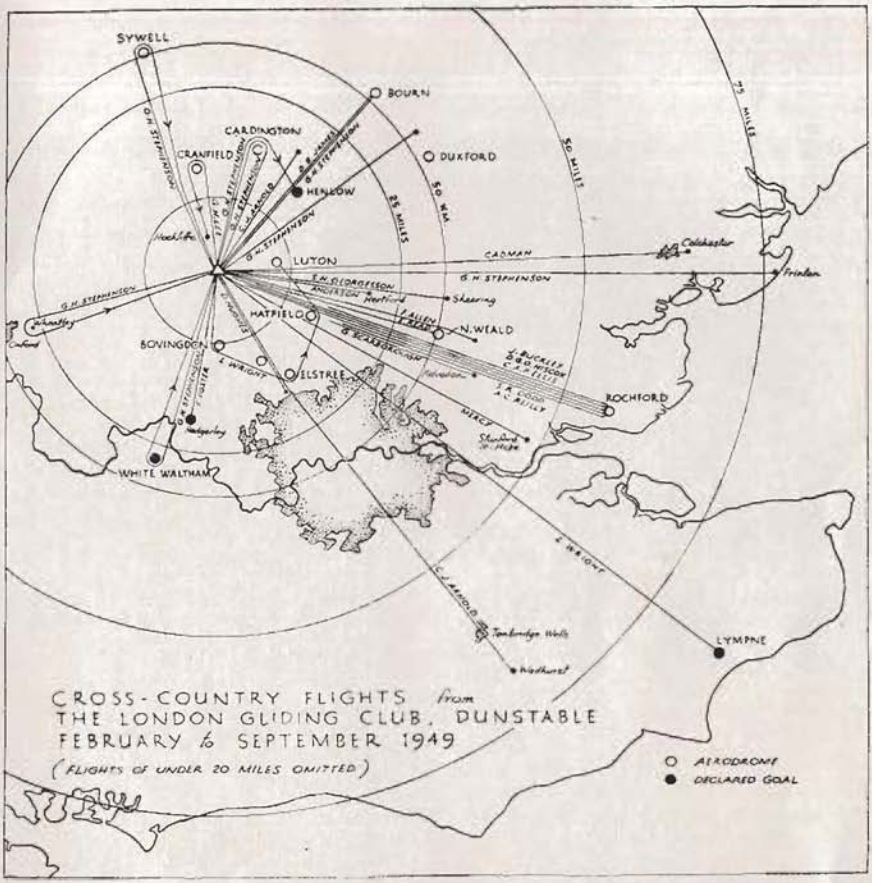
Flying operations, equipment, maintenance and the enrolment of members are controlled from Dunstable. The Honorary Assistant of Flying Secretary on the site is Geoffrey Carter, and the telephone number is Dunstable 419.

Members joining in the middle of the year pay a proportional subscription and visitors who are members of clubs affiliated to Associations of the Federtion Aeronautique Internationale can become temporary members for a matter of £2 2 0.

Daily flying charges are equally reasonable, likewise those for meals and sleeping accommodation.

Club members do probably 80% of their flying at week-ends, although facilities are available for mid week flying except on Tuesdays.

Instructional courses of 12 days duration are organized during the summer



months and follow each other every few weeks. For efficiency of instruction, these are limited to 16 to 20 members. They are open to temporary members and cost £18—£20 all in, flying, meals, and sleeping accommodation.

The club fleet consists of twelve machines, primaries, open and nacelled; Kadet and Tutor secondaries; Grunau, Gull I, Prefect and Gull IV sailplanes; also a Type 21 two-seater.

Three powerful winches provide the means of getting into the air. One of these winches has two drums of cable for "quick-fire" launching and permits the two cables to be retrieved together. Four stripped cars are provided for retrieving on the club ground, and there is a light lorry for use on the public highway. Two club trailers are maintained for retrieving from cross country flights, and petrol is held for the purpose.

A clue to the intensive activity of this club is contained in the statement of figures for 1949 up to the end of October. This shows that 9 693 launches have been made and 2 116 hours 42 minutes flown in soaring flight in ten months.

The social activity of the club is another strong feature. The bar is the

rendez-vous of those with lines to shoot and problems to discuss. The lounge with a library of books and magazines is available for those seeking quieter relaxation.

As previously indicated a large number of members sleep at the club on Saturday night, and on those evenings there is usually some form of organized party. These functions alternate between scientific lectures, serious musical evenings, films and Tramps Balls with a hot jazz orchestra.

A London Gliding Gazette is circulated to members each month, keeping them informed of what is happening at their club and propagating factual information.

The building of the Club to its present size and accummulation of assets has not been done without very considerable and intensive application of thought and energy by a goodly number of enthusiasts. Many obstacles have had to be overcome, financial and otherwise. Undoubtedly the father of the Club was J. R. Ashwell-Cooke, a dynamo of energy, ably assisted and kept on the straight and narrow by Major Henry Petre, D.S.O., M.C., pioneer aviator and astute lawyer, and by Marcus Manton, another pioneer airman, who was the Club's first C.F.I., or Captain, as he was then called.

The Club's original glider, a primary, was acquired by bartering blue prints obtained from Germany for a complete machine, one of a batch made by the R. F. Dagnal Co., of Guildford.

Early capital was acquired by investing the Club's one and only £5 in leaflets (with membership application forms) extolling the Club's excellence, and having them distributed to spectators at the Daily Express Gliding demonstration on the South Downs. This brought in 20 to 30 members with entrance fees and subscriptions. Later a film company wanted the loan of a glider and pilot for a movie entitled "No Lady." Ashwell-Cooke had the effrontery to ask a fee of £150 plus expenses, and got it for the Club!

The original hangar, erected by members themselves, was a sectional building, and bought on the "never never" system. Club finances were strained to the utmost to find the initial deposit. The luxury of a hangar, or rather the removal of the necessity to rig and de-rig wire-braced machines, soon brought in new members and doubled the club's flying activity. The £100 odd that the hangar cost was paid off in a year and another bought. From this it seemed clear that the way to develop a gliding club was first to provide the facilities, then members would come along. This policy has been successfully pursued at the London Gliding Club ever since.

When the Club was trying to find a way to raise £150 for a wooden clubhouse, a gentleman applied at the London Office for the rights to install "fruit machines." Two year's rent in advance was asked and obtained, clearing that financial hurdle! The sequel was an order from the Police a couple of months later for the machines to be removed, or else!

The farmer renting the ground sought increased rent as we appeared to prosper. It was then Espin Hardwick stepped in, bought the land, and rented it to the club at the farmer's original £50 per annum, but with an option to purchase at cost.

Finance for the erection of the permanent hangar, clubhouse and workshop came from the Bank, supported by a collection of separate guarantees ranging from £50 to £500. Major Shaw of Slingsby's and Green's, the Luton brewers, both stood for £500.—club members took up the rest. Then the pre-war gliding subsidy came along. Although the Trustees would not agree to subsidize social amenities, i.e., clubhouse and bunkhouse, the advance they made considerably lessened the capital outlay of the club. The surplus credit was used to exercise the option to purchase the land and some more besides.

About this time the Government paid per capita for Air Defence Cadets to be given courses in gliding. Again we applied the principle of providing adequate facilities in advance, building two bunkhouses and taking on two full time instructors. The courses were money

spinners and enabled the bank overdraft to be reduced.

Then came the war and soon the requisitioning of our land, premises and gliders.

The money paid us for the fleet of gliders enabled the balance of the overdraft to be liquidated and the guarantors released. The rent paid for the premises left a modest balance after paying outgoings, including the running of a temporary clubhouse at Totternhoe throughout all the war.

For some obscure reason a requisitioned winch, although paid for, was never taken away, and a pair of Tutor wings were also left us. During the latter part of the war Frank Enser built a fuselage for the Tutor wings from A.T.C., drawings. This Tutor and the forgotten winch was the equipment with which we opened up again after the war, augmented by three or four privately owned machines that had survived. These were flown in defiance of the ban on civilian flying and we think drew attention to the senselessness of the ban. Anyway it was lifted soon after.

Meanwhile the club premises, still requisitioned, had become a cage for prisoners of war. Although it was a year later before they were de-requisitioned the Army Authorities very sportingly permitted us to use the hangar for the few machines we had.

With the release of the premises came our claim for dilapidations. We had been careful to have prepared a schedule at the time the buildings were taken over. Another survey was made upon regaining possession. The Authorities treated the Club generously, even making an advance while the claim was under negotiation.

The work of restoration was put in the capable hands of Lawrence Wright, and he showed extraordinary ingenuity and economy in the matter. As a result the Committee felt justified in using a proportion of the compensation payment for the acquisition of flying equipment. Again the result was an influx of new members whose entrance fees enabled more gliders to be purchased.

Dudley Hiscox in the cockpit of his lovely varnished Olympia. He is the Chairman of the London Gliding Club and one of the mainstays of British gliding.

Of the post war developments only the cost of the burial of the power lines on the South boundary has not been met out of funds on hand. The £1 200 this ran to has been loaned to the club by the Kemsley Flying Trust.

As to future developments, it can be stated that the main aim of the Committee is to provide adequate, and reliable, and safe flying facilities for club members who journey to the Dunstable site, combined with comfortable, enjoyable, and inexpensive clubhouse amenities.

The Club Flying Regulations and Instructions are published by the London Gliding Club in book form at 2/6., plus 3d., postage, and form a useful source of reference and guidance to any new club.

230 miles in the spring easterlies

Philip Wills regains the British distance record by racing from Hatfield to Gerrans on Sunday May 1st, 1949.

THIS was not a flight that was planned to the last detail before take-off. On the Saturday night a chance-heard news bulletin mentioned a fine Sunday with north-easterly winds, and it crossed my mind it might be a day for a dash to Cornwall. But it was by no means a highly unstable weather outlook, and when I awoke on the Sunday morning it was cloudless but hazy, and I didn't trouble to get up before a luxurious breakfast in bed.

I had, of course, for a long time realised that, living as I was near Maidenhead, my only chance for a crack at regaining Charles Wingfield's distance record was to wait for a good north-east day and get an aero-tow from White Waltham far enough upwind to give me more than a 220 mile run down to Cornwall. This involved a tow of about 30 miles as far as Hatfield. It also involved taking a chance on a good day, and taking off about half-hour *before* thermals developed, so as to release at the right place and time to make the full use of the day and the geography.

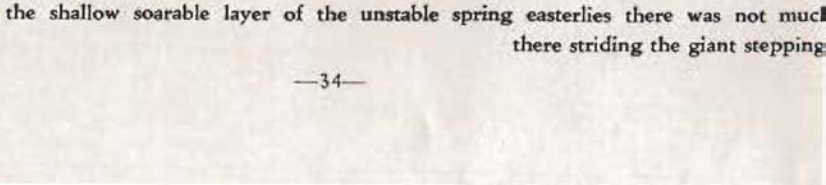
And so on May 1st 1949, I got out of bed at 9 30 and suddenly got the urge: rushed to the wireless and turned on Airmet, just missed the forecast—no time to wait for another.

We dashed to the aerodrome, madly rigged, sealed three barographs (two for the Weihe, one for the tug), sorted out maps, chocolate to eat on the way, sponge-bag, no oxygen—not that sort of day—clued up with the tug pilot, and at 11 20 breathlessly left the ground. It was a cloudless blue day, rather hazy, north-east wind about 25 ml/hr. The prospect looked distinctly unfavourable.

On the tow to Hatfield, we slowly climbed to 1 600 feet and although the tug bounced up and down a bit in broken vertical currents, we never encountered any really sound area of lift.

At 11 50, just east of Hatfield aerodrome, I cast off at 1 600 feet and turned back to what had seemed a slightly hopeful area of broken air.

At 12 00 I was circling in broken air at 1 000 feet over some houses, preparing to land at Radlett. The air was a complete



In the shallow soarable layer of the unstable spring easterlies there was not much there striding the giant stepping

mess : one met areas of broken ups and downs, red and green balls all over the place. It was as if it was suffering from severe indigestion, rumbling and belching to and fro and up and down in discomfort and getting nowhere.

A disgusted voice said in my ear "What a day!" It was me. But then I found I had gained 100 feet in the eructations and it looked as if I might make Leavesden. So I set myself the humble task of getting somehow as far back as White Waltham and so saving a retrieve. And as I struggled I started to compile a balance sheet, using my 1938 flight over much the same course in Minimoa from Heston to St. Austell, as a yardstick.

Anti :—It was a much less favourable day—then I had cloud-streets from horizon to horizon which started at 10 30 and I was on my course by 11 30. It might be, however, that my difficulties now were simply a measure of my luck in assessing the day, I had caught it at the earliest possible moment, and it would develop later on.

Pro :—I had a faster and better machine.

Pro :—I knew the course back to front—geography, geology, meteorological specialities and all. I had flown it in parts several times since 1938. I had, therefore, ruled on my map a line rather south of the true course, from Hatfield to Maiden Newton, north-west of Dorchester, which took me over high or rolling, dry country all the way and avoided the Blackmore Vale, then more westerly to the coast at Bridport, then using the sea-breeze effect along the cliffs from Bridport to Exmouth, then the south slopes of Dartmoor to Plymouth—then—what?

Every time I had flown that course before I had been stumped by the Cornish coast, and so has everyone else I know of. Once I tried it for a sea-breeze effect on a cloudless evening, and another time for cloudlift when beautiful cumulus were to be seen. Each time I came steadily down. Well, if we got so far we should have to see.

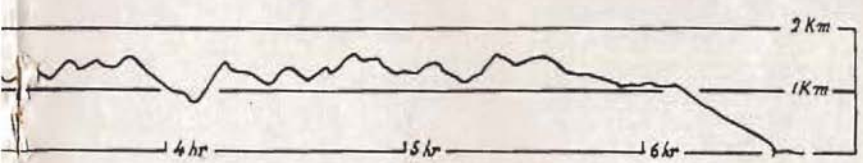
Pro : (or anti) ? I was eleven years older. More cunning possibly, but a good deal more repressible.

Near Watford some more aerial eructations kept me between 1 000 and 1 200 feet and I drifted over Watford, having to spend most of my time keeping an eye on possible forced landing fields. For quite a time a landing near Rickmansworth seemed inevitable then a bit of height brought Denham aerodrome within range.

The burblings now seemed to go up a few hundred feet and over the sky Londonwards a few small flat cumulus started to form very high.

Gradually I made height and soon began to think of time—and speed. It was tricky without any cloud overhead, to decide whether a bit of broken lift had petered out or whether I had simply lost it through bad circling, but I assumed conditions would improve only slowly, and in each succeeding area of lift I only persevered to gradually increasing maxima —1 200 feet over Watford, 1 400 feet over Rickmansworth, 1 600 feet over Denham. But these are the sort of heights from which one usually begins to look for a landing, not dream of breaking distance records.

Near Slough I reached 3 000 feet and now decided to overfly White Waltham and have a bang at it. 3 500



margin for errors. Wills made none. Having got to the top of the layer he stayed stones of 35 thermals to Cornwall.

Philip Wills in his Weihe at the National Contests this year which he won decisively. He holds the British height and long distance records. He is the senior pilot of our national team.

feet at White Waltham, 29 miles in 50 minutes. 3 600 at Woodley—35 miles in an hour. Not bad for the first and presumably worst hour. Hurry, hurry. Up-currents now up to 5 ft. sec., not much to boast about, but cruising between thermals increased to 50 ml/hr. A few cumulus now forming overhead, very high, base about 6 000 feet.

And so it went on for another four hours. Lift rarely over 5 ft sec., average height around 4 500 feet, once just topped 5 000 feet, still not near cloud-base, but no time to climb higher. Hurry, hurry, cruising speed up to 58 ml/hr and in lift of less than 3 ft sec I went straight on, reducing speed to 40 ml/hr. I couldn't have more than 6 hours for the flight, so all would be wasted if I couldn't average just short of 40 ml/hr. This was a race, and involved racing technique.

But as far as Plymouth everything went according to plan, I was never two miles off my pre-planned course. Sea-breeze lift from Bridport to Exmouth as ordered.

At Newton Abbott the day started to die. I climbed as high as possible under a largish mess of dying cumulus and set off downwind into a fading sky. I reached Plymouth at 3 600 feet and climbed in its thermal to 4 300 feet. Downwind was a hazy, cloudless evening sky.

Only one thing for it, perhaps this time Cornwall would produce a sea-breeze effect. At 3 600 feet over the cliffs of Whitsand Bay I found neutral lift, and with hardly a circle flew quietly at 38 ml/hr along the cliffs for nearly 25 minutes without loss of height. Past Fowey I cut across the Bay towards Falmouth, the record was in the bag, but each mile now counted.

I reached the far coast at 1 200 feet and still found slight lift, reducing my sink to 1 ft sec.

But the rivermouth at Falmouth is wide, and if I were to cross it I would arrive at the far side with about 250 feet in which to find a field. So from 900 feet I slipped down to a landing at

Gerrans at 5 50 p m. Exactly 6 hours, approximately 230 miles, average speed over 38 ml/hr. A race.

A car drew up as I landed. It was the local taxi on the way to the nearest railway station at St. Austell. The driver and his passenger helped me to de-rig and I hopped in.

For once I really felt that I had extracted the utmost out of a particular day. If I had succeeded in starting earlier I should almost certainly have failed to remain airborne ; I don't believe it was possible to carry on after I had landed.

What to learn from this flight? Mainly that the performance of the modern sailplane is now so good that on a quite moderate day one can traverse this island almost from coast to coast.

What we need now, therefore, in our next breed is—*improved handling and stability, and cheaper methods of construction.* More important still, we need an advanced two-seater in which more people can more quickly be trained to the pitch when they can use the potentialities of their aircraft to the full.

Lastly, practise in racing technique at our future gliding competitions is required.

Gloucester Gliding Club

IN the balmy summer months there were 1 050 winch launches, and a fair crop of certificates. Much unrewarded effort has been put in on maintenance and field duties, although our equipment is still not as efficient as it might be. Worley, Chown and Brian got their C certificates in thermals and the adventurous Fletcher did the same at Troyes. Capt. Smith, Forty, Jones, Mellor and Reeves obtained theirs on hill lift at Cleeve. Conversions to our popular new Prefect have been going on apace and now all our original members of whom six are under twenty, are flying this machine. Conversions from the Kadet have been fairly easy, using no cockpit hood, and the fact that this machine flies so well in this condition caused some blue noses and fingers on Macfie and Burns when levitated unexpectedly to 7 000 and 5 000 feet respectively.

In August, a weak belt of stationary lift was discovered behind the aerodrome in strong south-west wind, it was good for 3 000 feet only, but, on one occasion, there was a lenticular upwind over the Severn estuary. Our members normally go straight on to aero tows, thanks to the good offices of Mr. Reeves' Aero Club and tug pilots include Zeyfert (our category B instructor), Capt. Smith, Chown, Burns, Woodcock and James. 60 aero tows were done this summer.

Our aerodrome, Staverton, lies midway between Cheltenham and Gloucester and has lots of grass ; this winter it is due to be returned to the management of the joint corporations of the towns—we hope that they like us. we bring them such nice tourists who all politely say that the thermals are fine !

No account of the year's activity would be complete without mention of the day in June when our president Philip Wills was here and Ann Douglas and Walter Kahn. They were all in the air when Charles Wingfield and James Grantham appeared overhead from Long Mynd. The sky had a competition look and our Kadet wanted fiercely to join the fray ; but had to be content in going up and down as often as it could and look frightening—which, on one occasion, it did. That evening there was a little beer and the next day David Ince did his remarkable flight back to Mynd and Philip Wills went to Maidenhead—surely this was unique encouragement to a new club in that two guests arrived and two departed by sailplane.

Our next red letter days will be when the Dennet winch does it ; when we commence project No. 2—trailer ; and when there is a first issue of a new gliding magazine.

The Secretary's address is, F. Worley, Grange Farm, Woolstone, Gloucestershire.

The Surrey Gliding Club

by Lorne Welch.

The Surrey Gliding Club was reformed after the war in the summer of 1946 and operated for the rest of that year from Kenley aerodrome. It was an almost ideal gliding club, consisting of five members, a Weihe, and the use of an Auster for aerotowing!

In the early spring of 1947 the club moved to Redhill aerodrome, its present home, and started to expand. This was greatly helped by the affiliation of the Imperial College Gliding Club, which besides producing two Cadets for training also contributed a number of very enthusiastic members. With the arrival of a Tutor and three Olympias the club really got going and the membership soon built up to over a hundred.

Since few of the members were experienced pilots, a great deal of training had to be done, but the ideal of the club has always been to produce good soaring pilots and to give every encouragement for cross-country flying.

The following table shows how much has been done in this respect.

Year.	*Launches.*			*Hours.*		*Flights qualifying for Certificates.*								*Cross-Country Miles.*	
	Winch.	Aero-tow.	Total.	Club.	Private.	A	B	C	H	Silver Di.	Silver Du.	Gold H.	Gold Di.	Club.	Priv.
1946 ...	18	47	65	50	1	—	—	—	1	2	—	—	—	150	—
1947 ...	3 122	560	3 682	351	210	26	25	11	9	7	2	—	—	1 097	440
1948 ...	5 001	607	5 608	517	145	46	43	22	5	5	1	1	—	804	680
1949 ...	5 229	529	5 760	959	66	20	22	14	23	19	10	2	1	2 877	310

TRAINING.

To begin with, all training was carried out solo on Cadets launched by winch, and although a fairly good accident rate was obtained, the short-comings of this method, particularly in low hops, were fully realised. Early this year, however, the I.C. Aeronautics Department obtained a Slingsby T-21b two-seater and since February all training has been carried out on this machine. During these first nine months of its operation it has done 2 400 launches without any damage. The beginner is given all his early training in this glider, which is launched by winch. After about 25-40 dual circuits, which include practice in stalls and incipient spins the pilot is sent solo on a Tutor. The first one or two solo flights are made as straight high hops, to ensure that the pilot can glide it correctly; he is then sent off on circuits.

This method of two-seater training is a very great improvement on the old way of using single seaters, it is not much quicker up to the B certificate standard, but the wear and tear on aircraft is greatly reduced, and far more important; it turns out better pilots.

All this early training, both on the two-seater and, as has always been our practice, on the single-seater, is made without any instruments. That this works can be shewn by the fact that in the past three years all our Tutor flying (some 3 000 launches), and all our Cadet circuits (at least another 1 000), have resulted in one cracked skid only.

Instruction is under the supervision of the full-time chief instructor, Lorne Welch, and assisting him are Ann Douglas, Peter Helson, Peter Brooks, Wally Kahn, John Neilan and Don Brown.

The pilot does about 50 circuits on the Tutor, interspersed with some dual, and learns to do stalls, sideslips and spot landings, by himself. After some further duals in which he is taught to use instruments and airbrakes he progresses to the Olympia. And then, after a number of winch launches on this machine he is given his first aerotow. The C certificate is usually gained by thermal soaring off an aerotow.

SLOPE SOARING.

Our nearest slope, the North Downs, is five miles away from the aerodrome. And so an aerotow is necessary to get there; this puts slope soaring much later in the training programme than is usual at other clubs. In some ways this is an advantage as it means that a pilot does not go slope soaring until he has reached a fairly high standard. But against this the cost of hill soaring is inevitably high, since it normally involves a retrieve by road as well as the aerotow, and so people are reluctant to go on the hill unless conditions are really good.

The slope itself is a good one, although facing rather an unfortunate direction (south). The beat Boxhill-Reigate is the one most frequently used, although in good conditions it is possible to go almost to Guildford (Newlands Corner) on pure slope lift. In the other direction the ridge extends to Ashford in Kent but it has several large gaps which can only be crossed by thermal lift, and the slope is not so good.

LAUNCHING.

We started after the war with the usual selection of glider winches. But the first year of operation shewed us that owing to the fact that we share the aerodrome with aeroplanes there is only space for one winch and thus in order to obtain a satisfactory number of launches it was essential that the winch should be really reliable. Accordingly, in the winter, 1947-1948, we designed a new winch and had it made locally. It was considered necessary that the winch should be operated by only one man, that it should possess a built-in guillotine and a proper feed on mechanism.

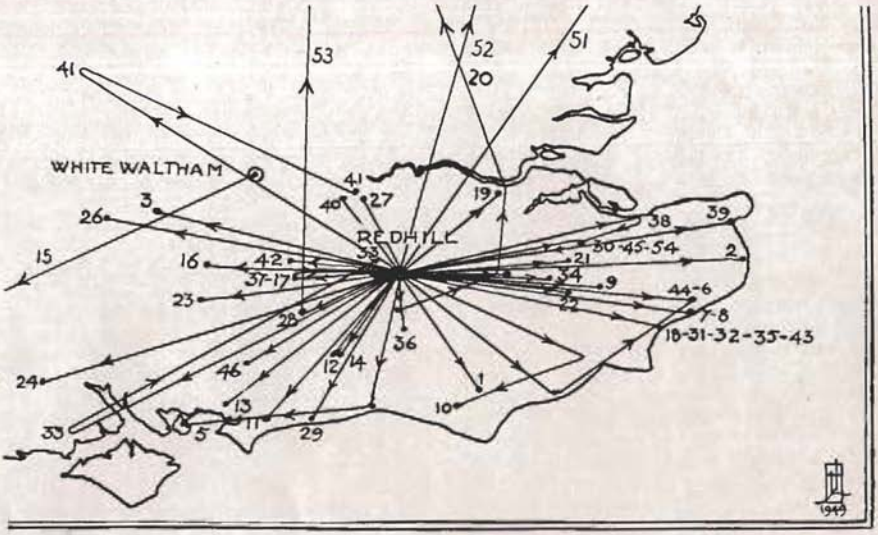
The engine, gear-box and feed on mechanism were taken from a balloon barrage winch, a new chassis being built. The layout is the simplest possible: engine—clutch—gear-box—prop shaft—drum, all in one straight line. Only three feed on rollers are used in this winch: a long top roller, and two short vertical rollers fixed on a traversing frame to which the guillotine is attached. This mechanism which was carefully designed so that the cable could not catch round anything has proved satisfactory. A new drum had to be made since the storage drum on the Wild winch is the wrong length for the feed on mechanism if this layout is employed. The winch was made in the form of a two wheel trailer with strong jacks. The usual cage being fitted over the driver who sits between the engine and the drum.

This winch has worked very well, mainly because full working drawings were made beforehand. One mistake has come to light despite all our planning. That is the gear ratio, or size of drum. The drum diameter, 9½ inches was arrived at by saying that a cable speed of 53 ml/hr should be obtained at peak revs, 3 700, in the normal launching gear, third. We now find that this gear ratio is slightly too high for general operation, while second is slightly too low. It would be better to design for a cable speed of 40-45 miles an hour at peak revs. and over-speed the engine a little when launching in no wind.

Cable. Until we had a two-seater we used 15 cwt. 7 x 19 cable for the winch. But this year we have changed to 25 cwt. 7 x 19. This works well, giving about 3 000 launches a cable but is expensive.

A simple parachute 4 feet square is used on the winch cable. The weak link is attached to the apex of the parachute and the pull taken through the four shroud lines.

Aerotows. An Auster Autocrat (100 horse power Cirrus engine) is used for towing, usually with a 200 feet 5/8 inch circumference nylon rope.



Flights from the Surrey Gliding Club in club aircraft. The numbers refer to the table opposite. All sorts of weather and wind directions have been exploited.

FLYING IN 1949.

The statistics have already been given, but perhaps something should be said about some of the better flights made in this year.

Derek Reid before he left for Australia made a gallant effort to get his gold C in unstable south winds. He flew northwards on two occasions, each flight being a little over 100 miles. He did an out-and-return flight to Delting during which he got to 10 000 feet, his attempted out-and-return to Beaulieu is described on another page.

Two gold C climbs were obtained by Bob Garnett and Jack Karran who climbed 12 800 and 11 800 feet in cunim.

Lorne Welch's gold C distance flight is also described on another page. But on a previous attempt he flew 147 miles to Dartmoor and on an attempted out-and-return to Brize Norton got back to Virginia Water, making a total distance of 123 miles.

But what was very much more important than these flights was that a large number of members made good cross countries, 19 of them getting silver C distance in club Olympias and no less than five of them making goal flights of 52 miles to Lympne. Twenty-three members obtained silver C height, eight of them making actual climbs of more than 5 000 feet.

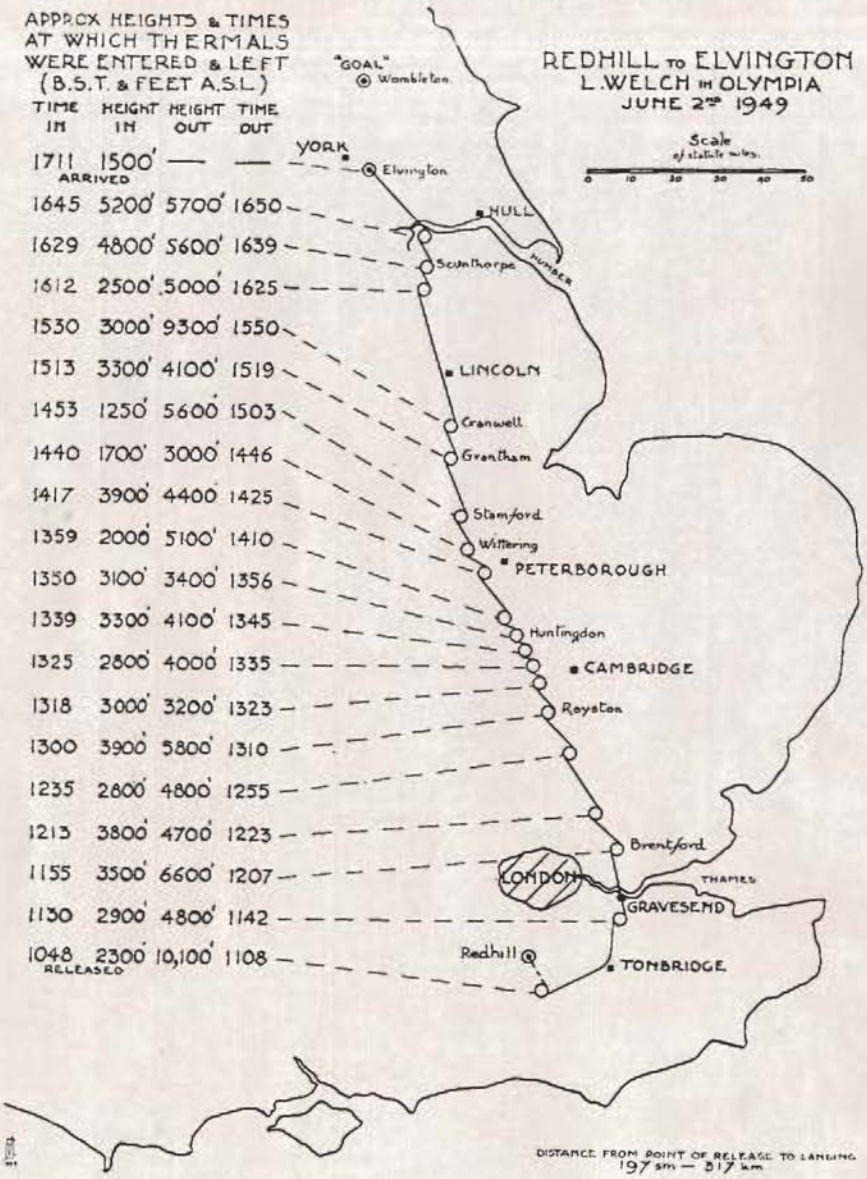
Expeditions were made to Friston at Easter, the Mynd and Staverton in June, the competition in August. Of the three club gliders sent to Derby the Weihe came second in the general classification and won the club competition. A number of members visited France and Switzerland and did some interesting hill soaring.

Plans for next year. We are hoping to make many more expeditions in the coming year, especially to new sites and clubs; we want particularly to make several visits to Roundway which the Bristol Club are developing. Also we hope to hold more courses here both for beginners and more advanced pilots.

CROSS COUNTRIES IN SURREY GLIDING CLUB AIRCRAFT, 1949.

No.	Date	Pilot & Glider	From To	Distance miles	Duration hr. min.	ml/hr.	Max. height feet A.S.L.
1	10.II	Reid GO	R—Hailsham	31	1 25	22	4 500
2	15.III	Welch PO	R—Walmer	67	3 33	19	5 100
3	26.III	Karran GO	R—Aldermaston Ae	42	2 02	20	6 300
4	26.III	Dowdall RO	R—Tonbridge	17	2 25	7	7 400
5	9.IV	Karran PO	R—Shoreham-Portsmouth Ae.	63	3 30	18	6 500
6	9.IV	Kahn GO	R—Hawkinge Ae.	57	2 25	23	6 500
7	9.IV	Dowdall RO	R—Folkestone	58	3 30	16	—
8	23.IV	Crosfield PO	R—Folkestone	58	3 44	15	—
9	25.IV	MacFie PO	R—Ashford	49	1 45	28	5 400
10	27.IV	Reid GO	R—Rye-Firle	60	4 20	14	9 200
11	30.IV	Shepard GO	R—Tangmere Ae.	39	1 45	22	8 700
12	30.IV	Gorringe RO	R—Coolham	20	2 00	10	—
13	1.V	Hooper GO	R—Funtington	40	2 18	17	—
14	1.V	Laurie PO	R—Shipley	19	1 20	14	—
15	9.V	Welch RO	WW—Haytor, Devon	147	5 15	28	5 200
16	21.V	Jordan PO	R—Odiham Ae.	35	2 00	17	—
17	22.V	Helson CO	R—Guildford	17	1 20	13	—
18	25.V	Irving GO	R—Lympne Ae.	52	1 35	33	5 200
19	29.V	Laurie CO	R—Gravesend Ae.	30	1 00	30	—
20	2.VI	Welch GO	R—Elvington Ae.	197	6 36	30	0 100
21	4.VI	Kahn CO	R—Charing	40	1 40	24	9 000
22	4.VI	Reid RO	R—Smarden	36	1 12	30	4 400
23	24.VI	Beech RO	R—Lasham Ae.	40	4 00	10	4 800
24	24.VI	Nurney GO	R—Stoney Cross	72	3 40	20	5 800
25	25.VI	Fowler RO	R—Tonbridge Wells	20	2 15	9	—
26	3.VII	Gregory CO	R—Newbury	52	2 13	23	—
27	3.VII	Brooks GO	R—Tolworth	15	1 00	15	—
28	10.VII	Neilan RO	R—Dunsfold Ae.	18	1 05	16	—
29	10.VII	Moore CO	R—Ford Ae.	37	2 30	15	—
30	16.VII	Reid RO	R—Out & R. Detling	62	4 45	13	9 000
31	20.VII	Scallon CO	R—Lympne Ae.	52	3 53	13	—
32	20.VII	Jackson GO	R—Lympne Ae.	52	2 10	24	5 700
33	20.VII	Reid We	R—Beaulieu-Dorking	126	6 24	20	5 300
34	22.VII	Westman CO	R—Marden	28	1 37	18	6 400
35	26.VII	Westman PO	R—Lympne Ae.	52	2 10	24	6 700
36	4.VIII	Jordan CO	R—Buxted	19	1 32	12	5 600
37	6.VIII	Kahn We	R—Out & R. Guildford	36	2 06	17	6 600
38	9.VIII	Reid We	R—Whitstable-Detling	63	3 00	21	9 300
39	10.VIII	Sowrey GO	R—Manston	65	3 30	19	—
40	10.VIII	Kahn PO	R—Out & R. Staines	35	3 05	11	—
41	12.VIII	Welch We	R—Brize-Norton Virginia Water	123	6 46	18	5 100
42	13.VIII	Kahn We	R—Farnborough Ae.	27	1 50	15	2 800
43	14.VIII	Miss Gilbert RO	R—Lympne Ae.	52	2 18	23	7 000
44	14.VIII	Goodhart PO	R—Hawkinge Ae.	59	3 20	18	7 800
45	15.VIII	Gorringe RO	R—Detling Ae.	34	2 26	14	—
46	17.VIII	Hall RO	R—Midhurst	35	2 15	15	—
47	21.VIII	Reid We	C—Eastmoor Ae.	59	2 40	22	5 500
48	22.VIII	Kahn We	C—Timble	47	3 40	13	7 600
49	22.VIII	Murdon PO	C—Wakefield	25	3 05	8	4 900
50	23.VIII	Neilan We	C—Northwich	30	3 40	8	—
51	2.IX	Hall CO	R—Boxted Ae.	69	2 35	27	5 000
52	3.IX	Reid We	R—Shipdham Ae.	110	3 50	29	—
53	25.IX	Reid We	L—Stamford	105	5 23	19	4 300
54	17.X	Neilan We	R—Detling Ae.	33	1 30	22	—
61	18.VI	Laurie CO	LM—Dingestow	51	2 35	20	—
				2877			

NOTE.—Times are clock times (B.S.T. when in force).


APPROX HEIGHTS & TIMES AT WHICH THERMALS WERE ENTERED & LEFT (B.S.T. & FEET A.S.L.)
TIME IN | HEIGHT IN | HEIGHT OUT | TIME OUT
1711 ARRIVED | 1500' | — | —
1645 | 5200' | 5700' | 1650
1629 | 4800' | 5600' | 1639
1612 | 2500' | 5000' | 1625
1530 | 3000' | 9300' | 1550
1513 | 3300' | 4100' | 1519
1453 | 1250' | 5600' | 1503
1440 | 1700' | 3000' | 1446
1417 | 3900' | 4400' | 1425
1359 | 2000' | 5100' | 1410
1350 | 3100' | 3400' | 1356
1339 | 3300' | 4100' | 1345
1325 | 2800' | 4000' | 1335
1318 | 3000' | 3200' | 1323
1300 | 3900' | 5800' | 1310
1235 | 2800' | 4800' | 1255
1213 | 3800' | 4700' | 1223
1155 | 3500' | 6600' | 1207
1130 | 2900' | 4800' | 1142
1048 RELEASED | 2300' | 10,100' | 1108
REDHILL to ELVINGTON
L. WELCH in OLYMPIA
JUNE 2nd 1949
Scale of statute miles
0 10 20 30 40 50
"GOAL"
Wombleton
YORK
Elvington
HULL
Scunthorpe
HUMBER
LINCOLN
Cranwell
Grantham
Stamford
Wittering
PETERBOROUGH
Huntingdon
CAMBRIDGE
Royston
Brentford
LONDON
THAMES
GRAVESEND
Redhill
TONBRIDGE
DISTANCE FROM POINT OF RELEASE TO LANDING
197 sm — 317 km

2nd British native gold distance

Lorne Welch had planned a new route for himself and he followed it.

The Plan.

I had for a long time considered the possibility of making a long flight from Redhill to the north in conditions of unstable south-westerly winds. I thought that there was a good chance of getting gold C distance (187 miles) by doing this, despite the necessity of travelling partly across wind—a thing which, I had found from previous experience, was not nearly as difficult as most people believed it to be.

The plan was to take off as early as possible and then go off downwind to cross the Thames near Gravesend. From there it was planned to go due north, thus keeping well to the lee of London, and then in the middle of the day when conditions should be at their best to work more across wind towards Grantham. From Grantham the idea was to go up Lincoln Edge to the Humber and then on into Yorkshire. This route was chosen because I had noticed when flying aeroplanes in these parts during the war that Lincoln Edge and the ground around the Humber was excellent thermal country.

The Weather.

Tuesday, May 31st, a wonderful soaring day with a south-westerly wind, was wasted as I failed to appreciate quite how good it was until too late. But it did make me wake up and get everything ready in case another similar day should come along. This happened on Thursday, June 2nd; an occlusion having crossed the country on the Wednesday leaving behind it a light unstable south-west air stream.

Judging from Airmet reports which gave warnings of showers, the unstable layer appeared to be of some considerable depth. The first cumulus were seen at about 8 o'clock and they built up rapidly into broken streets. By 10 o'clock the streets had disappeared and the cumulus had built up to a considerable height and areas of more than 5 miles across were 8/8 cover. The surface wind was south-west 10-15 miles an hour.

The first attempt.

As Mrs. Douglas very nobly offered to give me a tow and look after the club while I was away, I decided to have a shot at it, giving Wombleton Aerodrome, about 220 miles away, as my goal.

I had a tow at 10 15 and released at 2 000 feet under a large mass of cumulus a couple of miles to the south of the aerodrome. There appeared to be lift under this cloud when I released, but I could make nothing of it. The only other likely looking place was by a patch of sunlight some way to the south; I did not want to burn my boats at this early hour, so I came back to the aerodrome finding nothing but sink on the way, and landed.

By the time I had landed, there was even more cloud around the aerodrome, although conditions still looked good with smaller cumulus and patches of blue sky some ten miles to the south. I therefore decided to have another tow immediately and take the chance that I might have to land away at once if I failed to soar.

The flight.

I took off on tow for the second time and released at 10 48, 8 miles to the south of the aerodrome at 2 300 feet under a large cumulus. Lift was quite good this time and I was soon at cloud base, 4 000 feet, and into the cloud.

NOTE.—All times are British summer time, and all heights are above mean sea level.

Slight icing started at 6 000 feet, but it was confined to the usual strip about 3 inches wide on the leading edge of the wing and to small amounts on the windscreen and aileron horns. Twenty minutes after release I came out near the top of the cloud at 10 100 feet. The cloud was not rough, but then the lift was never more than about 15 feet a second. The average rate of climb from release to the top was 6·5 ft/sec.

On coming out of the cloud I found that there were large masses of dead cloud to the north, but to the east and south the sky was fairly clear. I headed towards Tonbridge and then turned north to Gravesend, doing one more climb on the way. The Thames was crossed at 4 000 feet underneath some large clouds which gave almost complete cover, time 11 50. The lift under these clouds was weak but it could be used. A climb into cloud to 6 600 feet was made north of Brentford at 12 07 and after another period of working lift at between 3 000 and 5 000 feet, 5 800 feet was reached over Royston at 13 10.

Conditions now changed completely, and the large vague masses of cumulus gave place to not more than 2/8 of thin cumulus with a bright blue sky above. The clouds were not in streets, but they tended to form in rough lines up and down wind, 240°.

Soaring was not as easy as I had hoped because a large proportion of the clouds gave no lift and in order to make good my track to Grantham it was necessary to keep crossing from one line of clouds to another. However, fairly good progress was made and 14 10 saw me between Huntingdon and Peterborough at 5 100 feet, just inside cloud for the first time since leaving Royston.

Owing to carelessness I got down to 1 700 feet near Wittering before I found a thermal, which I could work no higher than 3 000 feet. I very stupidly then pressed on across what I found to be a large area of sink and north of Stamford I got low again without having found any lift. I was then near a number of bare fields so I waited to the lee of them in the hope that something would come up. I was down to 1 250 feet, about 900 feet above the ground, before a thermal came to my rescue. It was one of the strongest and roughest which I have ever met, and I regret to say that it made me air sick. From the barograph chart I see that the rate of climb from 1 250 to 5 600 feet, cloudbase, was 7·5 ft/sec, while for the best part, from 1 800 to 4 500 feet, it was 11 ft/sec. The cloud which formed at the top of this thermal was like all the others in this part of the flight, quite thin. It did not start to form until I was at 4 000 feet.

During the past hour the wind had altered its direction slightly and instead of being south-west to west-south-west was now almost south at about 10 miles an hour.

At 15 20 Grantham was reached and the conditions now changed again: the thin cumulus giving place to much larger ones of about 5/8 cover. After wandering around at about 3 000 feet over Cranwell for 10 minutes or so, looking for lift to take me into one of these clouds, I found it and reached cloudbase, 5 000 feet, at 15 37. The lift inside this cloud was not very strong, never more than 10 ft/sec, nor very rough, but I was airsick again before coming out of the cloud at 15 50 at 9 300 feet. There was very little ice this time.

Ahead lay some large cumulus the tops of which appeared active at about 12 000 feet; but their bottoms were very ragged and woolly and it looked as if they had reached their maximum. I, therefore, decided not to charge into them, but skirted round them to the west, passing over Lincoln at 8 200 feet at 15 55 hours.

By now I had been flying for 5¼ hours and covered about 147 miles, so it looked as if there was a good chance of doing the extra 40 miles for my gold C distance even if I could not do the 220 miles to my goal. It was now only 4 o'clock and there were thin cumulus ahead over Scunthorpe and the Humber, while beyond, the tops of some larger clouds could be seen.

However, these thoughts usually lead to trouble, and this time was no exception as I glided straight down from 9 300 to 2 500 feet before I found any appreciable

lift. When I found it, south of Scunthorpe, it was not very strong, but it took me up to 5 600 feet by 16 39 hours. This was underneath some very thin clouds which formed as I climbed up towards them. By 16 50 I had worked my way up to the base of one of the clouds, 5 700 feet, at the junction of the Trent with the Humber.

But ahead conditions did not look nearly so good, the visibility, which up till now had been better than 20 miles, was less than 5; the air looked completely dead, as the clouds which had looked so good when seen from Lincoln had died into flat dull masses. South of the Humber, both to the east and the west, it still looked soarable, but everywhere ahead it looked equally bad. According to my reckoning I still had a further 15 miles to go to make quite sure of my gold C distance, and while the thought did occur to me that it might pay to hang on here in the hopes that conditions ahead would improve, I did not give it much attention and so pressed on.

As soon as I was across the Humber I knew that that my fears were justified —the air was completely dead, without a single ripple. It was obvious that the odds of being able to do anything other than a long straight glide were negligible. I wanted, if possible, to land at an aerodrome in order that I might be aerotowed back next day, and, in any case, doing this would enable me to put the glider in a hangar, or hut, for the night instead of leaving it in the open which I would probably have to do if I landed in a field.

There seemed to be three aerodromes all just about the right distance away: Full Sutton, Pocklington and Elvington. I thought that the first two were deserted, and as I knew nothing about Elvington I decided to go there. The straight glide to it was uneventful: Holme was passed at 4 300 feet and Melbourne at 3 000 and finally Elvington was reached at 1 500 feet at 17 11 hours.

Elvington was, needless to say, completely deserted and all the ground between the runways was under crops. However, a nice straight bit of perimeter track near the buildings was clear, and on this I landed at 17 16, after having flown for 6 hours 36 minutes and covered 197 miles in a straight line.

My choice of landing place turned out to be very fortunate as some farm labourers quickly helped me to derig and put the Olympia in an empty Nissen hut, while the owner of the house to which I went to telephone insisted on putting me up for the night and, as the retrieve could not be done next day, driving me in to York to catch the train. The retrieve was finally made by Ann Douglas and Malcom Laurie in his car; they made the round trip of 480 miles in 18 hours including all stops.

Lorne Welch has done a great deal to raise the standard of British soaring since the war. His motto is: "SAFETY." This is not achieved by avoiding difficulties but by confronting them with intelligent analysis.

Remarks.

1. It pays to start a long flight as early as possible. If I had had the courage of my convictions I could have got away half an hour earlier on my first tow. But, in any case, it would have been impossible to start any later than I did on my second tow as it clouded over completely at Redhill for the rest of the morning.

2. A 1:500 00 map was used. This is perfectly adequate for a flight of this nature which is usually made in good visibility. The advantages of this scale map in place of the ¼ inch are considerable. The few sheets which cover the whole of England can be stuck together and as a result there is no chance of getting muddled when changing from one sheet to another. It is much easier to see how one is getting on because a larger area of the country can be seen at one time on the map. And finally because the map shows much less detail, the pilot is less inclined to waste his time pinpointing himself by every little village.

3. Although the business of taking notes on a kneepad is a nuisance at first, it is not very much trouble when one has got used to it. Unless notes are taken regularly an analysis of the flight is impossible and so one cannot learn how to improve one's technique. I have made it a habit to make a note of the height, time and position whenever I leave a thermal, and if possible of the height of cloud base and the height at which the climb is started.

4. The average speeds obtained in each hour may be of interest. Measured from the place and time of release they are: 33, 23, 24, 29, 34, 38 ml/hr. If the actual route followed around London is considered the figures for the first three hours become 38, 30 and 26 ml/hr.

The average speed for the whole trip of 197 miles is 30 ml/hr. or 32 ml/hr for the distance of 211 miles actually flown.

Considering that there must have been a tail wind component of about 10 ml/hr these figures do not seem very good. I am sure that an improvement in flying technique could increase these average speeds by 5 or even 10 ml/hr under the same conditions with the same glider. The scope for improvement does not lie in cunning panaceas to tell the pilot at what speed to fly between thermals; this makes very little difference. It lies in the ability to know where lift can be found by reading the signs from the clouds and from the ground; in mastering the knack of getting quickly into the best lift once it has been found; in knowing when to press on or when to stay in weak lift, and in being so accustomed to thermal soaring that one can make sensible decisions and fly well after working hard for several hours.

The only ways in which this improvement in technique can be achieved, are by constant practice and by learning from our own and other people's mistakes. During the flight which I have described here, as I see it, I made the following mistakes:—

(a) I should have got away half an hour earlier.

(b) I nearly came unstuck near Stamford. This was due solely to the old mistake of getting down low, getting up again but not high enough and then pressing on without looking for lift in the vicinity. The result was that I got very low before finding any more lift.

(c) Having arrived at the Humber with 5 700 feet and with less than 15 miles to go to get gold C distance I went straight on despite the fact that the conditions ahead looked bad. My goal was only 35 miles away. The proper thing to have done was to say: "I can do it easily from 4 500 feet, so I will stay here until conditions ahead improve or I get down to that height." I did consider doing this at the time, but rejected it in favour of going on at once and making sure, a decision which I will always regret, particularly because the clouds did start to look a little more active about half an hour after I had landed.

A.T.C. Gliding since the War

by S/Ldr. J. C. Ward, R.A.F.

Gliding was introduced into the Air Training Corps in 1942 as an encouragement for cadets who had volunteered for aircrew duties, to raise their general standard, and as an incentive to others to volunteer for similar duties.

The organisation was based almost entirely on voluntary self-help and equipment requisitioned from civil clubs. A certain amount of assistance was provided from public funds in the form of obsolete equipment that was surplus to other requirements and, latterly, a number of Kirby Cadet gliders were built under government contract. The organisation was administered through eleven A.T.C. Commandants by a separate branch in the Air Ministry under the control of the Director General of the Air Training Corps.

At the end of the war in 1945, there were some eighty-seven A.T.C. gliding schools in existence located throughout the British Isles at aerodromes and, in some cases on fields, situated as near as possible to the centres of cadet population and wherever sufficient civilian volunteer part-time instructors could be found. Operation was at week-ends and on public holidays only.

Eventually the equipment consisted mainly of Kirby Cadet gliders which had been chosen as the standard machine as a compromise between the open Dagling type primary and a secondary glider. There were also a small number of other machines such as the Falcon III two-seater and Grunau Baby intermediate glider and a few other sailplanes that had been requisitioned from civilian clubs to start the organisation. Other equipment consisted of old kite balloon winches that had been modified, mainly under local arrangements, for use as launching winches, and a large miscellaneous collection of cars, vans and trucks, amongst which predominated the Beaverette armoured car with the top cut off for use as retrieving vehicles.

In May, 1946, the Air Ministry Directorate General of the Air Training Corps was disbanded and its functions were assumed by the newly formed R.A.F. Reserve Command Headquarters and the work of the A.T.C. Commands was taken over by R.A.F. Reserve Groups. It was expected that this reorganisation would result in a much closer contact and liaison between the Air Training Corps and the Royal Air

Force, which has since proved to be so to the greater advantage of the Air Training Corps in general and gliding in particular.

One of the first tasks performed by the new Reserve Command Headquarters was a review of A.T.C. gliding as a result of which it soon became apparent that the equipment, most of it already old when handed over to the A.T.C., was by now in a very dilapidated condition. The Officer Commanding a Gliding School, normally a Flight Lieutenant in the R.A.F.V.R.(T) Branch, was allowed to spend locally certain sums of money on the upkeep of equipment, and the major repair and servicing of gliders was undertaken by a civilian repair firm under a government contract. But it was obvious that these arrangements were not adequate to deal with the amount of servicing that was, and would continue to be required for this well-tried equipment without seriously hindering the operation of the school. As most of the servicing had to be done by the school instructor personnel in what spare time they had from their normal occupation, it meant that they were usually valiantly struggling with the tired and reluctant engine of a Beaverette when they should have been giving gliding instruction to cadets.

There were, however, other more urgent problems. With the reduction of the Air Force after the war, numerous aerodromes were being derequisitioned and handed back to their original owners, or being used for storage purposes by the Air and other Ministeries. This meant that new homes had to be found for the gliding schools as in many instances the derequisitioning of an airfield meant that it was ploughed up or swamped with live-stock or tanks and rendered, therefore, totally unusable for gliding training. In some cases, owing to the many difficulties of reorganisation after the war, no prior warning was given to the school before derequisitioning took place and instructors would turn up for a week-end's gliding only to find their hangar marooned in the middle of a ploughed field, or the succulent spruce of a mainplane vanishing into the capacious inside of a fine and contented-looking cow! In addition, many instructors who had given valuable and unstinted service during the war, now felt that they were justified in retiring to the more leisurely atmosphere of the newly constituted civilian clubs and indulging themselves in soaring flights, which hitherto had been forbidden to them by A.T.C. gliding regulations.

There were other complaints that also came to light during the review of gliding by Reserve Command, the most important of which was that the amount of gliding given to cadets was too little, the standard of proficiency of cadets passed out too low, and that the instructors themselves had little or no opportunity to keep in flying practice. Due mainly to wartime restrictions on gliding the standard of proficiency had been fixed at a high hop which covered a climb to a height of approximately one hundred feet, release from the launching cable and a free descent in a straight line followed by a successful landing, after completing which the cadets' gliding training was finished. On the Kirby Cadet glider, this final flight enabled most cadets to qualify for the Royal Aero Club A Gliding Certificate, which required such a flight to be of at least thirty seconds duration. It was argued that as the gliding organisation only dealt with a small proportion of the total strength of the Corps anyway, would it not be better to give a smaller number of cadets the chance of training to a higher standard thereby really learning something about flying? It was considered that such a step however, would not have been strictly in accordance with the policy of giving some measure of gliding experience to the maximum possible number of cadets. In any case it was doubtful whether sufficiently highly qualified instructor personnel were available, as A.T.C. gliding had failed to attract as many ex-R.A.F. pilots as had been hoped, and whether it would be wise to give training of a more advanced nature with existing equipment and methods. The standard method of training was the solo or single seater method, the advantages or disadvantages of which it is not proposed to discuss here.

It was eventually resolved, therefore,

to make a series of proposals to higher authority that would permit of the complete reorganisation of A.T.C. gliding in an endeavour to make it possible, not only to train a larger number of cadets but to train them to a higher standard.

The first step was to reduce the number of schools to a more workable figure and to eliminate those that for various reasons, not necessarily the fault of the schools, were not producing very good results. Since 1947, therefore, the number of schools has been progressively reduced until today there are fifty-nine in operation. Despite this somewhat drastic reduction, however, there has been a steady increase in the number of cadets trained to the high hop standard as shown by the following figures:

Year	*Cadets Trained*	*Launches*
1947	1,453	121,561
1948	2,127	150,998
1949 (30th June)	1,150 (6 months only)	82,254

In addition, schools have been sited as far as possible, on permanent R.A.F. airfields where they can readily get assistance, not only in the servicing of equipment during the week but also in messing and sleeping accommodation during week-ends when operation is in progress.

Proposals were also put forward and agreed for the more extensive modification of the mark IV Wild kite balloon winches, not only to make them suitable for glider launching, but also to incorporate an automatic paying-on gear for the cable and a built-in device to enable the winch driver to cut the cable in an emergency. New, or reconditioned vehicles of a standard type for retrieving purposes, are now being issued, and the servicing of all equipment, except for such items as daily inspections and minor running repairs, will become the responsibility of the R.A.F. It is confidently expected that these proposals, by greatly reducing the burden of servicing tasks to be carried out by the volunteer staff whose time available to devote to training cadets is necessarily limited, will increase the general efficiency of A.T.C. gliding schools and so effect an improvement in the number of cadets trained.

As far as the problem of training instructors was concerned, the most

At the National Contests, S/Ldr. Ward and Mr. de Freitas.

logical answer appeared to be to form a central school, that would run on a full time basis throughout the year, where instructors could attend advanced training courses during their holidays or whenever they could get away from their normal occupations. It was considered that the functions of this school towards A.T.C. gliding should be similar to that of the Central Flying School towards R.A.F. power flying. The formation of such a school was eventually agreed and as from the 1st July, 1949, the Central Gliding Instructors School was opened at the R.A.F. Station at Detling, near Maidstone, Kent. It is now commanded by Flight Lieutenant R. C. Forbes; the well-known R.A.F. sailplane pilot and holder of an F.A.I. gold C certificate.

However this still left the problem of how to train cadets with safety to a higher standard than the high hop. It was considered essential that some means be found of bridging the gap between the straight flight to one hundred feet which usually occupies the entire length of the average aerodrome, and a flight to a height sufficient to allow a circuit, approach and landing to be carried out. The provision of flying in powered air-

The Imperial College Gliding Club

Easter, 1947, saw a strange équipage chug through the gates of Redhill aerodrome. A decaying motor car, which also did duty as a winch, towed a trailer apparently equally elastic in all directions, on which was a Kirby cadet. Most of the active strength of the club was perched on and around the car, which, having finally attained its goal, expired for lack of petrol. I.C.'s arrival was therefore in the best gliding tradition, and must have made Mrs. Douglas doubt the wisdom of her invitation to affiliate to the Surrey Gliding Club. However, training started more or less forthwith, notwithstanding a surfeit of mud and a lack of beaverettes and civilised catering. The I.C.-S.G.C. partnership has flourished mightily ever since.

The history of the I.C.G.C. starts in 1930, when Kronfeld's visit to this country excited so much interest. As was the fashion in those times, it spent its winters building and repairing and its summers flying and sometimes pranging. After a few nomadic years it settled down at Dunstable, where its members trained on the London club's machines and had a Kite for soaring. Such was the state of affairs when the war came, and the club suffered an eclipse until 1946. In that year, a benevolent Student's Union produced the aforementioned Cadet, and I.C. rather prematurely tried to take the air at the old Southdown site at Devil's Dyke. Lack of experience took its toll, so by the time the Cadet got to Redhill, it had a new prow.

Later in 1947, the governors of the college presented a second Cadet to the club, and members of both clubs trained on the I.C. Cadets before proceeding to the Surrey Tutors and Olympias. An eminently satisfactory arrangement, which from I.C.'s point of view adds an element of permanence, normally difficult to achieve in a college club. The training situation improved greatly when the Aeronautics Department of Imperial College acquired a T21B two-seater about a year ago. This machine is used by the Aero Department for experimental work in flight to supplement the usual laboratory experiments. Meanwhile, both clubs use it for all their primary training, so it is kept very busy indeed, and has proved most successful.

Thanks largely to Lorne Welch's stimulating instruction, the I.C.G.C. now has a goodly nucleus of silver C pilots, and several more members are only waiting for a propitious southerly wind to support them for five hours on Boxhill. An I.C. team, flying an S.G.C. Olympia in last year's National Gliding Contests, tied for eleventh place with the Cambridge Kranich. I.C. and Cambridge also have an annual competition for a Trophy presented by Professor Sir David Brunt, who is vice-president of the I.C.G.C., the president being Sir Roderic Hill. At present it is held by the Cambridge Club, but next summer they will encounter, it is hoped, more skilful and determined opposition.

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craft was out of the question owing to reasons of economy, and so it was proposed that a suitable two-seater glider should be built and allocated to schools on the basis of one per school. And so the Slingsby Sedburgh TX mark I was evolved, an intermediate or secondary side by side two-seater glider that perfectly suited this requirement. A number of these gliders have already been built and are now coming into service at schools. With these gliders, and by selecting cadets who show keeness and aptitude during training up to the high hop stage and who are also of a high standard generally, it is intended to give advanced training up to a solo circuit standard or, even, provided weather conditions permit, the cadet has made exceptional progress, and a suitably qualified instructor is available, allow him to attempt to qualify for the Royal Aero Club C Soaring Certificate.

However there is still much work to be done before these proposals become effective and many problems of administration and organisation have yet to be solved but it can be said with truth and accuracy that the future of gliding in the Air Training Corps and the R.A.F. Sections of the Combined Cadet Force, is indeed soaring.

Cambridge University Gliding Club

IN April 1935 various members of Cambridge University who had been gliding at Dunstable for some time, decided to form a University Gliding Club. Thanks to the generosity of Mr. R. C. G. Slazenger, two aircraft were acquired, a Zögling and a B.A.C. VII two-seater, and flying started the same month at Caxton Gibbet. Later in the year, a Willow Wren was added to the flying strength, and, at the beginning of December, the Cambridge I was delivered from Dunstable. This aircraft had been commissioned by RR. C. G. Slazenger and the Duke of Grafton from Messrs. Zander and Weyl, and has proved a very great asset up until the present day. Before the outbreak of war, six silver Cs had been obtained and a British distance record of 144 miles had been made by J. S. Fox in 1938.

In February 1946, after various subversive activities in June 1945, the club was allowed to start flying again by the Ministry of Aviation, with four new Kirby Cadets at their disposal for basic training and also a Rhönadler which had been acquired privately. After a short period at Marshall's aerodrome, flying was transferred to Bourn and auto-towing was started there on the runways of the disused aerodrome. The club's first post-war camp was held in June at the Long Mynd in Shropshire. The year was mainly taken up with reorganisation of the club after the war and only one silver C was obtained.

In April 1947 a party went to Camphill in Derbyshire and, despite unfavourable weather conditions, six Cs were obtained. At the end of the month the club's Olympia was delivered and immediately justified its existence by a series of notable flights. The club entered for the National Competitions in June at Bramcote, where, amongst others, R. C. G. Slazenger's flight of 112 miles in the Olympia was outstanding. Two silver Cs were obtained during the year, one by M. R. Head in the Cambridge, which made light of its twelve years by dry-thermalling to 7 000 feet.

After a camp at the Long Mynd in March 1948, J. W. S. Pringle took a party to the Malvern Hills in May with the Olympia. Very good soaring was obtained and he rounded off the camp with a good flight of 105 miles back to Cambridge. During June a further camp was held at the Mynd, at which a flight of 65 miles to Atherstone and one of 46 miles to Castle Bromwich were made. Altogether during the year, four silver Cs were obtained, and in the decentralised National Competitions, the club won the Du Garde Peach Trophy and J. W. S. Pringle won the Londonderry Cup.

1949 started well with a cross-country flight of 104 miles by D. D. Carrow from Long Mynd to Newbury in a succession of standing waves, on the 16th of March. This flight was later confirmed as the winner of the Kemsley Winter Cross-Country Trophy. On April 29th, T. G. Phillips climbed to 11 000 feet in the Olympia on his first cloud-flying attempt, winning the Brunt Inter-Varsity Trophy. On July 24th, J. Grantham and B. E. Bell climbed to 11 400 feet in the Kranich two-seater, breaking the British two-seater gain in height record, and on August 12th J. W. S. Pringle and J. Grantham did an out-and-return flight to Dunstable of 77.2 miles, breaking the British two-seater out-and-return distance record. During the year seven silver Cs were obtained and twenty-six cross-country flights were made, mostly over silver C distance. A party went to the National Competitions at Great Hucklow in Derbyshire and the C.F.I.,P. Blanchard, was placed 8th of all the pilots competing. Ii 1947 tests were started with piano-wire for auto-launching to cut down wear, and improve efficiency; a record launch of

2 450 feet has proved the success of this method. During 1948, in conjunction with the club, No. 2 B.G.A. Test Group carried out complete handling and performance tests on the Kranick two-seater for the first time in this country. Special equipment for these tests included an electrical stick-force indicator which was designed by club members. A small amount of research has also been done into the structure of thermals with smoke trails, the use of a loud-hailer as an aid to solo training, and the design of V.H.F. communication equipment for sailplanes.

Before the war, the club was noted for its explorations of new gliding sites and during the coming summer they hope once more to set out. With this in mind, work is going ahead on a mobile gliding unit; a 1914 Rolls-Royce Silver Ghost is being converted into a winch and will provide facilities for both launching and transport. Plans for expeditions to Wiltshire and possibly the Continent are being discussed at the moment.

Since the war, various forms of research have been carried out by the club.

No account of the club's activities would be complete without a description of the training system. Basic training is done at Bourn aerodrome, about seven miles from Cambridge. A modified 1936 Chevrolet is used for auto-launching, and piano wire is used for all types of launch. Ground slides, followed by low hops, are given with a short wire about 200 feet long, with the instructor on the towing vehicle giving visual signals. The pupil then graduates to high-hops and thence to high-hops with turns. Before each major step up he must get two separate instructors' signatures. When he has two circuit signatures, he has an aero-tow to 3 000 feet in the Kranich, with John Free the C.F.I. during which he shown spins and stalls and the technique of circuits. Back at Bourn he does one more high-hop with turns to acclimatise him to the Cadet again after the Kranich, and then goes on to circuits.

C.U.G.C. moving to the starting line at Camphill.

Royal Aircraft Establishment Technical College Gliding Flight

The Royal Aircraft Establishment at Farnborough is the chief centre of aeronautical research and experimental development under the Ministry of Supply and is concerned in all those fields of fundamental and applied science which influence the design, construction, performance, and equipment, of military and civil aircraft.

Such an establishment offers a unique opportunity for training in aeronautical research and development and consequently the Technical College is one of its most important departments.

In 1945 several enthusiastic students of the Technical College formed a gliding club with official blessing and it was kept alive by the hard work of these students, great help from many R.A.E. departments, and the efforts of successive instructors. One of the students of this period was Harry Midwood (now Derby and Lancs G.C.) and later Lorne Welch became an instructor.

In 1948 the activities of the club had become such a valuable asset that it was decided to form a gliding flight to provide engineering students, taking aerodynamics and aircraft structures to an advanced stage, with a course of glider flying training coupled with experience in the repair, maintenance and design of gliders. The flight work is regarded as much a part of the student's work as his other studies in the College.

On February 28th, 1949 the O.C. Flight was officially appointed and with the flight now a recognised part of the R.A.E. organisation gliding took on a new lease of life.

Membership of the flight is confined to 4th and 5th year students, who must be medically fit to A licence standard, and the course of training is covered in two years. The flying training syllabus includes all aspects of training up to the silver C, with blind flying and aerobatics. A Link trainer programme is operated for those students graduating to the Grunau. Our fleet consists of five aircraft with one under construction and three more have been approved for delivery.

There are several problems being investigated by research, design, and construction groups. A new mobile winch is being modified to take two drums and good advice on this project was given us by S/Ldr. Furlong and F/Lt. Forbes. An orthodox high performance sailplane is nearing drawing board stage but its real interest lies in the possibility of new methods of construction.

There are untold channels of research in gliding for our students and their aeronautical engineering training is bound to benefit from this contact with motorless flight.

ALEX. W. CAMERON.
O.C. Gliding Flight.

He must complete at least thirty circuits on the Cadet including spot-landings, sideslips and cross-wind landings before he is ready for another Kranich check and promotion to the Prefect. From then on it depends entirely upon his standard of flying for promotion to the Olympia and Kranich.

Interest in the club amongst members of the University is high and our complement of town-members is increasing. Flying goes on at Bourn on six days of the week, in practically any weather, and on most days there is a handful of members out at Marshall's waiting for an opportunity for an attempt at the Kemsley Prize.

It is hoped that the Rolls winch will make flying possible where hitherto it has had to be cancelled because of dangerous aero-towing conditions. Meanwhile Ted Warner and various members are fitting oxygen into the Olympia and the Kranich so that the club can go all out in attempts on further height and long distance records in the future.

D. R. WARD

A new British record

The two seater out and return goes to the Cambridge U.G.C. Jimmy Grantham tells us what it felt like from the back seat.

Early in the morning of the 12th of August, John Pringle, president of our club, rang me up to suggest that it was a good day to try and fly to Dunstable and back in the Kranich. We had been thinking about this flight for some time, seeing that as yet no British two-seater out-and-return record had been established, and Dunstable seemed our obvious turning point. The distance was far enough to set up a reasonable figure for the initial record, and yet not too far, under fair conditions, for a first cross-country attempt in the Kranich. It only remained to wait for suitable weather.

The forecast for Friday, 12th August, promised a hot, almost cloudless day with light variable winds—ideal weather for an out-and-return—and there was a possibility of a south-west breeze later in the day which would help us on our way back from Dunstable. Accordingly, an aerotow was laid on at Marshall's aerodrome for noon. As so often happens when all the preparations for a flight like this have been carefully made, our first attempt was a failure. After struggling at 2 000 feet for some time in various weak patches of lift we landed ignominiously after half-an-hour, but owing to the influence of the President, who was flying from the front seat, we were towed off again almost as soon as we had touched down!

Shortly after releasing at 13 00 hours, 1 900 feet above Marshall's, Pringle handed over to me, and luckily for my reputation we ran straight into a strong thermal averaging about 10 feet a second, in which we climbed to cloud-base at 4 500 feet. At this time there were one or two isolated, flat-looking cumulus above Cambridge, but elsewhere the sky was perfectly clear. Being unable to get higher than the base of our particular cloud we set course for Royston, which seemed to be the next most likely source of thermals. Throughout the flight we stuck to the practice of hopping from town to town, and because the route to Dunstable is well marked in this respect, very little map-reading was necessary. This policy was also justified by the fact that we found all our best thermals over towns, while the open country was very unproductive.

Over Royston the controls changed hands several times while we searched for lift, and after coming down to 2 000 feet, where we debated the advisibility of returning to Cambridge, we eventually got back to 3 700 feet. Our next objective was Baldock, where the first of many anxious moments occurred when we sank to 1 500 feet. However, lift from the town saved us, and over the triad of towns, Baldock, Letchworth and Hitchin, which are all quite close together, we found a succession of strong thermals which carried us to over 4 000 feet three times. Then followed a straight glide to Luton, nine miles away, without a ripple in the air. Although we were once again down to 2 000 feet over the town, it caused us no anxiety, as straight ahead three columns of smoke from the chimneys of the Vauxhall works converged and rose vertically into the air. It was a dead safe bet, and sure enough when we got there the lift hit us with a bang. The green ball reached 15 ft/sec several times in a turbulent and exhiliarating climb. In no time at

all we were back at 4 400 feet and Dunstable Downs seemed to be almost at our feet.

When we reached the London Gliding Club's site we were surprised to see three gliders on the ground. Those on the ground were apparently also surprised to see us, because we afterwards learned that they considered it to be unsoarable! We discovered the reason why when we began the regulation 360 degree turn over the club-house. The whole area over the site appeared to be one enormous down-draught! Before we could get away we lost 1 500 feet and were down to 1 700 feet above ground. Luton seemed much further away than it was when we left it, and the chances of getting back looked poor. At the time, however, I was much less concerned than I ought to have been, because I was happily taking photographs and leaving the flying and worry to the man in the front seat.

It was a grim struggle over Dunstable town, where finally a small climb of 800 feet gave us enough height to get back over Luton, but here the town seemed to fail us. Even the Vauxhall works refused to help. With one eye on Luton airport and despair in our hearts we sank lower and lower, till the altimeter showed 1 200 feet. This was actually 800 feet above ground. At this point we were somewhat relieved, to put it mildly, to strike lift and soon climbed to the more reasonable height of 3 400 feet above sea level. During all these anxious moments the only support I was able to offer was moral, but I amused myself by picking out likely-looking landing places in the middle of Luton.

The situation was still not too bright, as time was getting on and the lift was obviously getting weaker. Once again, between Luton and Hitchin we found nothing. Over the latter town there seemed to be little but delayed sink,

The Cambridge Kranich coming in to land.

and this time it really looked as though we would be forced to land. But with the altimeter registering 800 feet—600 feet above ground—Pringle spotted smoke rising from the railway station and circled in it for a full six minutes without gaining or losing height. Gradually the lift increased and we drew away from the unwelcome proximity of the ground. The thermal petered out at 2 300 feet and we were soon down to 1 000 feet over Baldock. It seemed like a case of "this is where we came in" all over again, but after a few tentative circles in weak stuff, Pringle found the centre of what appeared to be a large area of smooth, slow lift at 3 ft/sec. It was possible to vary the rate of turn considerably without appreciably affecting the rate of climb. What was still more surprising was that lift continued steadily to 5 000 feet, well above the tops of our previous climbs in much stronger thermals. Looking at the map, I made a rapid calculation, and decided we needed 6 000 feet to make Cambridge in a straight glide. There was no wind to help us, as the expected south-westerly had not materialized. So we squeezed the last drop of lift out of our thermal up to 5 250 feet. From here we set course for Cambridge via Royston, hoping that the latter might provide a little more lift. But apart from a few patches of no sink the air was calm. It became a fight between the Kranich's penetration and the distance —twenty-two miles—to Marshall's.

Over Trumpington, at 1 200 feet, it looked pretty hopeless. Over Long Road at 400 feet with two miles to go, it looked still more hopeless. Here the green ball gave a flick and we did a quick circle in which as much height was lost as was gained. There was nothing for it but to press on and hope for the best. It was now obvious that nothing short of a miracle would enable us to reach the aerodrome, but there was still a chance of getting within the necessary 1 000 metres; and there was also a suitable field just behind the cement works. At 100 feet with a quarter of a mile of houses to cross I had visions of ending up in someone's bedroom, but the matter was now out of my hands

John Pringle in the front seat.

and I was merely a passenger sitting in the back seat wishing he had been left behind. However, by flying round the last house instead of over it ("below the top of my television mast," the householder said afterwards) we reached our field and thankfully plumped down with full brake. The distance from Marshall's, measured on a six-inch map, was 950 metres!

The flight lasted exactly four hours (two hours each way) for a distance of 77 miles, giving an average speed of 19 ml/hr. I think the lessons to be learned are as follows:—

(a) We should have started earlier. If we had got away at 12 o'clock or before, we would have had less difficulty in getting back, because there would have been more lift about on the second half of the trip.

(b) In cloudless, anti-cyclonic weather, look for the lift over towns. This is borne out by numerous other flights around Cambridge.

(c) Never give up hope close to the ground, so long as there are plenty of landing fields within reach.

Passengers—various

by S/Ldr. E. J. Furlong, D.F.C.

It is difficult to imagine a more interesting hobby than flying a two-seater sailplane. Apart from the fun of the gliding itself, the passengers form a never-ending source of interest, delight and amusement, often amazement, sometimes incredulity and occasionally anxiety.

In no other form of sport is it possible to give so many people their first taste of a new thrill, and at the same time be in a position to study their reactions, hear what they even whisper, and occasionally feel their clutching finger nails!

It has been my good luck to have flown two-seater gliders of all types in many parts of this country, giving in a very large number of cases their first glider flights to men, women and children from every possible walk of life—Royalty, Cabinet Ministers and V.I.P.'s of all sorts down to the youngest A.T.C. cadet, and even children of four and five.

Broadly speaking, passengers can be divided into four groups:

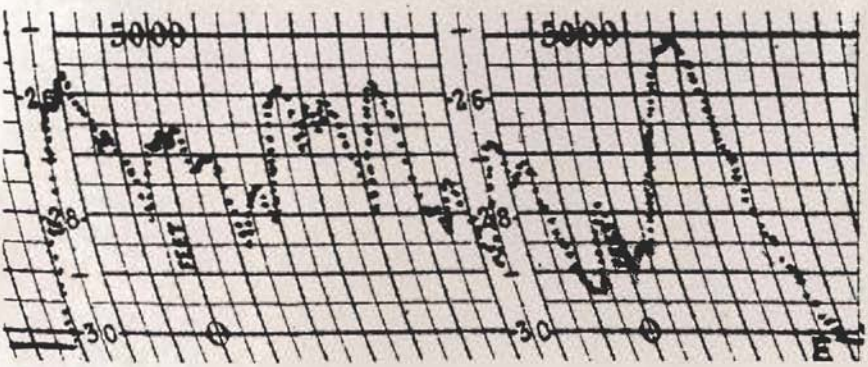
(a) The blasé type of the "you can't scare me" variety.

(b) The frightened to death type who are apt to panic.

(c) The trusting type, who are a bit scared but for some unknown reason have a blind faith in the pilot (whom they may never have seen before).

(d) The intelligent type, who are all to conscious of what can happen (and pray hard it won't happen during the few minutes whilst they are aboard), but go nevertheless as a sort of discipline for the soul.

Type A are heart-breakers—they know all the answers and even criticise your efforts. I once had a young lady of this type up hill soaring, and nothing I did quite came up to her expectations, so, in desperation, I said: "All right—it's all yours!" I had a terrible few minutes, but I think it cured her!



The barograph trace of the Cambridge record flight.

Of the B type I once had an A.T.C. lad up on his very first trip and the cable broke at an awkward height over a small field—he grabbed the stick and hung on. I'm afraid my free elbow caught him in the ribs harder than I had intended, for when he woke up he was safely on the ground. The same breakage happened with an Air Vice-Marshal on his first trip, but he didn't move a muscle, although he told me afterwards he thought his time had come—that's discipline. On another occasion, having caught the best thermal of the day, I realised that my lady passenger was not happy—the ensuing conversation revealed that she hated flying and only agreed to go up to please her father, an enthusiast.

Once, a girl, this time in the *only* thermal of the day, was feeling very sick. After a dozen or so circles she said: "No, don't leave it—I know how hard these things are to find—I don't mind being sick."

A junior instructor, after a very long time making up his mind—"Will you loop me—I'm absolutely dead scared, but I shall have to do it sometime?"—Guts.

W.A.A.F. girl, after fifteen minutes in a thermal, suddenly realising we were going up and not down: "Tell me, where is the engine that keeps us up?"

Furlong in his two-seater "dragonfly" with a young passenger.

Middle-aged lady with shopping bag (fortunately empty) after having got into the air: "And can you really make it go where you want to?"

Attractive girl relation, to her sister, after a rough flight during which she had hung on with both hands: "I didn't think he was that sort of a man"—she had a tight skirt, and the second stick had been dashing all over the cockpit.

Girl of about fourteen, to mother, after having been refused a flight together (pointing to me): "I don't see why not—that man is greedy, he goes up every time."

The fact that it is easy to hear people talking in a glider even when 1 000 or more feet up is embarrassing at times. One day, half-way up a launch at Kidbrooke, which is a small field surrounded by houses, the winch slowed down and finally stopped. My opinion of the winch driver and his ancestors was apparently broadcast far and wide, as I made the somewhat difficult approach over the houses.

On another occasion a young lady had asked for some aerobatics, and in a mild way I was trying to oblige, when she suddenly started to yell: "Don't, don't"—I haven't lived that down yet.

I take off my hat to Lord Pakenham, Minister of Civil Aviation. On a visit to the National Contests recently he expressed a desire to sample gliding. While his two sons had a trip, cloud was engulfing the field, and by the time his turn came visibility was 100 yards or so. Nevertheless, he persisted that he would like to go if the pilot was willing. He had a blind circuit, and saw nothing whatever, until the ground came into view at 50 feet or so. He said it was exhilarating!

The side-by-side two-seater is way ahead of the fore and aft type for enjoyment. In 1946 I was helping Lieutenant Commander Sproule by flying his Kranich, when I happened to break the British two-seater height record with a naval officer in the rear seat. He and I held that record for twelve months, but I've no idea what he looks like, as I couldn't turn round but could only speak to him!

The Derbyshire and Lancashire Gliding Club

by Roger D. Dickson.

WHEN the ban on gliding was removed in January 1946, the Derbyshire and Lancashire Gliding Club were very fortunate in being able to start flying straight away. This was made possible by a small group of members who had kept things going during the war, and had been able to maintain the club in working order until the A.T.C. gliding scheme started in 1942.

To prevent enemy aircraft from landing, the flying field had been obstructed by large trenches and mounds of earth. These were filled in by the Army, who also did a great deal of stone wall clearing with their bulldozers; and with A.T.C. winches and equipment a gliding school started to operate.

The C.O. of the school was the club's C.F.I., Louis Slater, who was helped by Bernard Thomas, Gerry Smith, Benton and Eric Taylor. The hangar had been let to Kemsley Newspapers for the storage of newsprint, and with a quarter of this cleared, there was just room for two machines to be housed together with the winch.

The A.T.C. flying went on until late in 1945, and the club's instructors ran several successful courses on other sites. In between flying with the A.T.C., they built a winch on a converted 30 hp Ford V 8 ambulance, with the drum and pay-on beneath the driver's seat, and with a direct drive from the back of the gear box.

The aircraft position was very poor, but thanks to the generosity of various people the club was able to buy several machines very favourably. The Golden Wren was presented to the club by its constructors Gerry Smith and Louis Slater and, after a thorough overhaul, it was declared serviceable. A Kirby Kite and the Black Diamond were purchased and put into working order.

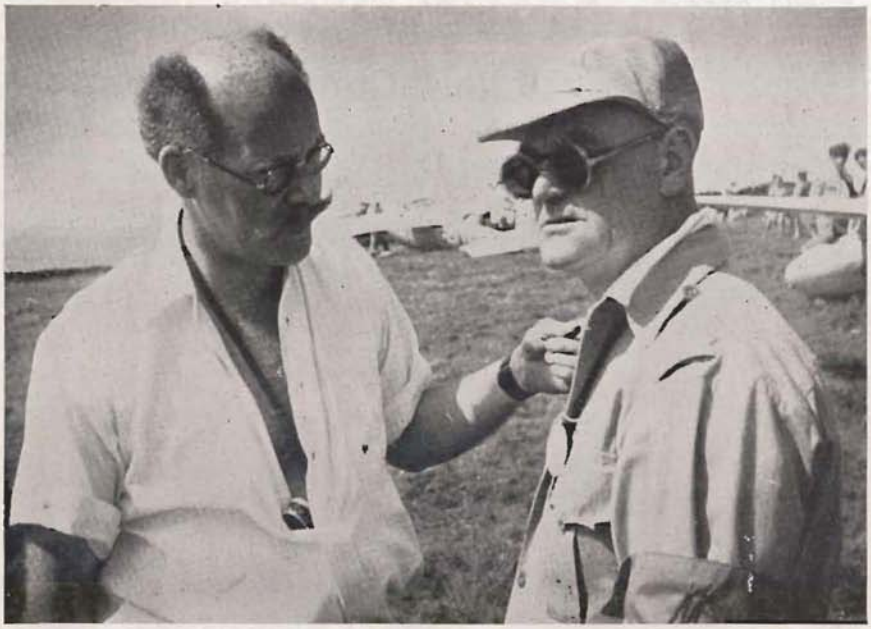
When the ban was lifted on January 1st, 1946, the club started flying right away, and about 50 members, together with press, newsreel and B.B.C. men gathered on a very bleak Tuesday afternoon to see eight launches with the Kite, and three with the G.B.

The club house and buildings were in need of a great deal of work. Every member set to work with a will to get the bar opened up, and the bunk-room into commission again. The house secretary was and still is J. S. Armstrong. He laboured, planned, and cajoled the Food Office until the place was habitable.

The hangar was still half full of paper, and it was a tight squeeze to get all the machines inside. In February the club took delivery of a Cadet and training began. At first training was only available to power pilots, and those with previous flying experience. Ab initio instruction was not undertaken until later in the year, when a Dagling was purchased.

Two camps were held during the year; one of these with a group of A.T.C. instructors from Midland Command who came to try the site. The site committee was very busy during all this time and a very comprehensive draining scheme was started with the object of preventing the area near the hangar from becoming a quagmire, and the club house from being flooded out every time it rained.

In 1947, the training programme started in earnest: the Olympias arrived at long last, and the club obtained a second hand German Grunau, a Tutor and another Dagling. During the summer a team was sent to the competitions at Bramcote, the first to be held since the war. They returned with their own machine intact and a Swiss Spahlinger S21 two seater, which was loaned to the club for three months, before it had to be returned to Switzerland.



Mature experience and strong common sense. The strength of the contest organising Derby Club.

The whole of the hangar was finally cleared of paper and it is worth noting that whilst the paper was a nuisance when flying started, the rental received for its storage during the war enabled the club to get off to a good start.

At the beginning of the season of 1948 the club had a fleet of eleven aircraft, and was really beginning to get ahead. The 1947 flying totals were more than double those of 1946 and this figure has shown a steady increase ever since. Two great improvements to the site were made in 1948 : the first was the installation of running water (from taps) in the club, and the other, the smoothing of the hill top on the north-west edge to allow bungy launching without having to tow machines back each time. At the end of the year membership had risen to 130.

1949 has been a year during which development of wave soaring has been the chief feature of the flying side. From a very small beginning in 1946 this technique has been studied, and by now most of the club's pilots can recognise the signs. The greatest altitude so far reached is 11 200 feet by Bernard Thomas in his Olympia. This makes him the first member of the club to get a leg of his gold C. Heights of 5 000—7 000 feet are becoming many and even a cadet sometimes is seen at more than 4 000 feet.

During the summer of 1949, the club organised the National Gliding Contests : 28 machines competed and P. Wills won. During the late summer the new ab initio training technique was introduced. This is based on intensive two seater training in the new tandem two seater, followed by hops and circuits in the Cadet. As yet it is early to judge how successful this method is but it seems to be a winner. It is being studied with great interest, as it may well be the solution of how to reduce crashes and produce better pilots.

Midland Gliding Club

by Charles Wingfield.

WE claim that the Midland Gliding Club has everything. Its only disadvantage is that it's like the South Pole —hard to get to, and somewhat remote from large centres of population, and the locals, like the sub-pelagic penguin, are not in the least interested in getting airborne !

Our hangars, dormitory, and simple but adequate club-room are getting fairly well-known through the numerous camps held every year since the war ; likewise the valient efforts by Mrs. Jarrett and her daughter to feed hordes of hungry people with smaller and smaller rations. We can sleep up to 20, but normally restrict camps to 16 ; what is the largest number fed in a day, history does not relate ! A recent improvement is a wind-driven electric lighting plant, by courtesy of Messrs. Lucas, who are giving an endurance test to a new model. So next year we shall be able to flood-light those curious individuals who, not content with aviation by day must needs sleep airborne at night on the hangar roof !

The Club fleet of aircraft is a Slingsby, type Daisy, two-pew, Eon Olympia, Kirby Kite, Eon Baby and two Tutors ; a Prefect is provisionally ordered for the spring. Four aircraft are privately owned. Club subscription is £5 5 0, and £4 4 0 for country members. Total membership is about 75.

1946 was for us an exasperating year ; the weather was good, but with only one club aircraft and occasional use of Gracias and other privately owned ones we had mainly to watch other people fly. And how they did fly that year ! During June the C.U.G.C. and half the private-owners in England visited us for a camp which will always live in our memories. In that fortnight was born the B.B.C. and the first English Cumulus Congestus—how many of us were there really in it ? A.C.D. having half an hour in a Kadet before breakfast. Bira flying to the East Anglian coast—and a few miles back to an aerodrome, so that his final distance was just under 300 Kilometres. Wills breaking the British altitude record, and Bira again going to 13 000 feet. Kit Nicholson, Greig and Steve and others light-heartedly flying to all points of the compass.

Later in that year Wingfield flew Gracias to Redhill, climbing to 8 000 feet a.m.s.l. en route. (To those who don't know, Gracias appears in the Stud-book as "Kirby Kite by Wingfield out of Northern Ireland.") In a camp in September a Falcon III and others climbed in a wave to between 8 500 and 9 500 feet ; and Bira attempted to break the duration record, reaching 3 000 feet above the hill in a thermal—just after midnight !

Six hundred hours flying or more must have been done on the Mynd that year. In 1947 we began to get club flying going, with Gracias (now owned by the club) and a Tutor to start with ; later another Tutor and Olympia arrived, and the Slingsby two-seater just before Christmas. We converted some power pilots and trained a few ab-initios. We entertained some visitors from Czechoslovakia with their Krajanek and had some enjoyable camps, with Donald Greig rounding off the season with a flight home to Redhill at the end of one of them. The rank and file were doing the flying now, as well as the experts.

1948 produced a total of 1550 hours, what with the Cambridge Club, visitors from all over England, and the A.T.C. One week-end in June we did 134½ hours flying, with a record of 72½ hours on the Sunday with 10 aircraft. The total for the week 19-27th June, was 341 hours 40 mins. The main impression of that year is the extraordinary succession of standing waves which appeared during the

Autumn ; this merits an article to itself, and perhaps Dr. Slater could be persuaded to write it. Waves occurred again during January and March 1949, culminating in a cross-country of 100 miles and a climb to 13 500 feet on wave-lift.

In 1949 we feel that we have begun to settle down. In the first 11 months 1 078 hours have been flown, including 660 hours by the Club fleet. Launches by Club aircraft totalled 1530. A substantial amount of training has been done in two-seater (590 launches and 202 hours flying) resulting in a small crop of certificates. Cambridge Club, with other visitors, came twice (and at the time of writing are on the Mynd again in quest of waves and the Kemsley winter prize.) Three Club camps were run, and the A.T.C. spent 4 or 5 weeks with us. The weather of the year was staggering, and favoured beginners and experts, with a period of thermal weather in June and July which was heavenly in its uplift. A fair amount of cross-country flying was done, mainly by Wingfield and Ince, who totalled 530 miles, with another 175 miles of circular tours and out-and-returns (or almost!). Other aircraft did 400 miles. The Gloucester and Bristol Clubs were visited by air, but Camphill remained unapproachable due to finger trouble by Wingfield and a cold by Ince. Two Olympias made the flight to Staverton the same afternoon, and next day Ince flew back—a five hour ground against the wind. On August 9th, Ince finished off his Gold C (with a Diamond for luck) with a 193 mile goal flight to Caister-on-Sea, beating the British goal-flight record. The flight-plan was made two days previously. The shortest cross-country had several distinctions: the vertical distance exceeded the horizontal, and as for the retrieve, nobody concerned will forget it, least of all our hostess who arrived home to find one sailplane, assorted cars and trailers and many hungry bodies littering drawing-room, lawn and paddock. Wally Kahn learnt all about rationing horses.

Three things hamper our further development. The worst is the apathy, which is appalling when one considers the great population of the area from which we draw our members. Nobody seems interested in learning to fly ; the well-to-do are busy trying to remain well-to-do, and the young generation cannot (or think they cannot) afford it ; ex-service pilots are not noticeably interested. The flow of new members is the tiniest trickle, subject to long periods of drought.

This year apart from camps we have had a total of 20 ab-initio members under training. One got his A, another his C, and five got A, B, and C ; one of these went solo at Easter and now flies Olympia with 30 hours to his credit. Three or four hardly ever turned up, and the remainder are under more or less active training. 65 Club members flew 808 hours in the first 11 months of 1949, but ten pilots accounted for half of this total, and only 12 members flew 20 hours or more or on 20 days or more. The appalling crashery of this year partly accounts for this, but not entirely, for aircraft utilisation figures show that there is flying waiting for anybody who wants it. Crashery was mainly due to temporary members who bent the Eon Baby, virtually wrote-off a Tutor (an A.T.C. Instructor, this) and flew the Olympia into the only set of power wires for miles and miles, nearly writing off the pilot as well as the aircraft. A club member put the Olympia u/s for 7 weeks. The basic trouble is that the Long Mynd is 60 miles away from where most of our members live, and the supplementary petrol ration only allows them to make about three journeys to the Club per month.

We are quite convinced that training entirely with a two-pew is the only possible way, it is the quickest method as well as the safest and produces a better pilot at the end. No pupil is sent solo until he is considered fit to fly solo—a monumental thought which the gliding movement has been slow to arrive at! One pupil went solo after 15 flights totalling 3hrs 50 mins dual in 10 flying days. Another after 12 flights for 4½ hours dual in 7 flying days. Both took their C on the next suitable soaring day. Several pilots joined temporarily for a camp, and went home with A, B, and C. The only disadvantage of a two-pew on a hill-soaring site is that on a busy day it is well-nigh impossible to give some pupils what they need—endless circuits and landings. The launching-crew look daggers!

The magnificent Mynd. This photograph was taken by Donald Greig.

Owing to the infrequency with which members can come to the Mynd, we have plenty of room for new members, trained or untrained. During winter we fly at week-ends only; in summer, what with camps etc., there are relatively few good days missed. One of our great activities is the running of nine day camps during the summer; their number is only limited by the difficulty of catering and of finding an instructor; for all Club instruction is done by a roster of volunteers. The only paid servant of the Club is Teddy Proll, our altogether admirable G.E. Last year we charged £14 for board and lodging, temporary membership, insurance against crash liability and all the flying you can get; our visitors seem to enjoy a holiday on the Long Mynd even if they are unlucky with the weather.

Bira arrived in his Gemini one day in 1948, sagging under the weight of an enormous parcel. We found it contained what is probably the finest and most handsome trophy yet presented for gliding, a trophy to be awarded annually to the pilot making the longest distance flight from the Long Mynd. It is an eagle mounted on a hemisphere, wings outspread, of the most superb workmanship in silver. It was made to his special order in Siam. For 1948 it goes to Charles Wingfield, and for 1949 to David Ince. In both years the C.U.G.C. were the runners-up.

We've got something here—British altitude record, British duration record, British goal-flight record beaten; one distance flight over 300 Kilometres and one just under; four climbs of over 3 000 metres and three more just under. Who's coming to have some more?

Scottish Gliding Union

by Andrew Thorburn.

FEW of the active glider pilots in Scotland nowadays can remember the efforts of the pioneers in the area. Legends of Percy Pilcher and his flying contraptions, which were to be seen in action near Dumbarton, mean nothing to the post-war enthusiast.

Long after Pilcher had become but a memory, the German successes brought a rush of clubs to Scotland—over 40 clubs and 2 000 members, in 1930. Lack of proper sites, instruction and experience, resulted in a win for Scotland's "dry stane dykes" which were chiefly responsible for the piles of wrecked gliders and clubs in 1932. One hefty primary launch into one ten acre field will not go, and the owners of moors and deer forests could see no common denominator between grouse and gliders.

PHASE : II

In 1934 a few diehards from Edinburgh, Falkirk, Glasgow and Stirling clubs, met and united further efforts and equipment in an attempt to keep going. Under the guidance of J. W. Gardiner and E. T. H. Godfrey, gliders were rebuilt in the old Stirling Ice Factory, and a new site was found in the Campsie Hills near Fintry.

In 1936 the gliders were airborn again but only for short hops downhill giving durations of approximately 90 seconds. Graham and Crawford of the old Glasgow club now played an active part, while Donald and Johnny Campbell of the Dumbarton group brought along a Hols glider which had previously belonged to Dudley Hiscox of the London club.

PHASE : III

In the meantime, in 1937, a new group named the Fife Gliding Club had been started by A. J. Thornburn of Kirkcaldy, a member of the Yorkshire Gliding Club. He owned a Falcon I in which he completed the first soaring flights at a Scottish site—at Bishop Hill overlooking that mecca of trout fishermen, Loch Leven. The hill proved most successful and the Falcon regularly climbed to 3 000 feet above the point of launch on the hill top.

Press publicity brought this to the notice of the group at Fintry, and Thornburn was invited to fly at that site. Fintry was proved however, to be totally unsuited to soaring, so the equipment there was shifted to Bishop Hill and the Scottish Gliding Union Ltd came into being.

1938 saw the erection of a hangar and clubrooms and work started afresh, with Thornburn, Rogerson and Gardiner in command. Training and summer holiday courses were run, and the first all Scottish C was taken in a nacelle Dagling by Alex. Aitken of Buckhaven, Fife. Ann Douglas, Bill Murray, Shaw, Wordsworth and Davies—all from English clubs,—sampled the hill lift and found it very fine indeed.

Then came Hitler. In order to repay all loans, the club was almost entirely sold up in 1940.

PHASE : IV.

When all the others had left to take part in the international scuffle, Rogerson and Gardiner, who had served in the 14-18 fracas, found themselves left with the job of maintaining the slender thread of the S.G.U's existence during the war years, and so well did they do it that although everything was gone, at least there was a credit balance in the bank—small though it was.

Right at the post-war start however, Rogerson due to his wife's death, and his own state of health, had to give up his efforts, and so in May 1946, Thorburn found himself scraping together ten pre-war enthusiasts, and holding the cash balance of £17 due to the S.G.U.

By sacrificing personal savings, that small group of ten, in sums varying from £5 to £200, loaned enough to the re-born S.G.U. to purchase a Cadet, a tow truck and other equipment, and after completing an arrangement with McDonald Aircraft of Balado Airfield, five miles east of Bishop Hill, a new start was made with the training of the rapidly expanding membership.

At this point, in 1947, the Kemsley Flying Trust was successfully approached for a loan, and the club policy was immediately expanded to include training of a much larger group, and the running of summer holiday courses. All primary work to B stage was done by the solo method using a Dagling and later an S.G. 38 obtained through the B.G.A. Cadets and Tutors were used at Balado for circuiting and also for C tests and soaring at Bishop Hill. The latter site being in a very primitive condition, a great deal of road work had to be done on the track up the back of the hill. Early in 1948, a Fordson tractor was obtained and that made what would have been a doubtful approach to the hill top in winter, an absolute certainty. Much has still to be done to make the road an easy ascent for ordinary cars.

The main centre of activity is at Balado, where the post-war clubrooms are shared with Loch Leven Aero Club. By mutual arrangement, a member of either club can fly the machines of the other, without paying further subscriptions, so that for three guineas, the S.G.U. members can fly both glider and power planes.

The fact that a Tiger was available, several S.G.U. members are qualified power pilots and an Eon Baby was delivered in January, made it quite simple to introduce aero-towing at Balado in 1949. Although nothing spectacular has been achieved in this line, many S.G.U. members are now qualified to tow and be towed.

Among the highlights of the past four years, first came the aero display laid on at Balado in 1946 by McDonalds', the Loch Leven Aero Club and the S.G.U. As well as the usual glider demonstrations we saw the Kite II. aero towed for the first time.

Then came the day in December 1947, when Tom Davidson, now our mainstay as primary instructor, took his C at Balado, in an almost stationary soaring flight of 15 minutes, by hanging on to the lower extremities of what was later proved to be a wave lift off the Ochils. Half an hour later Thorburn was whisked up in the full force of this to 3 500 feet where the usual roll type cloud was met, and lenticular seen much higher. The general area of smooth lift was noted, and cold and gathering dusk made it necessary to bring the Tutor out of the rising air, to return in 25 minutes to the darkened airfield. So a standing wave over Balado and from the Ochils, was first used by gliders in 1947, (December).

Olympia, Loch Leven and Bishop's Hill.

In July and August of 1948, we learnt a lot from the visit of Messrs. Cochemé, Ivanoff and Rice, with two Olympias, the Camel, and Jack Rice's Tiger Tug. Unfortunately, at that time of the year the met conditions suitable for the 'wave' did not appear, and only on one occasion did Cochemé have a nibble at the wave over Dollar. The

(cont. on page 67)

Sounds Easy

To encourage those who hesitate to seek gold in cloud.

Saturday, July 16th was one of the days—so obviously so that there was nearly at least one nasty accident on the roads to Redhill.

The news on arrival was depressing. QBI. However, by the time the Olympia was rigged and inspected Lorne had persuaded the Powers to allow slope soaring—but, of course, no cloud flying in the zone. Muttering darkly about the nearest edge of the control zone three of us made hurried departures to the hill. With the usual indecision we all went in different directions. Time about 15 30.

From here on the flight became unique in that everything went according to plan. The fumble along to Guildford at maximum speed and minimum height provided only one nasty moment, and the very next thermal put the control zone safely behind.

There were enormous clouds building up slightly north-west, with smaller ones on the way. The first of these made a nice stepping stone up to 6 000 feet. The short hop across to the side of the big stuff was spent trying to remember the pleasanter parts of the somewhat lurid cunim stories published for our edification.

Quite soon lift was met and proved smooth and steady—about 11 ft sec. This continued up to 11 000 feet where it petered out, still quite gently. Hurried mental maths seemed to indicate that a few more feet were required for gold C height, so course was set vaguely south-west with the idea of coming out and looking at the cloud. Lift was again met before reaching the edge. Once more the whole process was repeated, with symptoms of frustration becoming evident when for the second and then third time perfectly good lift petered out—or was lost.—at 11 000 feet or just over. The last climb was enlivened by hail, the moral effect of which was not improved by the quick look out of the window which it inspired. Everything was covered in a thick layer of nice, smooth ice. As it seemed to make no difference the window was firmly shut again. Surprisingly it was not cold inside.

This time we broke cloud. The view was awe inspiring as the little patch of clear air was completely surrounded by towering tops. They all looked equally impressive so the nearest was selected. Quite soon the green ball popped smartly to the top of the tube and stayed there, apart from a few short lapses to +15 or so. There was more hail and rather more turbulance, but this time no frustration. (The rate of climb proved to be about 19 feet sec for 4 600 feet and over 24 for the last 1 500 feet).

The question of oxygen was just beginning to get acute when the problem was solved by arrival at the top of the lift at 14 600 feet indicated (14 760 A S L). As on previous occasions, there were no alarming manifestations—+20 became −20 for a few moments and then steadied to a more sedate descent. The usual south-west course soon found the edge of the cloud. The view was magnificent, with a large clear space stretching conveniently away towards Redhill, and clouds of every size and shape scattered about in great profusion. Away to the north-east there was a very handsome anvil growing out of the main mass of cloud over London.

However, the failure of British Oxygen to provide a bottle plus a sudden longing for tea, soon overruled any ideas of trying to go higher and course was set at high speed for home. The ice seemed to add about 3 ft/sec to the normal rate of sink but had no other effect, until it melted at 7 500 feet. At this stage the A.S.I. packed up for a short time, and the wing seemed to be falling off in large chunks—most alarming. The flight back, about 37 miles, took 35 minutes including 3 minutes circling, and was the wrong side of cross wind.

Lessons learnt.

(1) Big clouds are frequently easier to fly in than small ones. It is the considered opinion of the American thunderstorm research team that the chief danger in Cunim is mental rather than physical, and that this can be overcome by enlightenment, proper training and experience. Turbulence, hail and lightning are not in themselves considered particularly dangerous.

(2) Before flying in large clouds be quite certain that you can fly out of them in approximately the direction you wish. A descent over London during that afternoon's storm would have been hazardous. This means a working knowledge of the multitude of evil habits possessed by the magnetic compass. The other instruments are relatively easy.

(3) Oxygen should be fitted to gliders which are likely to be flown under these conditions. The chance to go higher does not occur often.

(4) By maximum use of good clouds very high cross country speeds can be achieved.

(5) Instruments are essential, good ones highly desirable. The details of types and so on is largely a matter of taste ; but (and this is rank heresy and will probably be censored) the great essential for cloud flying is to get thoroughly instrument minded as soon as possible.

R. H. Garnett. (Capt.).

Surrey G. C.

(cont. from page 65)

adventures of this party however, proved that slope soaring was within five miles of Balado in any wind direction, and could be reached provided an aero-tow start was used.

Contact with the wave system has again been made this year. First by Norman Manclark who got his silver C height with a climb to nearly 6 000 feet over the same beat as that first used by Thornburn in 1947.

What would seem to be the second wave of the system was used by Alex. Fyffe during his five hour endurance flight at Bishop Hill. While on this trip, he flew up-wind from the hill face, towards Balado and up-wind of a long cumulus part of the customary cloud layout found with the wave, which seemed to be operating, he met with the widespread lift expected. Twice he cleared silver C height but had to finish his five hour duration trip with the usual slope soaring. Hal Thorburn also strained the seat of his pants with a five hour spell in a Cadet. So gradually the list of achievements builds up and we hope to accelerate as we go.

Few of the old timers are left now, with A. J. Thorburn, Parker, Wm. and Dorothy Lawson, filling many capacities in club life. J. W. Gardiner now domiciled in London is a member of the B.G.A. Council.

Present operations are fairly orthodox in style in that :

(a) Solo primary training to B stage at Balado, uses S.G.38 Cadet and winches.

(b) Slope soaring, C tickets, silver C duration and height at Bishop Hill.

(c) Advanced pilots convert to aero-towing at Balado.

We also have a group of members from the Aberdeen-Inverness area, who, finding travel difficult, are forming a nucleus to run a subsidiary site on an airfield near Banff, under the guidance of Gavin Wilson.

New blood to the executive is already proving its worth, and Secretary, David Hendry, and Treasurer, Peter LaBarre, are finalising details for the provision of a two-seater and another Olympia. Alex Fyffe and Geo. Whyte are two more of the newer members to do a lot more than the average share in keeping the club ticking over, while our new scribe Sandy Milne, with his vitriolic brand of humour in the club news sheet, keeps everyone up to scratch.

So the situation with the S.G.U. at the moment, is interesting, and prospects for the future—quite bright.

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