Sailing Limits pages 2 & 3.

JULY, 1946

ONE SHILLING

Sailplane and Glider

The First Journal devoted to Soaring and Gliding



Martin Hearn, Ltd.,
Hooton, Cheshire,
World Concessionaires for
Slingsby Sailplanes, Ltd.
Kirbymoorside, York.





Out of the blue . . . comes your new Golfer!

A thing has to be good when the Services use it; and British, Canadian and American Forces have been using Windak Gabardine for a great many Service articles. Now here it is for civilian wear in the new Windak "Golfer," a simplified, idealised version of the official Government Airborne Smock. Cut longer than your usual golf blouse for extra protection and with deep armholes for never-before freedom. Styled with clean front and roomy back. Comfortable when it's fine, comforting when it isn't, for the Windak is rain repellent and weather resistant.

WEAR A Windak

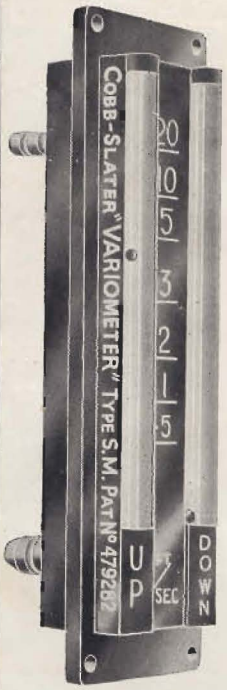
In brilliant, peacetime colours including green, scarlet, brown, maroon, royal blue and fawn. Price 107/3d. There's also a ladies' model at 75/-. Please write for name of nearest stockist.

FOR SPORTS AND ALL OUTDOOR WEAR

℗N.1.

Windak Ltd., Poynton, Cheshire.

Actual Size



SIMPLE : RELIABLE ULTRA-SENSITIVE

MAKE SURE of contacting the smallest lift by fitting one of these famous Variometers.

DESIGNED to register immediately almost imperceptible vertical speeds yet robust enough to withstand large overloads.

NEGLIGIBLE LAG.

AGENTS ABROAD :

Australia : A. E. Berger, 30, Edwards Avenue, Garden City, S.C.7. Melbourne.

Canada & U.S.A. : J. Simpson, P.O. Box 562, Ottawa, Ontario.

South Africa : J. C. Davidson, 376, Loop St., Petermaritzburg, Natal.

Belgium & Holland : M. Pierre Puttemans, 25, Boulevard Ferd. Campion Vilvorde, Belgium.

Made only by

THE COBB-SLATER INSTRUMENT CO., Ltd.
MATLOCK, ENGLAND. *Phone : Matlock 438.*

HOME STUDY COURSES FOR

MATRICULATION AND DEGREES

Wolsey Hall (est. 1894) provides postal tuition for London Matriculation, Degrees and Diplomas, Bar, Profess. Prelim., Teaching Diplomas and other exams.; also in a wide range of single subjects. Courses are conducted by a staff of 80 graduate tutors; students receive individual attention; tuition is continued free in the event of failure. Fees are moderate, e.g. Matric. 5½ Gns., including free loan of text-books; deferred terms can be arranged. Over 10,000 Successes at Lond. Univ. Exams., 1925-45.

PROSPECTUS free from C. D. Parker, M.A., LL.D., Director of Studies, Dept. VK26,

Wolsey Hall, Oxford

PROPRIETORS: DIPLOMA CORRESPONDENCE COLLEGE LTD.

Here's another small reminder : ALL the picture in the finder



ILFORD SELO FILMS

Sailplane and Glider

THE FIRST JOURNAL DEVOTED TO SOARING AND GLIDING

JULY 1946 ★ Vol XIV No 7

EDITOR:
F/L VERNON BLUNT

ASSOCIATE EDITOR:
ALAN. E. SLATER

ADVERTISING
and
EDITORIAL OFFICES:
139 STRAND, W.C. 2
PHONE: TEMPLE BAR 6451/2

The *Sailplane and Glider* is published on the fifth day of every month. Price One Shilling per copy; 13/- per year posted. Advertising Rates on application.

Published for the proprietors, Glider Press Ltd., by the Rolls House Publishing Co., Ltd., Breams Buildings, Fetter Lane, E.C.4, and Printed by the Mendip Press Ltd., London and Bath.

CONTENTS

	Page
Editorial	1
Gliding at Salzgitter	2
Rhonadler Accident	5
Soaring Flight of the Albatross	7
Rearsby to Detling—120 miles	9
75 Miles in "MU. 13"	10
"B. 38" High Performance Sailplane	11
Gliding at the Teck	13
Club Section—Portsmouth, Midland, 22nd Armoured Brigade, Newcastle, Derby and Lancs., Silver "C" News, and B.G.A. S.A.G.A., London, Bristol, News	14
Aeromodelling Section—Aero-Tow for Model Gliders	20
Contest Flying; Outstanding Glider Models	21
Letters to Editor	22
Argentine Notes, Small Advs.	23
Club Announcements	24

OUR GUEST EDITOR—

Squadron Leader A. N. Le CHEMINANT writes—

(Secretary-Treasurer Soaring Association of Canada)

3,500 miles in seven days is not speeding—in present times. Fifteen years ago I travelled 12,000 miles—from the easternmost point of the British Empire in seventy days. While there is nothing remarkable in the fact, the two journeys have had a similar ending—the goal was in each case the London centre of a hobby which has become all absorbing as the thing I wish to pursue to the limit. In the first instance, as a keen amateur radio fan I found as I travelled abroad that no matter where the location, an enthusiastic interest in a subject was sufficient to open the way to an enthusiastic welcome, based on the desire to exchange news, experiences and thoughts, that left both, the visitor and native, the better for the interview.

Radio reception in Borneo may be troubled by static conditions and high humidity rain, in parts, but methods of achieving results, when discussed, sometimes lead to marked improvement. Another interpretation of an article in the current magazine sometimes reveals in a flash a weighty unknown. However, although following the same principle, this has little to do with gliding.

Weather conditions, when landing at Southampton a few days ago were remarkable for a great display of heavy cumulus and the thought was, "Conditions look good for some super soaring." When news of Phillip Wills's and Prince Bira's fine performances at the Cambridge Club's camp at Long Mynd came into the *Sailplane and Glider*'s editorial office while I eagerly listened in, the thoughts of a few days ago came back, and with them a thrill, that someone was taking advantage of the conditions to add to the pleasure of learning news at first hand.

Both radio and Gliding are peculiarly similar for their high amateur status, and international character. The "hams" have stood behind the Radio Society so that it is now a tower of strength—its word is listened to with strong partiality by the ruling authorities controlling the air waves, and its members have benefitted therefrom.

We, in London Ontario, have in the last live year launched the Soaring Association of Canada, not because we just wanted to, but it became very apparent that without some central organisation gliding in Canada would continue to be a series of little flames that grew up all over, but waned at the first onset of difficulty. The results have been encouraging, the Association has prepared and made recommendations regarding airworthiness, construction, and operating conditions, which are now only awaiting formal approval to put into effect. These proposals have been based on the regulations present in each of the major countries actively engaged in gliding, but nevertheless they are not perfect, nor do they pretend to cover all eventualities. They are what we consider the minimum for safe and sane operation, to proceed in our own surroundings. P.I.C.A.O. now settling in our own city of Montreal is endeavouring to lay down international standards for all who use the air. At the preliminary meeting nothing was proposed for gliding and soaring. It is not known how many countries will lay proposals at the present meetings, but, at least to start the ball, Canada's representative will have something which the S.A.C. has provided. How much better if all the countries of the Empire, after agreement among themselves, would present to each of their own representatives an identical series of recommendations. And why should we not ?—our major interest is to have soaring as safe and unrestricted as humanly possible. The only way this can be achieved is for the

(*Continued on page* 21)

SOARING AT SALZGITTER



" Grunau Baby " approaching to land—84 Group Club.

TRAINING AND OPERATION

MOST Gliding Clubs are difficult to leave, but from Salzgitter it is almost impossible. Here is a club that has everything ; a good site with beautiful surroundings, excellent accomodation, hangarage and workshops, first class system of instruction, a tremendous enthusiasm for thermal and advanced soaring, and above all, everything to be desired in the way of flying equipment.

The state of efficiency that now exists at Salzgitter was not, however, there for the taking over. When the R.A.F. arrived practically all the tools and equipment had been removed and hidden, and sailplanes (including " Weihes ") had been bungied off the top without pilots. Months of hard work were put in collecting and servicing aircraft, and retrieving the contents of the workshop from scattered hiding places.

Great credit is due, therefore, to those few R.A.F. pilots, who with no previous glider flying, have collected enough knowledge and experience to operate the school, at a standard as high as anywhere in the world, in less than one year.

The C.O. of the School and Chief Instructor, is F/Lt. Stanley Haynes (Silver " C " height and distance) an ex-A.F.U. and F.I.S. Instructor with 1,800 hours flying. He finished the war on Spits. and Tempests, and since then has done 100 hours soaring.

S/L. Charles Ramsey, D.F.C. and Bar, an ex-E.F.T.S. Instructor with 2 tours on Night Fighters, assists part time on the instructional side. He is the first post-war Silver " C " holder and has put in about 50 hours soaring.

The winch drivers are very experienced and capable, each having done over 200 launches ; maintenance and repair work is also of a high standard.

The aircraft normally available for flying are the " S.G. 38 Primary," " Grunau 11b " (with dive brakes), " Mü 13," " Olympia," " Minimoa," " Kranich " and " Weihe." The school also has a " Sperber " and " Buzzard," but these have not yet been overhauled.

It will be seen from the above that the school has no aircraft similar to the English " Cadet ", and from experience it has been found that not only is an intermediate type not required, but that pupils find it a bigger step to go from " Grunau " to " Olympia," than from " Primary " to " Grunau."

The " S.G. 38 Primary " has very different characteristics to the " Dagling," having much better controls and a sprung skid ; it vitually does not stall, and does not spin. Here many people will get agitated and say that a primary trainer should not be too easy or safe to fly, as this produces, and allows to develop, bad habits. But on further thought, surely it is better for a solo pupil to be able to gain sufficient air experience to become aware of what he is doing, in a machine which will not turn round and bite him if he unwittingly does something wrong. Once he is past this stage ; is conscious of what he is doing in the air, and able to start to improve his own flying, then is the time to put him in a machine which requires more accurate handling. The breakage rate on the " S.G. 38 " has been proved to be negligible.

At this stage a survey of the instructional methods may be of interest.

GENERAL.

All training is by winch (single winching and non-controlled stick) in the first place, and by aero-tow for advanced training when required.

Courses are of one weeks duration, and it is expected to get non-pilots on to circuits in the " Primary," or " Grunau," and pilots on to aero-towing, and thermal soaring for their " C " certificates in that time.

It has been found best to keep hill and thermal soaring quite apart for instructional purposes, and that non-pilots

definitely find hill soaring more difficult, especially when thermalling is done off aero-tows, and the pupil released in lift to start him off.

The school is very thermal conscious, and the only object of the training stage is to get the pupil well into the air and looking for upcurrents as early as possible. Silver "C" qualifying flights are encouraged as soon as the pupil is proficient.

Pupils are divided up into two groups, Pilots and Non-Pilots. This classification is of course, easier when dealing with service pilots than it would be in a civilian school, as the pilots have all been fully trained to R.A.F. standards.

NON-PILOTS (Elementary Training).

Theory. On arrival pupils are given an informal talk on what can be done with gliders, and what the existing records are, as a general introduction. This is followed by a lecture on simple theory of flight, and use of controls. The Pupils are then taken out to the hangar and shewn how to handle machines on the ground. On the third day of the course, there is a lecture on "Further Effects of Controls."

Practice. (The days flying starts by everyone manhandling the gliders down the hill face, and across the acre field at the bottom on little 2-wheeled trolleys. Here the machines are test flown with a winch circuit).

1. Pupils are given a minimum (and this is often the maximum needed) of 3 ground slides on the "S.G." The responsive controls and spring skid taking the misery out of this form of progression.
2. They are then allowed to become airborne, at a few feet, on a fixed setting at the stick, which they are allowed to move freely for correction purposes during the flight. Minimum trips 5.
3. High hops with the pupil releasing the cable himself, and
4. Very high hops in which the pupil tries the beginning of turns finally landing straight ahead. Total high hops, 8-10.
5. The pupil then does sufficient circuits on the "S.G." in both directions until he is very steady. Minimum 12.
6. The next stage consists of low hops on the "Grunau," with the dive brakes quarter out. 3-5 hops usually being enough.
7. The pupil then does ordinary circuits in both directions in the "Grunau," and when he has done about 8 of these, he is allowed to practice circling off the winch.

PILOTS (Elementary Training).

Theory. An introductory talk on Gliding, and the nature of the glider, is given by the C.O. on the first day, with a further talk on Soaring on the third day.

Practice. It has been found that if pilots are sent off straight away on the "Grunau," skids get broken, and other unnecessary small incidents occur. This can be rectified by 3 trips in the "Kranich," although this has been found to be uneconomical, or by—

1. 3 Trips in the "S.G. 38"; usually one high hop and two circuits. This has the added advantage of teaching pilots to climb properly on the winch.
2. One or two low hops on the "Grunau" with the dive brakes quarter out.
3. Circuits on the "Grunau" in each direction. Minimum 10.
4. Aero-tows and thermal soaring. The pilot being expected to stay up.

The results of the greater part of the Course at which I was present are given below, and I think they bear out the impression I got that here is an ideal method of solo training. The "S.G. 38" and the "Grunau II b" are an excellent combination, both having good controls and flying characteristics, and just the right performance for the job.

The system is basically sound enough to be used on a civilian school where the pupils are non-standard to say the least, although the training could not be expected to be so rapid, due mostly to intermittent attendance. There is little doubt that resident courses for gliding training give the best result.

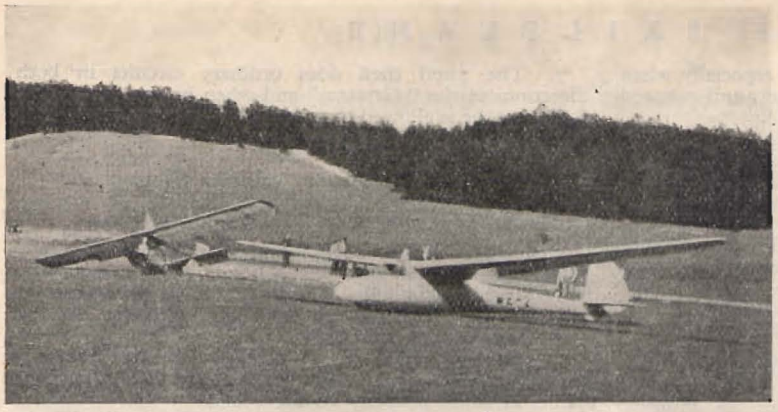
The course starting on May 6th consisted of 6 Pilots and 4 Non-Pilots. These pupils being in addition to ordinary club members and pupils who just turn up when they can.

By the end of the 4th day only, all the non-pilots had reached the equivalent of "B" standard, having done at least 3 high winch circuits with turns in both directions, in an average of 17.75 trips per pupil.

All the pilots had had aero-tows on the "Grunau," some staying up over an hour. 75 per cent. had obtained their "C's" thermal soaring under a clear sky. Average of 17.833 trips per pilot to reach this stage.



Manhandling the "Minimoa" down the face of the hill at 84 Group site.







For these results there were no breakages or damage of any kind.

It has been found possible to get pupils more quickly to the soaring stage by means of a few circuits on the "Kranich." This method however, is only used where time is limited due to imminent de-mobilisation or posting, as it has been found to be less economical, because (a) a second instructor is required to be available, (b) more circuits, and therefore experience gained, can be done in a similar time in the "Grunau," even if the "Kranich" is landed back near the start, (c) there is at present only one "Kranich."

This two-seater, however, has proved to be of immense value for taking pupils up when conditions are unsuitable for primary training, or when the wind is on the hill. It is of great assistance too, for polishing up the flying of pupils who have become proficient on the "Grunau," to help with their circling, and before they go on to the hill.

A deduction the school has drawn from their experience of two-seaters, is that only a machine of high performance is of any use; a two-seater of low or medium performance being almost useless for training, and a waste of time.

ADVANCED TRAINING.

As mentioned earlier, it has been found that pupils find the greater step between "Grunau" and "Sailplane" (the "Grunau" is looked upon as a trainer only, which of course it is) than between the "S.G. 38" and the "Grunau."

The "Olympia" is usually the first sailplane on to which pupils are converted, and this machine with its crisp well-balanced controls, excellent performance, and handy size is a fine machine in which to gain experience for the Silver "C" stage.

An interesting point appears in the figures for conversion times to the "Olympia."

Silver "C" Tests in Germany.

The following news has been received by telegram from F/L. Allen, 84 Group Gliding Club, Salzgitter, Germany :—

W/O. Uck completed Silver "C" height 1,250 metres, distance 54.5 kilometres, endurance 5 hours 15 minutes.

The following completed endurance tests :—

F/O. Forbes 5 hours 37 minutes.
W/O. Trybulac 5 hours 12 minutes.
W/C. Malins 5 hours 11 minutes.
F/L. Hughes 6 hours.
F/L. Allen 5 hours 51 minutes.
F/L. Barclay 5 hours 6 minutes.
Major Loveridge 5 hours 20 minutes.

All the above flights were completed in a 48-hour period from 31.5.46.

1. "*Weihe*" *about to be launched.*
2. *F/Lt. Haynes assisting Doc in the cockpit of the "Weihe."*
3. *F/L. Haynes, C.O. of 84 Group in cockpit of "Minimoa,"*

Non-pilots convert after an average of 35 landings, and 5 hours soaring in the "Grunau," plus 5 trips in the "Kranich," but aeroplane trained pilots take nearly as long (considering the amount of previous flying experience which most of them have). Their figures are 30 landings and 3 hours soaring on the "Grunau," with 2 or 3 "Kranich" circuits.

In neither case are pupils allowed to attempt any type of soaring on the "Olympia," unless they have previously done so on the "Grunau." With this system, the assumption that sailplanes should not get broken, becomes a practical truth.

From the above, it may be seen that although the school has a variety of sailplanes from which to draw, training from *ab initio* right through to Silver "C" complete is really carried out on only 4 types, the "S.G. 38," "Grunau II b," "Olympia," and "Kranich," thus simplifying the spares question enormously. (Incidentally, only one of these types is being built in England, and practically no comparable types!)

The non-standard types on the school, such as the "Weihe," "MU 13" and "Minimoa," are used for variety, and although an added attraction, are not necessary for operation, as the standardised "Olympia" is more than adequate.

It is at the advanced training stage that the school instruction really comes into its own, and during the time pilots are trying to qualify for their Silver "C's," no effort is spared to give them every chance. In my own case the school definitely worked overtime, but its efforts were finally rewarded (just).

Up to May 12th, 1946, the following qualifying flights had been made.

Duration. W/C. Mann, S/L. Ward, S/L. Ramsey, F/Lt. Wistow, F/Lt. Jefferies.

Height. S/L. Ramsey, F/Lt. Haynes, Self. Others having reached the height without barographs.

Distance. W/C. Malins, S/L. Ramsey, F/Lt. Haynes, Self.

It is expected to get a total of 6 complete Silver "C's" by the end of June.

AERO-TOWING.

The "Storch" makes this form of launch both easy and quick. If required it will clamber up to over 2,000 feet in a very few minutes, and its 240 h.p. gives a very steady tow. Steel cable is used, normally 300 feet in length, but 180 feet cables are used for snatching gliders out of small or ploughed fields after cross-country flights; aero-towing being the normal means of retrieving.

At Salzgitter this method of launching has been developed to a fine art; the usual system of towing to 2,000 feet approx. has been superseded by towing to thermals, and releasing the gliders in lift at a height suitable to the flight in question.

The local thermals are known by the towing pilots (chiefly Stan. Haynes) as well as they know the landing field, and the glider pilot just hangs on until the aeroplane wings waggle, when with utter faith, he lets go and starts to circle, not daring to look below, and it works.

For early tows, or ordinary local thermal flights, the glider is taken to the usual 2,000 feet or more, but for cross-country attempts it may be dropped at about 1,000—1,600 feet, and for height tests, etc., at the lowest height at which proper lift is encountered by the towing pilot, even down to 300 feet above the ground. By this system more thermal flights are made possible, than when the sailplane pilot has to spend his precious height hunting feverishly around after releasing.

The elevator trim fitted to many German gliders adds a great deal to the pleasure of aero-towed launches, especially for light-weight pilots.

DIVE BRAKES.

All gliders at the school, except the "S.G. 38," are fitted with dive brakes on both wing surfaces. As well as being much more of an effective "throttle" for approach purposes, than the standard spoiler in use here, they are left permanently out on the ground. This lessens considerably any risk of blowing over when retrieving, and allows machines to be parked unattended in quite strong winds without causing alarm and despondency. Dive brakes add little to the total weight, and if only their original object of limiting the maximum speed were considered they would be more than worth while.

CONCLUSIONS.

The first and perhaps the most important conclusion that seems to appear concerns the Instructors. Given men who have had a thorough training and plenty of experience in the art of flying instruction, coupled with enthusiasm for, but not previous experience of, soaring, a gliding school can be brought to a high state of efficiency in a comparatively short time. (True, there were plenty of gliders etc. in Germany, but they had to be found, and methods of instruction, and suitability of machines worked out).

Secondly, given the right TYPE of glider for the job in hand, very few varieties of machine are required to cover the complete training, thus simplifying both instructional methods and spares. In this case the "S.G. 38," "Grunau II b," "Olympia" and "Kranich," form the ideal complement. The Germans spent years developing these machines for just this purpose.

The above two points concern the most vital aspects of club operation. The next two in importance are probably site and maintenance, but nothing can be done without complete flying and training equipment and the ability to use it properly.

Accident to Rhonadler Sailplane at Rearsby, on 22nd April, 1946

B.G.A., I. of A. No. 281, 1946.

PRELIMINARY REPORT OF DAMAGE.

I EXAMINED this sailplane immediately after the forced landing in a ploughed field near Rearsby aerodrome. It had made a good landing, and it is considered that all the damage had occurred in flight.

STARBOARD MAINPLANE.

Leading edge ply sheared on the top surface, just inboard of the inner end of the aileron. (The inner aileron hinge is within an inch or two from the end of the aileron).

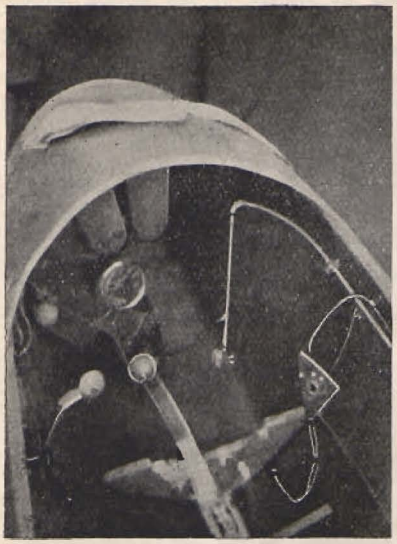
The crack extends from the leading edge to the top of the main spar, and is parallel to, and just outboard of, a nose rib.

Compression shakes have occurred at intervals along the underside of the leading edge ply, from about 3 feet outboard of the fuselage side to about 3 feet outboard of the inner end of the aileron.

The wing root rib has moved outboard about ¼ inch at the leading edge due to contact with the root rib of the port mainplane.

PORT MAINPLANE.

Compression shakes on underside of the leading edge ply, as on the starboard wing.



Interior of Cockpit on landing.

WING ROOT FITTINGS, BOTH WINGS.

All fittings appear to be O.K. on both mainplanes, although the butting of the port and starboard root ribs at the L.E. suggests that the fittings may have shifted slightly.

FUSELAGE.

The wing attachment fittings appear to be all right.

The top skin of the fuselage forward of the main spar bulkhead has a longitudinal crack about 6 inches long.

COCKPIT.

The port lower safety harness strap attachment fitting broken at a bend. The instrument panel had come adrift. The cockpit cover was torn off and was missing. The seat had moved forward and jammed the control column. The seat was located by slots, about ⅜ inch deep, but was not screwed down.

ELEVATORS.

Both elevators have a permanent set downwards, due to the bending of the tubular spar across the fuselage. The elevators themselves appear to be all right.

COMMENTS.

It is consid red that the primary failure was the shearing of the leading edge plywood on the starboard wing.

The plywood appears to be in good condition, the fracture is a clear sheer failure, across the grain. It is recommended that samples of the plywood be tested.

I flew the sailplane on the previous flight, a winch circuit, and noticed nothing abnormal.

G. O. MANNING.

24th April, 1946.

EXTRACTS FROM LETTER FROM MR. J. W. S. PRINGLE

(*Chairman of B.G.A. Technical Committee*).

" During the flight, both on aerotow, and when entering rising air, knocking and creaking noises were heard, but the flying characteristics of the machine appeared to be normal. While circling at 5,200 feet at a rate of climb of 2 f.p.s. in relatively calm air, the pilot decided to return to the aerodrome and set course at 35 m.p.h. Suddenly a crack was heard in the wings, and immediately the machine started bucketing laterally, and on this being corrected, also in the fore-and-aft plane. While attempting to correct this the seat shot forward, jamming the stick forward, and while the pilot was attempting to pull the seat back, the cockpit cover opened, the bucketing continuing. The tailplane felt uncontrollable. The pilot states that he looked at the starboard wing and it was flexing up and down and twisting. He pulled the cover shut, but the violent movement threw his feet about, and the instrument panel broke away. The up and down movement got more serious, the A.S.I. being seen to indicate 120 m.p.h., and the pilot considered baling out, but decided to try to damp out the oscillations. By this time the cockpit cover had blown right off. The bucketing kept pressing him down into the seat and then throwing him up on the straps so that he was able to see the tailplane over the top of the wing. He could not even keep hold of the stick. Slowly he managed to damp out the oscillations by not forcing the stick to counter the oscillations. The machine then got quieter and glided down without lateral control due to the flexing of the wing, but it was a struggle to keep it gliding properly due to persistence of the bucketing. He looked for the aerodrome, but decided it was too far away and brought the machine down safely in a ploughed field, but sharp lateral movements of the stick were necessary to keep it level. The pilot states that he had decided to bale out if the tailplane had gone.

The aircraft was inspected on landing by Mr. G. O. Manning, who is submitting a separate detailed report. Photographs were taken by Mrs. A. Douglas after it had been ascertained that Mr. Bolton was not available on the aerodrome. The air speed indicator was jammed at 108 m.p.h.

The weather at the time was fine ; wind N.W. varying 5-15 m.p.h. From other pilots it is known that the up currents were in the region of 15 f.p.s. maximum, not very turbulent. Cloud base was 5,500 feet.

The aero-tow was by a Taylor craft piloted by Mr. H. Kendall, and was normal."

B.G.A. TECHNICAL COMMITTEE'S REPORT.

1. " The Technical Committee considered that the sailplane's structure might have suffered during aerotows carried out at too high a speed, leading to subsequent failure in free flight.

2. Information available did not enable the location of the initial failure to be fixed and it was agreed that the structure should be stripped and examined to discover further possible evidence on this point.

3. As a result of this accident it is recommended by the Technical Committee that :—

(a) All gliders should be placarded with limited towing and free flight speeds and that these should be strictly adhered to. (These are given on the C. of A.)

(b) No design of seat should be approved which could in any circumstances become displaced and restrict the movement of the pilots controls. Seats should be securely fastened to the fuselage structure."

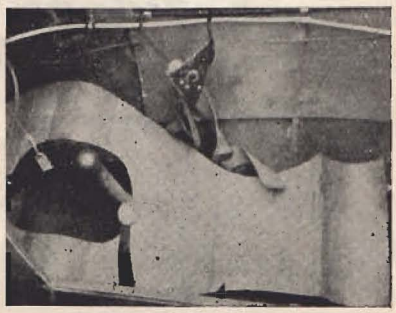


Photo showing position of seat on landing.



Albatross soaring alongside of ship.

The Soaring Flight of The Albatross

BY W. E. P. CORBETT.

THE following observations on the soaring of "Albatrosses," and other oceanic birds, are the result of a winter spent in the Antartic on a whaling expedition in the Floating Factory "SVEND FOYD." As Ship's Surgeon I had plenty of time to observe the birds and their habits. In this I was lucky, as a great many of my colleagues in other "factories" had very little time to observe anything. But "SVEND FOYD" was a lucky ship, except once, and that was the last time.

I propose, in discussing these flights, to divide them into three sections :

(1) The Take-off.
(2) The Flight.
(3) The Landing.

(1) THE TAKE-OFF.

This was invariably the same for all the oceanic birds of the Antartic, even for the "Cape Pigeons" and other birds smaller than the Albatrosses. The "Cape Pigeons" are no larger than the ordinary Black-headed Gulls, and for some reason they always reminded me of "Grunau Babies"!

The Take-Off was for one and all an Aircraft Take-Off.

The birds extended their wings fully, and with no attempt at flapping ; they paddled with their feet as hard as they could until they became airborne.

The Albatrosses usually started this procedure half-way down the "back" of a wave, paddling hard all the way up the "face" of the advancing wave which followed. They were usually airborne as soon as the crest of the second wave passed under them.

I never saw them vary this "Aeroplane" Take-Off, but I saw one Albatross "crash" into the crest of the second wave through not starting his Take-Off run soon enough.

I would estimate the length of the "run" on the water at about 50 feet, but, of course, the bird was helped by the fact that the next wave was advancing towards him faster than he was himself travelling. As soon as the crest passed under him and he met the full force of the wind, he was lifted off the water.

This was invariably the method for all these birds.



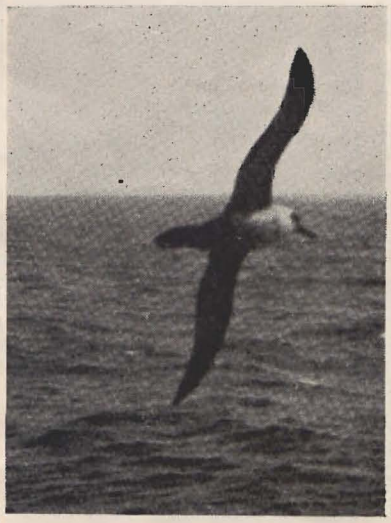
Soaring in trough of wave.

(2) THE FLIGHT.

Immediately he had a foot or two of height the bird started flapping. I am sorry if this disappoints the Albatross enthusiasts who think that this bird distains anything but the purest soaring; but he can, and will, flap like any sparrow when the necessity arises. However, after about half-a-dozen heavy flaps he has usually gained the necessary height, and he commences to soar. To do this he only requires about six feet of height over the crest of a wave.

He at once dives at the face of the oncoming wave, and turning at the same time so that he is travelling parallel to it, he flies literally within centimetres of the surface in the trough. Here, he is flying in the "dead" air in the "shadow" of the wave where he suffers no great resistance to his progress, taking advantage also of his "float" through flying so close to the water-surface. There is thus very little to reduce the speed he acquired from his dive, and in this manner the bird travels a considerable distance *across wind.*

When he chooses to do so, either because his speed is dropping, or for any other reason that may to him appear sufficient, he turns very slightly towards the wind, and, with no appreciable loss of speed, allows the crest of the wave, in whose "shadow" he has been flying, to slip underneath him.



Soaring Albatross banking to land.

He then at once meets the full force of the wind, and gets all his height back again, and probably some more added to it. He may then dive again and repeat the performance, or miss the next wave and dive at the one next, maintaining the original direction of flight, or changing it as he wishes. If he wishes to proceed as directly as possible up-wind he does not travel too far in the "trough," but pops quickly over the crest, gaining enough height perhaps to enable him to "jump" the next wave, and travel in the trough of the one after it.

In this manner the bird can fly up wind, or across-wind in either direction, for hours on end by pure soaring alone so long as the wind blows; and it always does blow in the "Roaring Forties."

In his upwind progress the bird never rises more than six feet above the surface of the ocean.

I watched for this particularly, as I had heard of Albatrosses "Dynamic Soaring" to fifty feet or so, but I never once saw a bird over six feet from the water when he was flying upwind.

It is literally true to say that the birds keep out of the wind as much as possible.

But when he flies down wind the opposite is the case.

Then he will rise off the crest right into the face of the wind until he has about thirty feet of height. At this height he turns downwind, and MAINTAINS HIS HEIGHT. He does not dive at all but flattens out his glide for the longest possible flight. Towards the finish of his downwind glide he dives again into the sheltered air of the troughs, and shoots up off the crest to his original height, or whatever height he needs.

He uses his height to get speed, and his speed to get height.

In referring to the birds diving at the water I do not mean that they dive steeply; they merely start downwards, but their shape and weight are such that they gain speed very rapidly in a shallow dive. Albatrosses almost never do anything abruptly. Their flying speed is constant, or appears to be so. They do not go in for violent vertically-banked twists and turns, except when they see something in the water that they wish to investigate. They can stop then as if they had run into a stone wall.

In their upwind progress they travel fast in the shelter of the waves, and appear to float over the crest, rather than turn into the wind; there is no appreciable turn about it.

Their soaring appears quite effortless.

They keep their wings fully extended straight out, unlike the other birds which are constantly and visibly, altering the shape and area of their wings. They usually have a slight Kathedral Angle, and they do not flex their wings at the "wrist," except in very high winds.

Their flight really resembles that of a sailplane.

(3) **ALIGHTING.**

This can be dealt with in very few words.

It can be the lightest, most graceful thing imaginable when the bird is just settling for a rest on the water, or it can be the most shocking "plop," like a thrown brick, into a duck-pond. This latter usually occurs when the bird has seen something in the water, and needs to get down quickly lest other Albatrosses get there first, or the ubiquitous "Cape Pigeons" get away with it.

No description would fit this type of landing; it is merely a sudden cessation of flight, and a fall out of the air, with the head thrown back, the wings anyhow, the ridiculous tail fanned (he only just escapes not having one), the big webbed feet splayed out, and—Splash! he is down.

On the other hand, when the bird is settling for a rest he approaches in a flat glide, upwind of course; his speed falls to nothing, he reaches out as if to feel the water with his feet, his wings held fairly high, rather like a "Minimoa" sailplane, and he settles as lightly as thistledown. He maintains his wings in flying position for a few moments before folding them.

I am sorry once again to upset the incurable Romantics, but Albatrosses rest quite frequently on the water. Why should not the wretched fowl have a rest? Poets have their sleep don't they? Well so do the victims of their imagination—the Albatrosses.

After one of their periods of resting the same birds catch up the ship in about an hour's time. It is very often quite easy to spot individual birds by some particular marking or characteristic. In this connexion I am quite convinced (in my own mind) that the birds seen on any one day are not the birds seen the previous day. I think that, like all wild things ashore, they have their own "territories" to which they keep, in the main. I never saw any Albatrosses North of about 30° S. Lat.

There are not the constant winds North of that latitude which the Albatross needs. In fact, there are days on end when there is no wind at all.

During the course of these observations I had no means of estimating accurately wind speeds, flight speeds, height of waves and distances between the crests, and other exact information about the birds themselves.

These matters are for observers better equipped than I am, both mentally and instrumentally.



Sooty Albatross in high speed flight.



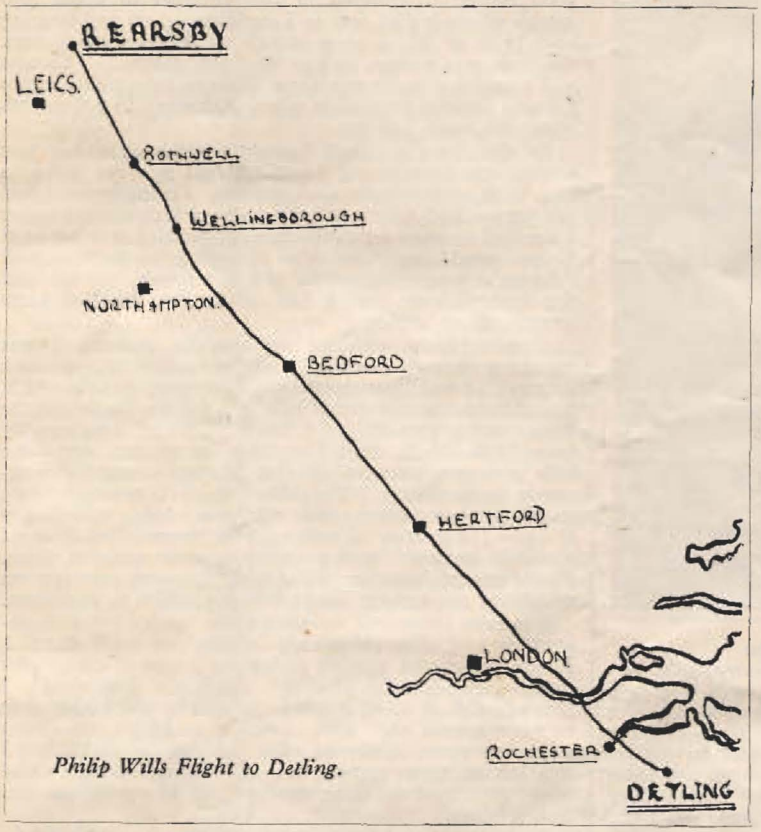
Sooty Albatross soaring in Wave trough.

More Paper for Sailplane

With the intervention on our behalf of the Minister of Civil Aviation, we are hoping to be able to print a much bigger supply of copies of SAILPLANE with the next issue. So soon as it can be arranged we shall have more pages and will be printed on all art paper. As from January next we hope to go back to the pre-war size of page of SAILPLANE but with more pages. There is now no reason why SAILPLANE cannot be bought on a regular order through your newsagent although to make sure it is better to become a subscriber through our distributors Messrs. the Rolls House Publishing Co. Ltd. Breams Buildings, Fetter Lane, E.C.4.

REARSBY—DETLING 120 miles. April 21st.

BY PHILIP WILLS.



Philip Wills Flight to Detling.

THIS was a flight of rather small general interest, but to the performer a great joy, being his first cross-country in a sailplane for over six-and-a-half years.

The Leicester Club Easter meeting really made one feel that the lights were going up again. Once more the old familiar faces, the old familiar shop ; and once more at last the sky looked properly furnished, with circling sailplanes hanging beneath each cumulus cloud.

But the flight itself was very much of a first effort. A new machine, the " Weihe ", on its first serious flight, all the little bits and pieces and points which make for smooth handling and comfort still to be adjusted and found out.

Doubts whether our pre-war 10 h.p. car could tow our new trailer ; and whether our petrol ration would stretch to retrieving on the pre-war scale. More than doubts of the possibility of finding accommodation for the night if one fetched up at any but the small number of pre-selected goals.

The morning of the 21st dawned cloudless and bright, and a light North wind started cloudstreets forming as early as 09.30 B.S.T. Although no weather forecasting was available it was obvious that cold-sector conditions were prevailing, and the only risk was that, as sometimes happen in extremely unstable conditions, early convection would be so strong that the whole sky would cloud over and the sun cut off.

By 10.30 streets stretched right across the sky, but cloudbase was only about 1,500 feet and from previous experience I doubted if the air was as soarable as it looked. These doubts were confirmed on an aero-towed launch at 11.30, when after a struggle in broken thermal I decided it was too early to risk going away and landed back at the airfield.

The excellent stability of the "Weihe" in pitch produces wonderful results on an aero-tow, as the machine can be trimmed from the cockpit to fly hands off at any speed. This must be a great relief to the tug pilot. I am certain that the passwords to a good sailplane in the post-war world are " good stability and controls."

I had not been very strong-minded about declaring a goal, having first declared for Portsmouth and then on being told Hurn (near Bournemouth) was a goal for the day, changing to that.

On my second take-off, about 12.20, things were much better, and I set off South. It soon became clear that any goal this side of the Channel within a sector between 140° and 210° was equally possible, and I started wondering which would be the best. Alternatives were (1) Hurn, which was a weary retrieve if, as I feared, my car was capable of a maximum of around 25 m.p.h., (2) Maidenhead, where I live, or (3) Detling, where an A.T.C. camp, to which I had been previously asked, was going on.

Eventually I decided on Detling, because I knew I would have a kind and intelligent reception there, and even might get a tow home and so solve the retrieving problem.

For the first hour or so things were not dead easy, and as will be seen from the barograph chart, once or twice I was down to around 1,500 feet.

But the superlative penetration of the " Weihe," which in this respect is incomparably the best machine I have yet flown, was the greatest help in getting me from the upcurrent above one town to that above the next. In between upcurrents I cruised at between 50 and 60 m.p.h.

As the sun rose conditions improved, until from Kettering onwards the things became a picnic.

Lift in the clouds was patchy and did not pay, though in the last one I tried, near the Thames, I found a meatier area. My lack of experience of the machine and also a certain lack of confidence in the small German electric turn-and-bank indicator which I had not yet got tuned up to my satisfaction, prevented me from trying very seriously.

Detling was reached about 3.30 and I could easily have continued to the coast. I came in from ten miles in a long glide at 75 m.p.h., circuited the airfield twice at that speed, and landed.

There I met some of my friends from 84 Group Gliding Club, Gitter, who showed me how properly to organise the magnificently designed rigging and derigging. Each operation took four minutes.

75 MILES IN AN MU 13



Wing Commander W. Malins
who took the MU. 13 on his first cross country flight.

IT was warm and sunny with a certain amount of cumulus leisurely drifting westerly across a wonderfully blue sky —an ideal May day and certainly one on which to visit the Gliding School at Salzgitter. And so at a quarter past three I was adjusting my harness in the " MU. 13 " before being towed off. This time I had brought some maps and I had informed Stan Haynes, of my intention, if conditions were reasonable, of going away; I might be able to make " Silver C " distance. I put on a very brave air although I was anything but confident.

However, Ann Douglas, who was visiting the school with Doc. Slater, had been towed off in the " Olympia " a few minutes earlier, and was already circling at about 400 metres and apparently getting some lift so I felt a little more at ease at disturbing them from their lengthy lunch at 2 o'clock.

Stan Haynes' briefing was a model of brevity—" I'll tow you to about 400 metres and waggle the wings as a sign for you to release when we are in a thermal—you will probably find you're in a ' Down ' but don't worry. Climb to 1,000 metres in the vicinity of the airfield before going away—if possible get to cloud height, and after you've forced off start looking for thermals at about 800 metres. Once you have gone away and are committed to the flight press on regardless." This latter part, I thought, was strangely reminiscent of many briefings over the past 6 years. Anyway I didn't need any warning as I had previously experienced the bad penetrative qualities of the " MU."

And so at about 15.30 I was towed off in a series of snatches as the " MU," with it's one wheel, slightly over-ran the cable. The snatches damped out a bit after becoming airborne and I was towed to 400 metres through the turbulence feeling rather like a fly must feel on the end of a line cast by an inexperienced angler. I released at 400 metres and adjusted my speed from 90 k.p.h. to 40 k.p.h. and found to my intense satisfaction that I was in a thermal giving me a rate of ascent of 1 metre per second. Well, luck was with me for a start and I took this as a good omen. I climbed in this thermal to about 550 metres where it died out, so I straightened up and steering slightly S. of W., I soon picked up another which took me from 500 metres to just over 600 metres. This was still promising but it was about another 10 minutes before I found another thermal in which I climbed to 800 metres when this again died out.

By this time, although I could see the airfield, I was a long way from it and I realised that if I was going to turn back, now was the time to do it. Furthermore, I had not yet reached 1,000 metres but after a little consideration I decided to push on although a bit worried at what Stan Haines would say when, after collecting me from a small field or, at worst, the middle of a pine forest, he examined the barograph to find I had not in fact reached 1,000 metres before leaving.

I immediately regretted my decision because I was searching at least 10 minutes before finding another weak thermal. I had now crossed the first range of hills and in front of me was a series of hills and valleys (including the Weser valley with it's big " Down "), which runs roughly from N.W.—S.E. until Paderborn is reached when the hills give way to relatively flat country stretching westwards to the Ruhr. The hills I had to negotiate were mostly 300—400 metres high with crests rising occasionally to 440—470 metres. I realised only too well that it would probably be touch and go scraping over some of them. Furthermore, they are all densely covered pine forests which are not exactly ideal places on which to put down.

However there was no alternative but to press on regardless and after reluctantly leaving my weak thermal, I soon discovered another giving me a rate of ascent of 2 metres per second. This was absolutely first class ; I heaved a sigh of relief, commenced circling and rocketed up to 1,000 metres plus, with visions of making 1,000 metres above my point of release. But this was not to be, and I was left at 1,100 metres, still not having reached cloud base but at least fulfilling the first part of my instructions from Haines.

Up to this time, I had been following a reasonably well defined cloud street but now to the West the cumulus lessened and did not conform to any pattern. I was not unduly worried. Little did I realise that it would be a long time before I got anywhere near 1,000 metres again, and I decided to force off across wind to Hildesheim where I expected to get a strong thermal from the dust and rubble of this devastated town, and from where Detmold airfield would be almost dead down wind of me.

Here again I was wrong and I soon found that I was at 800 metres with Hildesheim a long way to the North—so a quick turn to port and I was once again sailing down wind. For the next half hour the vario. indicated a series of weak thermals and stronger " Downs " with the result that I found myself West of ALFELD at 600 metres with a pine covered hill 4 miles wide rising to 470 metres in front of me. But I just had to go on, knowing that I had been very lucky so far and expecting that the odd thermal must inevitably appear before I was forced to land. I scraped over the hill with about 150 feet to spare and it was gratifying to see the ground slipping away underneath me—the slope of the hill was much steeper than my angle of glide. I then realised that I could not land in the valley which was criss-crossed with H.T. cables and I eventually reached the Weser at 500 metres and crossed over by the large bend in the river North of Holzminden only to encounter the big " Down " of which I had been warned. I got out of this as soon as possible by flying at 65 k.p.h. and eventually reached fairly stable conditions with 250 metres on the altimeter, but over ground 150 metres high.

I searched here for thermals with no success and as a last resort tried the spur of a hill where the variometer momentarily registered 1 metre up. Still out of luck I was about to land when I picked up a thermal at about 100 metres. This was coming, I think, from a ploughed field or from a compact little village adjacent to it. In desperation I started circling rapidly, terrified that I should not turn steeply enough and therefore lose it; but my luck had returned and I hung on until 600 metres was reached. It was here that I saw my only hawk but it was circling below me. However, my elation was short-lived and it was with some misgiving that I approached my last range of hills through which a main railway line runs in a very steep valley with the small town of Neuenbeken situated at the western end. At the eastern end where the valley was about 2 miles wide I got a good thermal over the heavily bombed marshalling yard at Altenbeken. Here the surrounding countryside was covered with bomb craters which had exposed the chalk subsoil and strewn a good deal of it around. This was the strongest thermal of the day (6 o'clock) and I climbed from 300 metres to just over 500 metres at a good 2 metres per second. Even this did not give me much to spare and I carefully felt my way along the northern shoulder of the valley fearful of vicious downdraughts, when to my utter amazement on reaching the western end of the valley, which is about 200 yeards wide, I suddenly hit a violent up-current of over 3½ metres per second. I immediately started circling and was thrown about like a cork in a mill-race. I had never before experienced such turbulence and at times full opposite stick and rudder failed to reduce my angle of bank for some seconds. The A.S.I. meanwhile was oscillating between 30 and 45 k.p.h.

It must have been a wide area of lift because in spite of very inaccurate flying my vario. never registered less than 3 and more often 3½ until it ceased as abruptly as it started

(*Continued on page* 21)



'Good Mornings' begin with Gillette

You feel like a man who's got infinite leisure with blades that make shaving a positive pleasure!

Blue Gillette blades 3d each, including Purchase Tax.

Note on B 38 High Performance Sailplane

DURING the period 1934-38, when the German glider movement, more and more militarised, concentrated on the serial production of types such as "Rhonsperber," first of all practical in operation, the development of high performance flying in Poland had been stepped up, mostly due to the creation and rapid growth of the Ustjanowa Centre. The large number of pilots gaining experience, the contests held, systematic tests and experimental work conducted at this centre led, among other things, to the conception of a sailplane type for cross-country flights to be arrived at in three stages by building three sailplane types gradually incorporating radical changes in design. The first of these three was "B. 38," built in 1938 and shown in flight to the ISTUS meeting in 1939.

The outbreak of war found "B. 38" in the Warsaw Central Experimental Establishment, after successful completion of performance and airworthiness tests, the next link, "B. 39," in the Lwow Aircraft Factory under construction, and "B. 40" on the designer's drawing board.

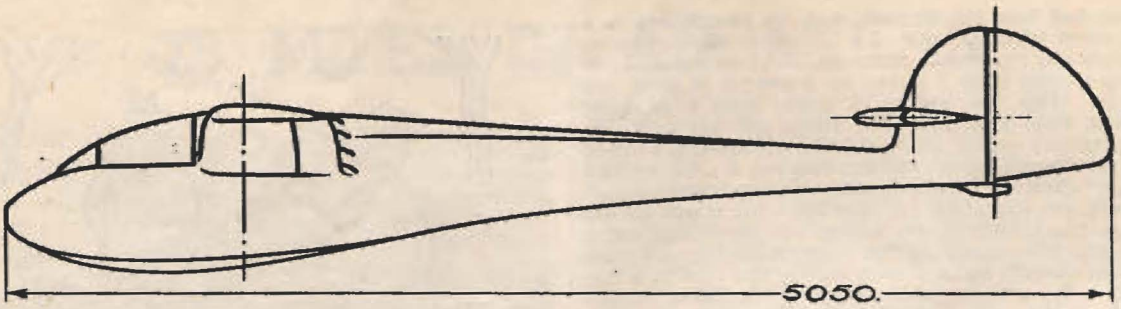
One of the new requirements underlying the design of "B. 38" and its successors, was the physiological effect of soaring as a function of the speed of the sailplane and the duration of flight. It began to affect the results of high performance flying more and more. The necessary data were obtained in a series of tests carried out by eight selected pilots flying all existing Polish types of sailplanes and two German types.

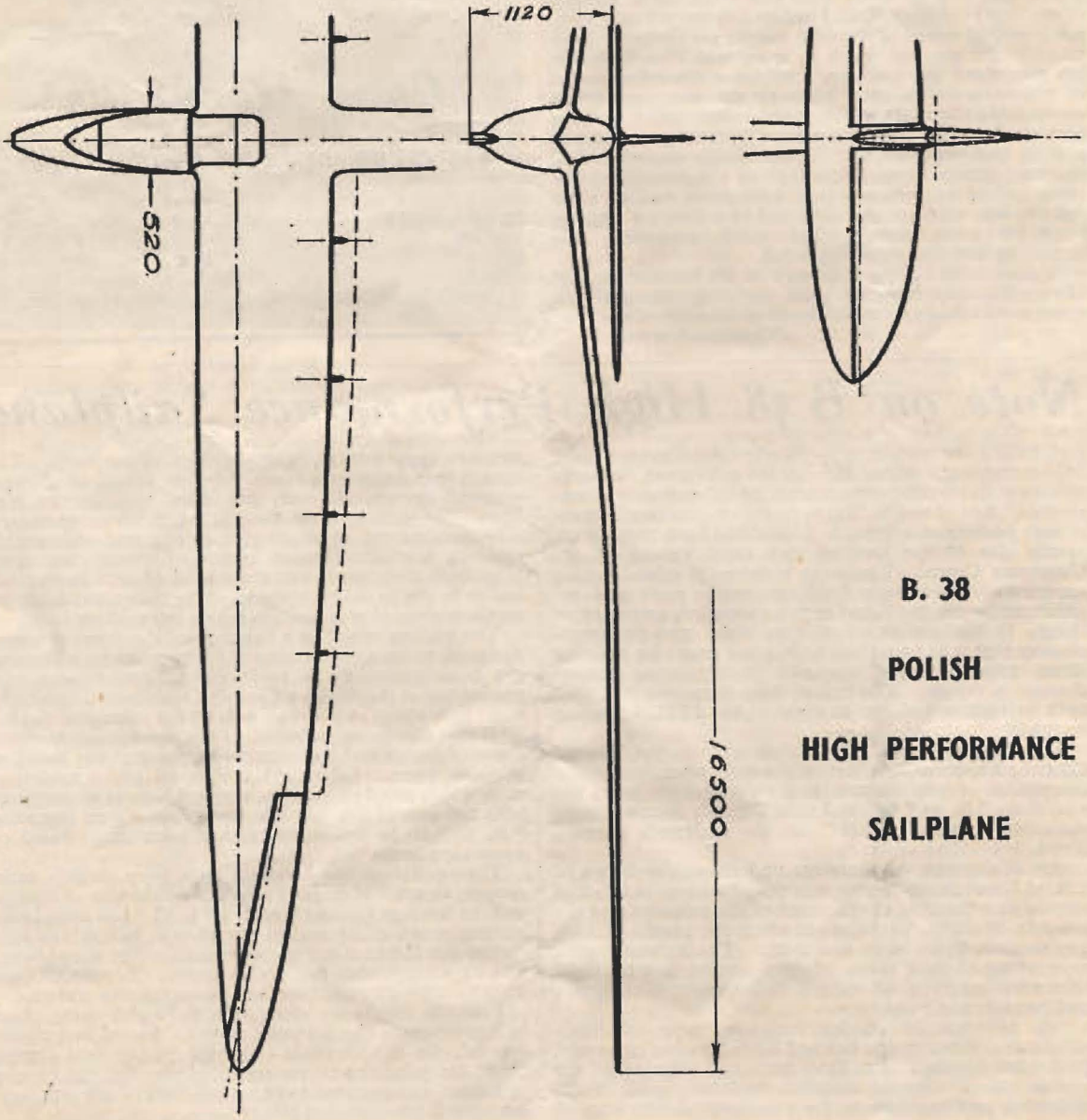
"B. 38" was of wooden design, as were all Polish sailplanes. Pine, spruce, oak and birch plywood were used for loaded elements, with lime, balsa and alder added for certain others. Special attention had been paid to the deflection problem and to the non-linear distribution of stress in cross sections in the bending of the wood. The double spar design was adopted for the wings, which were plywood covered all over, and fitted with Fowler type flaps. No spoilers were thought advisable or necessary. The requirement of quick dismantling and re-assembly resulting from the German system of contests was complied with although it was considered of little importance and to be put in the background of the design requirements on the organisation of contests with a less military bias.

The sinking speed as a function of the forward speed, designed to be almost constant between 40-70 kilometres per hour proved to be so in flight. Performance tests carried out at the Warsaw Central Experimental Establishment gave about 10 per cent. gain on the calculated figures. This was due most probably, to the aerodynamical cleanliness of design and the conservative assumptions based on previous types. Laboratory results on glider models of sizes which could be made at reasonable costs as compared with the cost of the sailplane proved on a type preceding "B. 38" to be less accurate than calculations based on some experience.

The results of the handling tests were entirely satisfactory, in spite of original criticism of the size of ailerons and the fuselage size and layout. "B. 38" had a minimum sinking speed of .65 metres per second, and at 100 kilometres per hour 1.2 metres per second. The wing loading was 22 kilogrammes per square metre, CL over CD was 25 at 72 kilometres per hour, and the aspect ratio was 22.9.

Practical results in cross country flights were about to commence at the outbreak of war. In the best testing ground, the dry thermals (assumed 75 per cent circling time), the gain in cross country speed over the then existing sailplanes was expected to be no less than 25 per cent, with no adverse physiological effects.





B. 38

POLISH

HIGH PERFORMANCE

SAILPLANE

GLIDING AT THE TECK

IT was my good fortune to be, in the summer of 1945, at Kirchheim-Teck, in the province of Wurttemberg, Germany, as part of the army of occupation, with the 36th Infantry Division. Good fortune, because near here, at the base of a mountain called the Teck, is the flying field, Flugplatz-Teck, where for many years, the Germans have had a school of gliding and soaring.

Also at Flugplatz-Teck, is the factory of Wolf Hirth, the German soaring pioneer. Here many sailplanes have been built, including the " Habicht," designed for stunting. At present, the factory is manufacturing small wagons for civilian use.

Major Terrel, of the 142nd Infantry Regiment, became interested in the school, and on July 17th, the school began operation, giving instruction on primary gliders and sailplanes, under the supervision of Mr. Hoedemaker, a Hollander, who had been retained in Germany during the war, and worked at the Hirth factory.

The equipment consisted of a half dozen school gliders, one with a nacelle. There were also a number of sailplanes, including a " Meise " (Olympia), a couple " Grunau Baby," one with a center of gravity launching hook, and a " Goevier " side by side two-seater.

Highly skilled German soaring pilots were used as instructors. Among these were Espenlaub, a Silver " C " holder, with over four thousand starts to his credit, and Heckeler, with a Silver " C " and experience on the troop carrying " Gotha " glider. The latter is also a motor pilot of ability. This came in very handy when we practiced aero towing with a small " Klemm " monoplane which became available.

From the very first, winch launching was the accepted form of getting in the air. Occasionally the gliders were hauled back to the starting place with enough speed to raise them off the ground, thereby making an auto-start. This saved the glider many bumps on the furroughed terrain, but was abandoned as being too rough on the Jeeps.

Shock-cord launching was then tried from the slope, and lately airplane towing has been carried out quite successfully. In fact, being towed behind a plane is a rather mild experience, when compared with a launch by winch into the teeth of a gale which buffets the sailplane around, and knowing that a cable, weakened by much use, may break at any instant.

Some very successful soaring flights have been made with the " Olympias " and " Grunaus," using the updrafts over Teck ridge and adjacent hills. A flight of five and a half hours was made by a Canadian, Wing Commander Holman, who took a barograph with him, and had the flight recorded toward his Silver " C."

On one occasion I attained a height of twelve hundred meters in a " Grunau " Baby. From this level the Alps could be seen lining the horizon far to the south-east, and reaching to them, a thousand feet below me, a layer of cottony white clouds. The soaring was beautiful for an hour, then the clouds started to break up and roll by beneath me. The " Grunau " lost height rapidly and soon I was being tossed about in the rough air along the hillside in search of lift, and eventually landed shortly afterwards at the field.

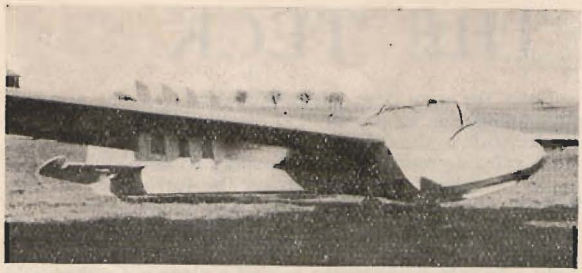
From time to time, additions have been made to the fleet as new craft were discovered stowed away about the



" Olympia " and " Goevier " on field at Teck.



Lt. Jesse James.



The " Hirth 21 " showing experimental spoilers.

countryside, until at present there are available or in repair, " Olympias," " Grunaus," " Weihes," a " Kranich," " Goevier," " Habicht," " Wolf," " MU 13," an experimental model, the " Hirth 21," and others.

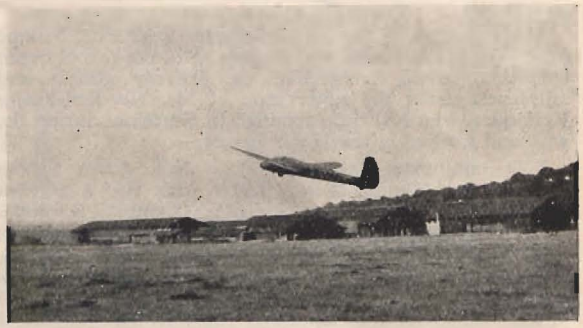
The school is now operated by the 16th Engineers, 1st Armoured Division. It is supervised by Lt. John Wilson who was an airplane pilot before the war. His assistant is Mr. Hoedemaker, who has stayed with the school during its ups and downs, including one crisis when the burgermeister of a nearby village wanted to plow the field under. The Division which had originally sponsored the school was at that time in the process of redeployment.

Throughout the winter, flying has been carried on in all kinds of weather, from the most favourable to days when the ceiling was down, and the winch cable carried the sailplanes up into the snow clouds.

Some days, the molehills on the landing field are frozen so hard as to be a threat of disaster to the skids, and on others it is so slick with mud, that to make headway, even with the sturdy Jeeps, is difficult.

As this is written, two " MU 13's " are nearing readiness in the shop, under the hands of skilled sailplane mechanics, and two " Weihes " that have just been acquired, will be rigged for flying soon, and many interesting experiences are anticipated, as summer approaches and the soaring winds blow more often.

LT. J. JAMES, U.S.A.



" Goevier " side by side two-seater being launched.

CLUB SECTION

Portsmouth Gliding Club

ON SUNDAY, May 12th the " Scud II " and the " Lancia " were taken to Kithurst Hill and launched into a moderate North-Easterly wind. Shortly after take-off the wind veered to due East and both machines gradually sunk to the bottom. Parslow chose a nice large field but found on closer inspection that it was wheat and pulled off a tricky landing on a rifle range just outside Storrington, whilst Clear put the " Lancia " down in a field near Amberley.

The machines were loaded on their trailers and taken to Lychpole Hill near Worthing, but as it was getting rather late only the " Scud " was rigged and Clear put in 35 minutes soaring, reaching a maximum height of 550 feet in the light evening breeze.

Until our two-seater is completed and we can tackle our big training programme, we only fly when conditions are good for soaring and much valuable work has been put in on non-soaring days on the ground equipment and aircraft. The Buick towing car has been fitted with a hand winch for reeling in the cable, and a new trailer has been built for transporting club machines.

The two-seater fuselage is now in its jig and is ready for " flying up " and this machine is being concentrated upon to get our long waiting list of members into the air as soon as possible.

The Clerk of the Weather did his best to ruin our Whitsun Camp, but although the tents got a trifle wet, inside our spirits remained undampened. Great credit is due to the lady members who turned out such excellent meals under very trying conditions.

Saturday, June 8th found us hastily erecting the tents at Portsmouth Airport and gazing apprehensively at the threatening sky. As we sat down to dinner the skies opened and it rained continuously for the rsst of the day.

Sunday, June 9th was dull and cold with rather rough flying conditions but the " Kirby Kite " and " Scud II " were circuited without undue emotion by Ruck, Costin, Clear and Parslow.

Monday, June 10th. As a strong West wind was blowing we decided to take the " Kirby Kite " and " Scud III " to Old Winchester Hill. Ruck arrived there first and got caught in a violet storm which nearly turned over the " Kite " trailer. Clear was launched in the " Scud " and the machine could be seen flexing as the violent gusts hit it. As the " Scud's " powerful controls could only just cope with such rough conditions it was decided not to risk the " Kite " and after twenty hectic minutes Clear brought the " Scud " down safely on top.

Tuesday, June 11th. Most of the camp members had gone, but as a few remained the " Lancia " was rigged on the 'drome and flown by Parslow, Costin, Fripp and Clear. The nose down attitude when the large flaps are applied takes a little getting used to, but apart from this she is a lovely aircraft to fly.

Although the weather was against any high performance soaring being attempted, indeed against any sort of flying most of the time, it was unanimously agreed that the meeting had been a success.

K.J.F.

Midland Gliding Club

THE last day's activity to be recorded was Sunday, February 10th. The next week-end, *Feb. 17th*, was even better, and about 13 hours soaring were put in. This was in spite of the forecasters; the writer waited until the Friday evening before telephoning the nearest aerodrome for a forecast: it was quite unfavourable, so the week-end was spent visiting relatives instead of the Mynd. However the Sunday turned out into a first-class soaring day with enough cloud lift to make things amusing. No further details are to hand.

February 24th produced a few flights for James Cole, and possibly others; but by two o'clock the wind had died and no more soaring was possible. Still, three week-ends out of four during February had provided the necessary West wind; if we could only say the same about all the other months of the year.

March consisted in the main, of one long anticyclone and only on *March 23rd* was any soaring done; Ivin and Wingfield disported in "Falcon" and "Wolf." Ivin of A.T.C. M48 was taking his "C" with a flight of 2½ hours or so; the first since 1939. Also Geo. Lane of M43 Walsall, 2nd A.T.C., "C" with 53½ mins., congratulations.

April 7th was a first-class day, with about 16 hours soaring. All and sundry flew and many were having their first flights for years. It was a suitable day for it with no excitements or difficulties. Hill lift was up to 1,200 feet, but thermals were few; the exception being Burns, who reached 2,500 feet.

For the rest of the week following a party stayed on the Mynd; during the eight days they were there, hill soaring took place on four, and thermals off the winch on another.

Monday, April 8th. Wind; West, 25 m.p.h., dropping to 20 m.p.h. Launches were made by throwing sailplanes off by hand; in this way three pilots were able to fly three sailplanes, with only two spare men kicking their heels waiting on the ground. Hill lift was 8-900 feet, and plenty of lift up to cloudbase at 1,200 feet. Manning, Burns and the Wingfields flew; Stow nearly flew, but the "Wolf" dropped a wing on the launch (by bunjy, as the wind was lighter) and removed a skid.

The next two days were spent repairing it and watching the thermals; wind NE, light.

Thursday, April 11th, wind; West, 25 m.p.h.; launches by throwing-off again. Two members called in by air; Prince Birabongee telephoned early and heard we were flying, so came up in his "Auster" and exchanged mounts for some real flying in "Gracias." Theo Testar flew round, grossly disturbing the peace, in a Harvard. He did not land, so presumably had to endure the racket for a deal longer until he got home. Charles Wingfield found much cloud lift, and got 3½ miles up-wind towards Bishops Castle. However, lift always petered out before cloudbase was reached; clouds were thin and arranged in short streets across wind. Max. height 2,100 feet. Bira, and Manning also flew.

Friday, April 12th, wind; WNW, 25 m.p.h. at first, dropping to nil in the evening. Owen Wingfield did his Silver "C" duration flight. Thermals to about 2,000 feet made it passable, if not enjoyable. An episode at about the three-hour mark was certainly not enjoyable, but was dealt with in an unusual and highly original manner. Details will be sent on request, in a plain sealed envelope. Charles Wingfield found thermals plentiful, but they usually formed no associated cumulus. Maximum height 2,300 feet, and up-wind on thermal lift away from the hill for about 25 minutes. Manning flew next, and in the late evening C. Wingfield had a trial flight to see whether any evening thermal effect was present. No luck to-night.

The next day would have been grand if we had had a winch; but we had to wait 24 hours, when thanks to Mr. Nyborg's generosity in lending the club his Slater winch, and to the hard work of Sheffield and Neal in overhauling it and giving it a Certificate of tow-worthiness we were able to open the season of thermals off the winch. *Sunday, April 14th* was very hot and quite cloudless; wind very light, SE, and the usual anticyclonic haze. On the second launch at three o'clock, Charles Wingfield in "Gracias" caught a beauty from 550 feet, and stayed up for an hour, landing voluntarily. Max. height 2,600 feet, at which height he was level with the haze horizon. To the East it was very black, but towards the sun (West) it was very white; and there were three tiny cumulus sitting at the top of it; there was no apparent roughness when the thermals reached the inversion, but in general they were rough and hard to settle down in. The first was caught over a gentle hill-slope facing North; but all the others on this flight were found over the sunny West slope. A large, uncouth and turkey-like fowl (a hen-harrier), kept company in one, and kindly pointed the way towards the centre—which was elusive. Maximum lift was 10 f.p.s. but it was rarely possible to find the same lift all round the circle. Downdrafts were weak, and new thermals were usually found after a loss of about 1,000 feet. Meanwhile Manning had several launches in the "Wolf," newly fitted with an aft-positioned release, and got one at four o'clock from only 400 feet. His flight was similar to Wingfield's. Several more circuits were made, but no usable lift was found.

The writer has no notes with him, and has relied on memory and his own log-book; during the week C. Wingfield flew 8 hours, O. Wingfield about 7 hours, Manning must have done about 4 hours, Ivin 2½, and Birabongee 1 hour. Total approximately 22½ hours. (No prize offered for guessing the author).

March 24th deserves a note although no flying was done. Wind; West, very light; about 6/10 cu. There was heather burning going on about 1,000 yards East of the hangar, which produced the best thermal indicator possible. It did not appear that the fire itself was causing thermals, but the large volumes of smoke made visible the entire life of a thermal from moment of breakaway to the birth of the cumulus in the top of the smoke column. The smoke would be suddenly disturbed from its normal track, and rise vertically at considerable speed. Meanwhile, more smoke from the fire was quickly drawn in, travelling horizontally until the base of the thermal was reached. When the top of the smoke had reached about 2,000 feet, reinforcing smoke shewed that the base of the thermal was much bigger; smoke would start to rise from a greater distance at an angle of 50°.

This day's thermals were clearly of the bubble type; soon after the cumulus was observed to form in the top of the smoke column, all the lift would stop, and the sky would be filled with a diffuse mass of smoke slowly spreading outwards and thinning. It was not possible to observe the subsequent downcurrents so well, because the smoke became too thin, but they did not appear to be nearly so strong as the uppcurrents. It was observed that smoke left stranded by the first thermal was once caught in the upcurrent of a cloud which passed over afterwards. It was not observed that smoke was ever drawn up in a thermal under an existing cloud.

Cloudbase was guessed to be at

roughly 3,500 feet above the Mynd, or 5,000 feet above S.L. In general clouds were not more than 1,000 feet thick, and frequently half that. Judging from the diameter and upcurrent thermals lower down, should have been workable in a sailplane from as low as 3 or 4,000 feet. However, it was difficult to guess the probable measurements.

We are still desperately short of machines and equipment. The Government's promises are not being fulfilled; not a new machine of any sort yet—what a life!

News of the First Army Gliding Club

22nd ARMOURED BRIGADE GLIDING CLUB

The possibilities of starting a Gliding Club for 22nd Armoured Brigade were first discussed in the summer of 1945; and the dreary winter of 1945-46 was spent in scouring the country for Gliders, Materials and Spares, and in getting as many machines as possible ready for this season. The difficulties were considerable, as materials are unbuyable and are not being produced; but the Club held its opening meeting on 7th Armoured Division Airstrip on the 2nd of April.

The Club's popularity was immediate, and in the first few weeks 120 members had enrolled—and had paid their subscription! At the time of writing there are 180 members. Flying takes place on every day of the week, weather permitting, and in the first six weeks 1,500 launches had been made, 14 "A" licences and 2 "B" licences granted.

The instructors, all of whom are German, have had considerable experience in various spheres.

The chief instructor, Mr. Barthaune was chief instructor at the Umkali Club in South Africa before the war; among his assistants is Herr Matchego, who put in a lot of work on the centre of gravity type of launch during the war; and Herr Witstock who used to lecture in Aerodynamics a Leipzig University.

The Club has four "Primary" trainers; 2 "Grunau Babies" and 1 "Olympia." Launching is effected by both Car and Winch.

Main difficulties at present are an acute shortage of fabric, lack of repair facilities close at hand, and a good deal of red-tape. Disarmament Officials, for example, do not view favourably the Clubs request for permission to have repairs done by an aircraft factory in Hamburg.

However the Club flourishes; its objective being to train pilots who will have experience when they join British gliding clubs on being demobilised.

Newcastle Gliding Club

FLYING being still impossible by reason of the enforced lack of facilities, advantage is being taken of the hiatus to prepare a full programme and efficient means of carrying it out. To whom it may concern warning is given that when the surrounding red tape has been penetrated or circumvented, this Club is going right to the top! The present position is summarised below:—

General Committee. For the wider representation necessary to facilitate the restart of activities three additional members have been co-opted. They are: Messrs. G. L. Coates, G. C. Varley (from the Cambridge Club) and J. T. Robson (from the Yorkshire Club).

Aircraft Committee. It has been decided that a committee be formed to concern itself mainly with the maintenance and repair of Club and, if required, privately owned aircraft. This will be known as the Aircraft Committee and will consist of members qualified or intending to qualify as Glider Ground Engineers. The Chairman is Mr. J. Allan, the Club's Maintenance Engineer. Other duties of the Committee include the compilation of records of the performance and crashery of the Club machines and the keeping of accounts of material and man-hours involved in construction and repair. General records relating to sailplanes will be kept for the information of members and to assist the Flight Committee in the selection of machines to be purchased. Membership of this Committee is being limited at present to leave room for members in the Services who, on demobilisation, may wish to use their special knowledge.

B.G.A. Research. Groups 6 and 7 of the B.G.A. Research Programme—"Standing Waves" and "Radio for Gliding and Soaring" respectively—are associated with the name of this Club. Our co-ordinator on the B.G.A. Research Committee is Dr. W. E. Hick, M.B., B.S., a Founder Member of the Club. Application has been made to the B.G.A. for the allocation to the Club of one of the German Sailplanes at Farnborough for use in carrying on the programme of investigation into the Helm phenomenon at Hartside. There is reason to hope that the application will be favourably received.

Radio Sub-Committee. In respect of Group 7 of the B.G.A. Research programme investigation is proposed into the use of one-way (ground to glider) communication for pilot training and two-way communication in connection with soaring research and the location of machines after cross country flights. The attitude of the Post Office to the matter is awaited. A temporary Sub-Committee has been appointed to deal with constructional and operational problems. Its members are Messrs. J. Maw (Chairman), W. H. Thompson, J. Hemphill, B.Eng., and C. Stelling.

Construction Section. This section has been re-formed to work under the direction of the Aircraft Committee and the leadership of Mr. Allan. The first task undertaken is the construction of two nacelled "Primaries." It is believed that, in general, the construction of "Primaries" is an uneconomic proposition, in that they are capable of factory mass-production. The large initial training programme requires, however, either two-seat machines for dual instruction (preferred) or "Primaries." Neither being purchasable and the latter being the more easily made, it has been decided to build them. The first meeting of the Section was held on April 29th when Mr. Allan (demobilised on the 27th!) gave an informatory talk. Some aspects of constructional work were discussed and it was decided to commence the manufacture of the metal fittings of the "Primaries" by members at their home. Material lists have been drawn up in respect of timber, but there is some delay in the supply of aircraft quality material. This will be overcome.

Flying Field. The Cramlington site is about to be derequisitioned. It has been in use by a Service Department for purposes involving the erection of numerous buildings and the supply of electricity by means of a low-voltage overhead line. Before the war electricity was generated at the Club-house by a small petrol driven set, the supply not

(*Continued bottom of centre column, page opposite*)

Derbyshire & Lancashire Gliding Club

May 5th. A strong Northerly wind was blowing, and a visit to our North soaring slope (Siggert Hill overlooking Castleton) was organised, the party taking a kite for the purpose of demonstrating to the new members of the Club the technique most suitable for this useful ridge. Landing on top is possible by very expert pilots, but the wind was blowing at about 30 knots, and it was decided to land in the official field at the bottom, de-rig, and transport the kite back to the top for the next flight. Four pilots, Gerry Smith, Thomas, Armstrong and Faulkner flew for half an hour each, and so well organised were the retrieving crew that a launch was made every hour. Those who knew Siggert and the necessity for lifting wings over stone walls etc., will realise how splendidly organised was the retrieving crew. Each pilot reached 1,500 feet above the launch, and was able to tour most of the Hope Valley, altogether a very successful afternoon. The next three week-ends in May provided no flying, due to bad weather, but much work was done to buildings and equipment, members turning up in numbers and tackling all sorts of jobs.

June 2nd, provided us with a strong Westerly wind, and enthusiastic youngsters routed out the instructors early, so that flying started at 7.55 a.m. and "Kite," "Golden Wren," "Grunau" and "Kadet" were soaring most of the day in conditions which were at times very rough indeed. Shepherd reached cloud base (2,500 feet) in the "Kite," and Terence Horsley reached cloud base in the "Grunau." The youngsters, Roger Dickson and Jefferson flew the "Kadet" in rain, piling up their flying time and George Thompson, ex-R.A.F., had a cold ride in his shirt sleeves in the "Kadet" and later tried the "Grunau." Gerry Smith and Lewis Slater, contrary to Doc Slater's predictions (see "SAILPLANE," October, 1945) proved that they had not forsaken their old love, the "Golden Wren" which is still flying magnificently in its new gilt and cream.

June 8th saw the opening of the Whit Monday holiday combined A.T.C. and Club soaring week spoilt by heavy rain, but the A.T.C. rigged their kite, and tried out their winch.

Sunday, June 9th. It was raining at first, clearing after lunch with sunny periods, and very occasional thermals. Flight Lieutenant Causton of the A.T.C., Stan Armstrong and Roger Dickson contacted, and rose well above the almost non-existent hill lift to about 1,200 feet. All the A.T.C. personnel had at least two flights, mostly extended circuits, and the Club members had a further 23 launches.

June 10th. A howling Westerly gale persisted until 7.30 p.m. on Whit Monday, when we got out the "Golden Wren," "Kite" and "G.B." which promptly sat at 1,000 feet practically stationary. The A.T.C. who had given up hope of flying saw these three machines in the air from miles away, and promptly rushed back to launch Lieutenant Murman in a "Kite" for him to enjoy 20 minutes, and make a lovely landing in the dusk.

June 11th. Throughout the week-end, *ab initio* training has taken place on our newly acquired "Penguin" (non-flying "Dagling") which defies all efforts to get it airborne, but which answers to controls very well, and also on the "Kadet" which reappeared thanks to heroic efforts by Freddie Coleman who rebuilt two broken bulk heads and sundry other damage sustained in a heavy landing on the previous Sunday. Kaye, F. Coleman, Stan Armstrong, George Thompson, Stanley Dickson, Robertson, Shepherd, and Roger Dickson flew around for a combined total of 5 hours 3 minutes, whilst Eric Taylor surprised everyone by being forced to the bottom in the "Kite" by a surprisingly violent ground draught. This is our first post-war descent to the bottom of the hill. The A.T.C. time totalled 4 hours 4 minutes with good flights by Flight Lieutenant Nadin, Hughes, Murman and Farman, and Ted Clarke made a very good job of his "C" with 22 minutes in the "Grunau."

NEWCASTLE GLIDING CLUB

(*Continued from page 16*)

extending to the hangar. It has to be decided on economic grounds whether to negotiate for the retention of the overhead line or to rely upon local generation for our post-war requirements. In the opinion of our electrical experts, local generation should be abandoned.

Training Programme. For training beyond the initial stages a "Tutor" sailplane is on order and should be delivered by the time Cramlington is released. The Flight Committee under its Chairman, Mr. Burningham, is to arrange for communal verbal instruction and to make out a training rota. Members are to be classified in groups according to their present experience, and training dates arranged for the various groups. On each date groups will get priority for flying; members of other groups will be welcomed for their help at ground level but aerial hindrance will be discouraged. Only by such a scheme can all members be accomodated until the supply of machines impr oves.

S.A.G.A. NEWS

AT a well-attended meeting of South African G.A. held on 21st Oct., 1945, it was reported that although some flying equipment which was taken over by the Defence Department in 1940 was irreparable, forty-one gliders and sailplanes were, or could be made, servicable. These, together with six launching winches, were now declared surplus, and the S.A. Gliding Association was invited to make an offer for the l t.

The Meeting decided to suggest to the War Stores Disposal Board that the equipment available be re-allocated to pre-war clubs in proportion to that handed over by them in 1940.

The Board agreed to accept the Association's offer, and to release the equipment on the following basis.

Cape G.C. Two "Grunau 9's," one "Kirby Cadet," one "Falcon III" two-seater, one winch.

Border G.C. Two "Grunau 9's," one "Kirby Cadet," one winch.

Port Elizabeth Aero Club. Two "Grunau 9's," one "Kirby Cadet," one "Wolf," one winch.

Durban G.C. Two "Grunau 9's," one "Albatross."

Bloemfontein G.C. Two "Grunau 9's," one "Kirby Cadet," one "Grunau Baby," one winch.

Defence G.C. Four "Grunau 9's," one "Kirby Cadet," one "Grunau Baby," two "Kirby Kites," one winch.

Rand G.C. Four "Grunau 9's," one "Kirby Cadet," two "Grunau Babies," one winch.

The remaining six machines to be held by the S.A.G.A., pending a later decision.

On February 24th, a further Meeting of the Association was held at Quaggapoort, where the equipment is stored. Machines were re-valued and earmarked to individual clubs.

It was found that an additional "Grunau Baby" under construction was available. The meeting agreed that subject to approval, a machine of this type be made available to the Durban Club. The Albatross, was offered to the Cape Club.

Equipment is being removed by Clubs for further use.

1946.

Seven of the pre-war Gliding Clubs have been re-formed. Of the flying equipment taken over by the Department of Defence in 1940. About the equivalent of machines handed over in 1940, is again available, but for considerably less cash than was originally paid to clubs.

During the war *ab-initio* training and thermal soaring was carried out by the S.A.A.F. Gliding Wing at Quaggapoort, and the methods used there and experience gained are now available to clubs. Winch launching was developed to an extent that leaves no

doubt that where good thermal conditions exist, any piece of flat ground will serve as a soaring site.

In 1936 club policy, of necessity, was to try to teach the hard-up to fly in open primaries.

Will 1946 see clubs whose policy it is to sell flying in terms of hours to members who are prepared to pay for their fun at rates which are economical?

A compromise may be reached by limiting primary training to non-soaring weather and mid-week camps.

Past experience has shown that Clubs must make every effort to sell all possible soaring hours.

1946 RALLY.

It has been provisionally decided that the Annual Rally on pre-war lines be held at Quaggapoort from Sunday, October 6th, to Saturday, October 26th, both days inclusive. A training camp is scheduled to start on October 6th and will continue till October 11th. The Third S.A. National Competitions will commence on October 12th, and continue until October 26th.

Further particulars will be forthcoming at an early date.

POLICY.

The pre-war policy of the S.A. Gliding Association was to form and foster our club with soaring facilities at each of the following regional centres throughout the Union. The relative clubs are indicated in brackets.

Western Province
(Cape G.C.)
Border
(Border G.C.)
Eastern Province
((Port Elizabeth Aero Club)
Orange Free Sta e
(Bloemfontein G.C.)
Northern Transvaal
(Defence G.C.)
Southern Transvaal
(Rand G.C.)

This policy has been discussed by the Association since hostilities ceased, when it was considered that the principle is sound and should be adhered to.

Where adequate support is forthcoming, branches of the above clubs are encouraged at other centres.

MACHINES FOR CLUB USE.

During the war period, the Gliding Wing, at Quaggapoort, standardised on the following flying equipment:

Primary Trainer ..... "Grunau 9."
Secondary Trainer "Kirby Cadet."
Sailplane .... "Grunau Baby."

The value of standardisation, under conditions such as exist in the Union are very real, and it is strongly recommended that the policy of clubs should be to adhere to these types, until such time as machines that are proved to be more suitable, become available.

GLIDING NEAR AERODROMES.

The Civil Air Council are drafting new Regulations which will lay down that Gliding sites must be 5 miles from ordinary aerodromes, and 10 miles from International Airports.

WAR-TIME GLIDING TRAINING.

By Reginald Ashman.

Military Gliding was introduced in South Africa for the primary object of providing some form stop-gap training for a large number of South African pupil pilots who could not be absorbed by the flying schools, and, as a result it was decided by the powers that be that the duration of the courses would be only ten days to enable as many pupils as possible to benefit from this relaxation.

The first requisite was a competent instructional staff and personnel with Gliding experience were recruited from the Air Force and all branches of the Union Defence Force.

Where gliding knowledge was lacking, all that was asked was keenness, with the result that a team of enthusiasts was built up, who gave of their best under what were often trying and exacting conditions.

London Gliding Club

On Sunday, May 5, there being a North-East wind, the "Tutor" was taken to a former club site (which we had been turned off in 1930 and not visited since). The ridge is rather short, but Riley stayed up 1½ hours, and Saunderson 45 minutes, both landing again on the top. Anson soared for half an hour and landed on the site of our Summer Camp of 16 years ago. Next week the "H-17" was ready after renovations, and was test-hopped by Ruffle and Bolton.

Sunday, June 2—the next flyable week-end. There was a boisterous West wind, blowing at 35 to 40 m.p.h., which is more than the "Tutor's" cruising speed; nevertheless, it was flown for over 10 hours by a succession of pilots. There was much cumulo-nimbus about, but the patches of strong thermal lift were almost impossible to circle in without getting blown back behind the hill.

Firmin came from Norwich with his "H-17" and soared it for 3½ hours. The Club's "H-17" was also brought out and was taken up for a short soaring flight. On the second launch one wing dropped to the ground and Manning, the pilot, had to cast off. On his second attempt, the machine began to yaw badly as it went up, so the winch was eased off and Manning released. He had to turn right to avoid the cables and hedge, but after three-quarters of the way round the turn he hit the ground hard, and was found to be unconscious with severe injuries. He was taken to hospital, where he unfortunately died two hours later.

On Sunday, June 9, a new departure was inaugurated when the "Tutor" and "Blue Gull" were taken over to Cheddington Aerodrome, by kind permission of the C.O. The "Gull" was aero-towed by a Tiger Moth brought over from Luton. Greig and Stephenson not only flew it themselves but invited Ruffle and Cooper to have a try, but none of them found any lift after casting off. The "Tutor" was repeatedly winched up to 1,000 feet, a height which is impossible on our present ration of the Club ground. The excellent runways on the aerodrome would be suitable for auto-towed launches, and we hope to go there again in the future.

Whit Monday brought another powerful but turbulent West wind, which resulted in the appearance of Wills with his "Weihe", as well as the "Blue Gull" and Club "Tutor." An occlusion brought heavy rain just before lunch time, and not till two o'clock did it ease off enough for people to be tempted into the air again. Wills and Stephenson then found interesting lift in what appeared to be parts of a multiple "front"; they were long strips of heavy cloud with rags rising into them, but orientated almost parallel to the wind like streets. Wills found 10 to 15 ft. per sec. along what appeared to be the advancing edge, no lift along the middle, but lift again at the rear. Stephenson reached 1,960 feet and Cole in the "Tutor" 1,200 feet. All three pilots agreed that they found the strongest lift in the heaviest rain. Nicholson also flew the "Weihe," making a spectacular landing approach in the course of which he disappeared momentarily into one of the inlets in the ridge. An even more spectacular feat was a climb by T. Tovey from a release at only 60 feet (due to sudden petrol shortage) into the slope lift. In the course of one beat the "Tutor" climbed to the hilltop from a point only a quarter of the way up. The previous record was from a third of the way up.

The Club was represented at the R. Ae. S. Garden Party at Reading on June 1. Hiscox, Ruffle and Kendall were aero-towed in the former's "Gull", and Nicholson in the "Weihe."

C.U. GLIDING CLUB CAMP.

An interesting account of this most successful camp was given by the B.B.C. on Saturday, June 22nd, and was followed the next day by Philip Wills' record height flight of 1,500 feet.

It is hoped to publish a full account of this camp, and the flights of Prince Bira and Philip Wills, in our next issue.

The Bristol Gliding Club Pty Ltd.

CIRCULAR TO PROSPECTIVE MEMBERS.

A MEETING was held on May 22nd at the Grand Hotel, Bristol. The report will be published later.

Organising Committee : The Organising Committee, having achieved its purpose, resigned en bloc as from the commencement of the meeting. This Committee, was formed on the 25th June, 1945, and the past eleven months have been occupied in negotiations over a range of subjects, these negotiations having now resulted in the following progress being made :

(i) With the co-operation of the R.A.F. authorities, a gliding site has been obtained and hangar accommodation secured. This is situated barely eight miles from Bristol and is easily accessible.

(ii) A " Kranich " high-performance two-seater sailplane has been placed at the disposal of the Club for twelve months, for purposes of gliding and soaring research. This aircraft has been allocated by the British Gliding Association in consideration of the technical qualifications and proposals of the Bristol Gliding Club Research Group, the members of which group are to be responsible for the research programme carried out on the " Kranich."

(iii) A Kirby " Cadet " training glider has been ordered, and delivery priority obtained. This aircraft will be available by the end of the current month.

(iv) Affiliation of the Bristol Gliding Club with the Bristol and Wessex Aeroplane Club has been suggested, and the suggestion favourably received by the latter Club. It is thought that this affiliation would be of great mutual benefit to all concerned, bringing soaring and power-flying facilities within reach of members of both Clubs, and ensuring fullest possible use of all joint Club facilities available.

Activities : Every effort is being made to achieve a resumption of gliding facilities on Saturday the 1st June, 1946. It is proposed that *ab initio* training shall be available on the Kirby " Cadet," and soaring instruction and instrument flying on the "Kranich" two-seater.

Lecture courses on gliding will form part of the *ab initio* instructional course, and more advanced lectures on soaring technique and meteorology will be available to soaring members. Winch-launchings will be used for all training flights, and aero-tow facilities will be made available for advanced flying at an early date.

RECOMMENDATIONS OF THE ORGANISING COMMITTEE.

These recommendations are submitted as a guide to all intending members regarding probable future facilities, and are subject to approval or otherwise by members at the General Meeting.

Subscription and flying rates have been arrived at in accordance with the details of an estimated budget covering the first two years of renewed operations. The cost to members has been put at the absolute minimum, and represents only a small increase on 1939 charges, while the facilities are much improved. As further capital is an immediate necessity for the purchase of aircraft and equipment, the deposit system for training members has been introduced as the only alternative to an increased subscription rate.

Membership : This should be open to all, irrespective of age or sex. There should be four grades of membership, viz. : Associate, Gliding, Soaring, and Founder.

Associate Members should be those persons who desire to use the social amenities of the Club and who wish to fly occasionally as passengers in Club aircraft, or who are private owners piloting their own aircraft.

Gliding Members should be those persons who are under instruction and who do not possess an international " B " Gliding Certificate.

Soaring Members should be pilots holding an international " B " Gliding Certificate.

Founder Members : should be those persons who were pre-war members of the Club and also those who join one of three main grades of membership before the 31st May, 1946. Founder members should be enrolled without entrance fees.

Subscriptions and Flying Charges : Subscriptions should become due on March 31st of each year. Pro rata arrangements, in one guinea units, should exist for new and transferred Soaring Membership entries made during the subscription year.

Associate Members : 1 guinea per annum, no entrance fee. Ladies half-a-guinea ; juniors still at school, 5/-.

Gliding Members : 1 guinea per annum, no entrance fee. (Gliding Members should deposit £10 with the Club on commencement of training. Having obtained a " B " Certificate or on wishing to withdraw, the Club would repay £7 immediately, the remaining £3 being retained for aircraft maintenance and renewal). N.B. The Club aircraft would be comprehensively insured for all major damage ; minor repairs only would be covered by nominal contributions to repairs accounts.

Soaring Members : 4 guineas per annum plus 1 guinea entrance fee. No deposit.

Launching Fees. These should be 1/6 per launch irrespective of membership-grade, representing a considerable reduction on the launching fees currently charged by other Clubs.

Flying Charges : These should be irrespective of membership-grade, and should be 3d. per minute after the first two minutes, which should be free.

Pilots Conversion Course : Aeroplane and Glider Pilots not in possession of a " B " Certificate should join as Gliding Members, the amount of the deposit retained by the Club being calculated at 1/- per launch for all launches required to obtain a " B " Certificate.

B.G.A. News

Ex-German Aircraft

The six sailplanes have been collected from Farnborough, " The Kranich " is in very bad condition, with several parts missing. All the others require several hundred man-hours for repair.

Equipment

Equipment notices have been circulated to Clubs as definite information on whereabouts and prices of equipment have been received. In view of the high prices asked by the Ministry of Supply few firm orders have been received.

The Council considers that the Ministry of Civil Aviation's promises of help are not having much material effect, probably due to the strict Treasury control on the disposal of all surplus war material. The Chairman is seeing the Secretary of the Ministry of Civil Aviation and is informing him of the position and Club reactions.

Representations in Parliament

It would be appreciated if all Clubs would approach their local Members of Parliament, place the situation before them and ask their assistance. Also enlist the good services of their local press organs in an endeavour to persuade the Government that a little help now would be invaluable. As Gliding Clubs cater for the sporting instincts of all classes and conditions of people, the political creed of the local M.P. or paper is quite immaterial, and variety in this aspect would even be an advantage.

Research

A full programme is now being prepared by the Research Committee, and will be circulated to all Clubs.

B.G.A. Badges

A limited supply of blue enamel lapel badges is now available. Prices : " A " 2/6, " B " 3/6, " C " 5/-.

If " A " and " B " blue enamel badges are returned in good condition, a credit of 1/- will be made towards the next badge. This does not apply to the white metal " A " badges (2/- war-time issue) which are not returnable.

Aero-Modelling Section.
Edited by R. H. Warring.

AERO-TOW FOR MODEL GLIDERS

A METHOD of launching model gliders and sailplanes which has received but little attention is aero-tow. One of the reasons for this is undoubtedly the fact that such a launch is purely a stunt and has no contest or record value. The majority of aero-modellers are, undoubtedly, contest minded and experimentation outside the scope of the competition world is left to a relatively small number of enthusiasts.

Before the war some tentative experiments were made with towed launches, using a petrol model as a tug and a standard "F.A.I." type glider to complete the train. These experiments were by no means conclusive and served mainly to confirm some of the difficulties anticipated—and to discover some entirely new ones! Nevertheless, a start was made and quite a number of successful separations in flight were achieved. It is hoped to resume this series of experiments at an early date.

A brief summary of the results obtained and the methods of approach are given here so that any readers interested may find something of value to further any experiments they might care to make.

The first tentative experiments were made with a large rubber model as a tug and a relatively small lightweight glider. These were not pursued as it was felt that the limited performance of the tug restricted the possibilities of the idea. But one important factor was established—namely that the best point of attachment of the towline to the tug was found to be on top of the centre section of the wing. Line attachment at any other point upset the trim of the tug to a marked extent. If retrimmed for this new condition the tug was out of trim again once the glider had released.

The centre section attachment was used in further experiments with a petrol model of 54 inches wing span as the tug and a larger, heavier glider.

The first 'linked' flights were made with no attempt at release, using about 50 feet of line separating the models. The glider was of a type which had proved very stable or normal towline launches, trimmed for straight flight. At first the line was tied to the front tow hook on the glider, but this gave the glider a tendency to climb right about the tug and a more forward position was finally tried. An attachment point on the extreme nose of the glider should be best when the glider will fly only slightly above the tug. Height reached on such a launch would therefore be about the same as the height reached by the tug.

First 'cast-off' experiments were made using a lightweight airdraulic timer to release the line from the glider. This never failed to work and would seem about the best and certainly the most positive method to employ. After separation the line still remains attached to the tug, but this has little or no effect on its further flight.

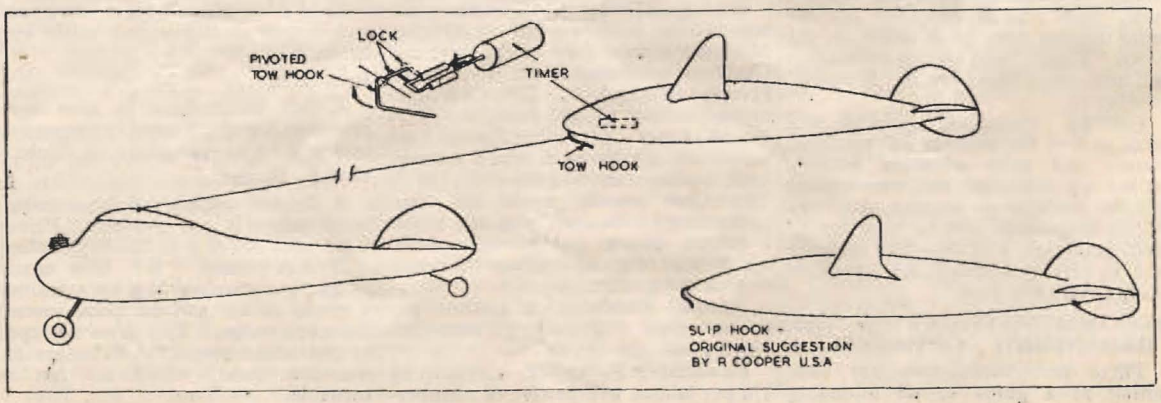
This scheme is shown briefly in the diagram. The release timer must be set to operate just before the petrol model timeswitch stops the motor of the tug. If the motor of the tug cuts before release the tug noses down and commences a fairly steep glide. The glider model tries to descend at a much flatter angle and slower rate. Hence it is literally dragged downwards and tends to make the combination unstable—a point established in the first experiments. For safety, therefore release the glider before stopping the motor of the tug.

Some experiments were also made with a 'slip-hook' release—similar in action to the normal towline release. These were not completed, but sufficient flights were made to indicate that the scheme is practicable. The difference in gliding angles of the combination when the motor of the tug stops tends to make the glider ride forwards and upwards. It is simply a matter of shaping the tow hook correctly to take advantage of this condition so that the line releases.

Launching the tethered combination is a matter of knack and demands co-ordination between the person releasing the tug and the person holding the glider. All the original experiments were made in conditions of no wind, when the procedure was as follows.

The line was laid out taut behind the tug and the glider attached. One operator started the tug's motor and with a signal to the other operator, released the tug. The glider operator then ran forward still holding the glider, releasing the glider only when he was satisfied that its speed was as high as possible. In spite of several faulty releases the combination soon settled down to steady flight.

When there is a wind the launch would be carried out dead into the wind, when release would be easier. There is a danger, then, however, of the tug turning out of wind if not directionally stable, with the line slackening right off. Provided



the slack is taken up again before the glider grounds all will be well. Even if the tug is now towing in a different direction the glider will quickly take up its new course. If, however, the glider has grounded in the meantime the results might not be so happy.

It is very important that the glider used for such experiments should be very stable under tow and trimmed for straight flight. A glider which tends to wander on a normal tow launch will almost certainly swing violently on aero-tow and may make the combination unstable. Should this occur the effect can be reduced by throttling down the tug as far as possible, but by far the best solution is to use a directionally stable glider.

Finally, the *minimum* length of line used on such experiments should be 50 feet. The original series of experiments showed that the longer the length of line (within reason) the greater the stability of the combination.

On completion of the second series of experiments a further report will be given in these pages.

B.G.A. LATE NEWS.

As we go to press the following has been received from the B.G.A. :—

"Three more Silver 'C's' have been obtained by (1) J. S. Armstrong, (2) J. A. Pressland, (3) O. P. Wingfield.

"Will *all* holders of Silver 'C' badges please forward their Royal Aero Club Certificates to the B.G.A. for endorsement. No change made, but S.A.E. should be enclosed."

Contest Flying

Results of the first Glider Gala of the season, organised by the Surbiton Club and flown on Epsom Downs on Sunday, March 24th are now to hand.

			Seconds.
1.	Bushy Park	aggregate	2496.3
2.	Croydon	,,	2382.2
3.	Harrow	,,	2231.3
4.	Kingsbury	,,	1867.3
5.	Pharos	,,	1751.6
6.	Northern Heights	,,	1691.6
7.	Bromley	,,	1638.5
8.	Cheam	,,	1418.4
9.	Zombies	,,	1273.2
10.	Blackheath	,,	1206.2

Best flight of the day was made by Edridge of Croydon—438.0 seconds.

Best aggregate by R. Dawkins (Bushy Park) 889.0 seconds. 23 teams competed, this being a record entry for an inter-club Gala.

OUTSTANDING GLIDER MODELS—No. 2.

THE "IVORY GULL,"

Designed by R. F. L. Gosling.

The "Ivory Gull" series is typical of the small contest type glider model built to F.A.I. specification. The Mark II established the British Class A hand launched record of 5 mins. 36 sec. and various models of the type have placed high in National and local competitions It is an extremely robust design and thus very attractive to the average "club" flier.

One particularly interesting feature of the design is the auto-rudder control used to ensure a straight tow to maximum height, followed by a circling free flight path to take advantage of thermal currents.

The original Mark II "Ivory Gull" had a span of 50 ins. with a 4½ in chord, giving a wing area of 215 sq. ins. With a total weight of 8 ounces wing loading was 4.9 ounces per square foot.

The Mark IIa had a lower aspect ratio wing-span 44 ins., chord 5 ins.—and slightly less area. Total weight was increased to 8½ ounces, giving a loading of 8.5 ounces per square foot.

The Mark IIb features a large wing-span 52½ ins., chord 5 ins., area 251 sq. ins. Total weight at 9.25 ounces gives a loading of 5.3 ounces per square foot.

The Mark IIc is essentially similar to the IIb, with high mounted tailplane and weight increased to 10.25 ounces—loading 5.9 ounces per square foot.

Full size plans of the "Ivory Gull II" are marketed by the *Aeromodeller Plans Service, Ltd.*, Allen House, Newarke Street, Leicester.

B.38 HIGH PERFORMANCE POLISH SAILPLANES—*see page* 11



B. 38 High Performance Polish designed Sailplane.

75 MILES IN M.U.13.—(*Continued from page* 11).

at exactly 1,000 metres. I presume this lift and turbulence was generated by the venturi effect of the valley. Paderborn was now in easy distance and in stable condition I arrived over the aerodrome at 800 metres, so out with the spoilers and I landed on this wreck of an airfield at half-past six, receiving a tremendous "kick" as I flew in over the local cement works. I had covered just over 120 kilometres in about 3 hours.

OUR GUEST EDITOR—(*Continued from page* 1).

larger number of persons, whose experience is unchallengable to agree on a set course for all to follow. This is not an easy task, but the advent of the Olympic Games coming already over the horizon points the need for accepted minimum standards.

I look forward to the opportunity to answer a few of these problems with the B.G.A. I hope there will be others of the S.A.C. that will do likewise. I hope we shall have the opportunity of welcoming some members of the British Gliding fraternity to our home fields. Let us take a tip from the radio hams and imitate an international code of ethical rules, that will provide us with a welcome place in the aviation field, and enable us to make full use of the soaring medium, with a maximum of safety.

LETTERS TO THE EDITOR

DEAR SIR,

Mr. R. E. Pears, in the April SAILPLANE, takes exception to my statement, in a book review, that a gust does not overtake a bird. He defines a gust as "an increase in wind speed", but without specifying whether the increase is observed by a stationary or moving observer. However, it is evident from his letter that he conceives a gust as a body of air undergoing acceleration. I should rather define a gust as a body of air moving faster than the average wind speed; and so far from accelerating, it is in fact slowed up by friction against the surrounding air until it finally dissipates.

Let us now imagine a North Wind of 30 mp.h. average velocity, containing a gust of 40 m.p.h. and a lull of 20 m.p.h. A stationary observer notices a body of air which passes by at 20 m.p.h. (a lull), followed by a *different* body of air passing at 40 m.p.h. (a gust). But to an observer travelling from North to South at the mean wind velocity of 30 m.p.h. and measuring only the movement of air relative to himself, the gust appears as a North wind of 10 m.p.h. and the lull as a *South* wind of 10 m.p.h. If he cannot see the ground and nobody has informed him of the wind direction, how can he possibly know which is the gust and which is the lull? All he knows is that two bodies of air are converging, and that a bird can get lift by flying from one into the other, no matter which. If he sees a bird performing in this way, it can have flown either from the lull to the gust, or through the gust into the lull. In the latter case the bird has shown itself capable of overtaking the gust, so the gust will not overtake the bird. Actually, of course, the two lots of air must do some side-stepping at the boundary where they meet, but this does not affect the argument, which is concerned with air motion parallel to the bird's line of flight.

I agree that a bird loses lift if it flies down-wind through air which is itself accelerating, but in what circumstances does air accelerate? It does so if it is being compressed, as by the sides of a narrowing valley, or between a rising slope and an inversion above it. It is conceivable that, in small-scale frictional turbulence, a gust can be formed by localized compression of a small body of air, in which case the gust accelerates during its formation. But a bird which flies down-wind through this is nevertheless overtaking the gust and not being overtaken by it. However, W. Schmidt, who made a detailed study of air-flow near the ground (see his lecture to the Royal Aeronautical Society on November 22nd, 1934), found that gusts usually arrive with a downward trend; that is, they consist of descending air bringing with it some of the momentum from the faster air above. It follows that a gust decelerates as it is dissipated by mixing with the slower-moving air into which it is projected.

Yours, etc.,
A.E.S.

DEAR SIR,

After reading recent editorials and letters in your journal the depressing possibility seems indicated that most Clubs will face a dilemma soon due to the high cost of training. *Ab initio* pilots must be trained to increase membership yet a club faces ruin in training them. The amazing thing to me is that at the end of the second decade of training in open primaries, a Club's finances are menaced by every *ab initio* member fully as much as at the infancy of gliding in this country.

If any sailplane pilot will look back to his own training days he will admit that it was rather a nightmare—a whole age of vital experience packed into seconds, of which the details, so real at the time, are now difficult to recall. With this in mind, I decided to be my own guinea pig when I was offered the position of instructor to a well-known club in 1938.

I tried the flights that landmark an *ab initio's* career and found that the circuit off a high winch launch was a most terrifying experience. Not the launch itself, spectacular though that can be, but the flight in an open "Primary" with a whole circuit to make. First of all the speed must be right, but stall, minimum sink, optimum glide and shallow dive all seemed to be within a speed range of about 5 m.p.h. and each by microspic movements of the stick. Yes, the elevator is far too sensitive. Now the turn must be faced, but the rudder and aileron certainly give one time to think—too much time. Holding off bank on a turn, and we discover that a depressed aileron is a beautiful wing-tip rudder. Added to the joys of flying this aerodynamic outrage, the ground can be seen between the knees, and the rudder bar seems to be facing the way we do not want to go.

In an attempt to make the best of an inherently bad job, the following modifications were made on all "Primaries" operated by the club that employed me.

1. The elevator was geared down by drilling another pivot hole in the control column.
2. The ailerons were fitted with a differential movement.
3. Pedals were fitted instead of the rudder bar.
4. A semi-nacelle was fitted to hide the pilots feet. It consisted of a small floor, a rounded nose of plywood, and a cover over the legs which folded like a pram hood.
5. A fairing behind the pilot, partly to increase side area at the C.G. and partly for alleged aerodynamic qualities.

A change in the training was also made in that rudder and aileron movements were co-ordinated right at the beginning and never learnt as separate movements.

Since any crashery also gave me hours in the workshop modifications were made to the fuselage frame whenever there was a repair or rebuild. The fuselage was made so that it consisted of the following parts normally built as a whole.

1. Skid member with seat, controls and wheels.
2. Cabane and rear strut.
3. Kingpost of two pieces, to join skid and cabane and fit as straps on the outside of these members.
4. Diagonal strut removed and replaced by metal tubes.

Joints between the parts were made by bolts, so that the frame went together like a piece of meccano, and repairs could be performed in hours, not weeks.

The modifications had a very definite influence on the life of the Club "Primaries," but I think the experiments could have gone farther. The war intervened, and my hope of improving stability by experiments in the effect of rigging with dihedral and washout was not fulfilled.

If clubs must use an open "Primary" of this sort, why not have a scientific investigation into improving them so that even sailplane pilots would be willing to fly them? As a start, perhaps the experienced pilots of each club will take a 1,000 feet launch in one in a strong wind, just to evoke discussion.

Yours faithfully,
A. G. PAYNE.

TECHNICAIR LTD.
Sailplane Bureau.
Technical and Plans Service.
Chilton Olympia Agents.
Trailers.
46 NORTH HYDE LANE,
HESTON, MIDDLESEX.
SOUTHALL 1870 ELGAR 5197

Argentine Notes

By

Leo Follman.

We had some fine flying weather in Easter week. Arguelles got to Abot (43 miles—last leg of his Silver "C"). On Good Friday Laplace in the "Spahlinger" and Conde in the "Buzzard" landed near Dolores (125 miles) and Chourrout in the "Chiesa" at General Guido (144 miles). Joe Ortner ("Baby") did 68 miles, and Martinsich ("Bussard") 32 miles.

It was Conde's first distance flight and he was told before take off to stick to the "big shots" Chourrout and Laplace, which he did, landing together with Laplace. Afterwards we christened him "El pibe garrapatas" (Little Tick) but he didn't seem to like the nickname. The three were towed back by Delpiano, who alternately headed for the South Pole, Tokio, and Rio de Janeiro, but finally got home safely. Poor Delpi, doing such a long trip with three gliders behind, bumps, thermals, and whatnot.

A new carpenter's shop has been put up beside the aeroplane hangar, Mazda lamps installed nearly everywhere. The "Baby" (16, the red one) is in service again, painted as before. The old "Condor" is ready for the fabric. Our "Olympia" is creeping forward—three times a week I join Juhasz in his midget shop and we work three hours on the fittings—some day we will finish it.

Our President (Chourrout) finished the soaring season with a flight of 50 miles which gives him a total of 1,675 miles and over 200 hours soaring for this summer alone, after which "Chiesa" was dismounted and now he is waiting for an Olympia. Wants to make a distance flight of 500 kms. at an average height of 3,000 metres. Don't laugh at him—he is crazy enough to bring it off!

The Polish ex-R.A.F. pilot is already flying in aerotow after some 15 or 20 flights and got his (second) "C" licence. His name is Swiech, but who in the world knows how to pronounce that?

Christmas Cards

It is proposed to issue a Soaring Card for club use with the name of the club overprinted.

In view of paper restrictions and the anticipated demand for these cards, applications should reach the EDITOR before September 1st.

The price will be one shilling each; 6/3 a half-dozen post free, or 12/- a dozen.

SAILPLANE AND GLIDER Office. Boy required. Must be interested in gliding, alert and intelligent, living in London area. Apply personally.

FOR SALE

AMERICAN VARIO. and Sensitive Altimeter for sale. 3 gns. each. Box No. 101, "Sailplane and Glider."

STANDARD TRAINING GLIDER Drawings are obtainable from E. Addyman, The White House, Starback, Harrogate. £3 the Set.

WANTED. Dagling Primary in Airworthy or repairable condition. Details to BM/AXFO, London, W.C.1.

H.17 AND TRAILER. (Mileage 1000). Recently overhauled. Renewed C. of A. New Glasshouse Instruments. All in first-class condition. £250. Box No. 12.

GLIDER 35 ft. Intermediate LX. Write 67, Westmoreland Road, S.W.13. Or phone Riverside 5708 after 6 p.m.

PHOTOS OF BRITISH GLIDERS

By A. E. SLATER

6d. each from Sailplane Office.
Post free over 2/-

GOVERNMENT RELEASE

ROYAL AIR FORCE

FLYING SUITS

FREE OF COUPONS

32/6 Postage 1/- extra



Officially released by H.M. Government. These suits are in first-class condition and are an amazing bargain. Made of heavyweight rubberised material, windproof and waterproof. Zip fasteners on sleeves, legs and down front. An ideal garment for motorcyclists, lorry drivers, etc., etc. All sizes—state chest and height when ordering. Limited supplies—cash back if dissatisfied. Also Quilt Inner Linings at 17/6 ea.

WILLSON BROTHERS

(Dept SG.) 45/47 UPPER HIGH ST., EPSOM, SURREY.

'Phone EPSOM 1293.

Open Saturday Afternoons.

CLUB ANNOUNCEMENTS

THE BRISTOL GLIDING CLUB PTY. LTD.

Resumption of Activities

A General Meeting will be held in the near future. Meanwhile a new Register and Mailing List is being prepared, and prospective members are invited to write to the Hon. Secretary of the Organising Committee at the address below, mentioning any previous flying or gliding experience.

9, ROYAL PARK, CLIFTON, BRISTOL

THE MIDLAND GLIDING CLUB LIMITED

The Long Mynd, Church Stretton, Shropshire. Telephone: Linley 206.

Full particulars may be obtained from the Secretary, F. G. Batty, F.C.A. 2, Lombard Street, West Bromwich, Staffs.

THE YORKSHIRE GLIDING CLUB. SUTTON BANK, YORKSHIRE.

Full Flying facilities are offered to all *Soaring and Power Pilots.*

JOIN NOW and know Gliding at its BEST at Sutton Bank, Yorkshire.

For full particulars apply to:

L. A. ALDERSON, "LYNDHURST," SINNINGTON, YORK. Hon. Secretary, Yorkshire Gliding Club.

THE SURREY GLIDING CLUB

The Surrey Gliding Club intends to open with limited facilities on August 5th in the Redhill area.

To begin with, the only machine for club use will be a fully-equipped "Kite II," which will be restricted to qualified pilots for Silver "C" attempts. When not required by such pilots it will be available to Silver "C" members.

As soon as training facilities can be made available, this will be announced.

Subscription, £5 5s. Soaring, 10/- per hour, during interim period.

Further particulars from the Secretary, A. D. Jones, 23, Rose Hill, Dorking.

CAMBRIDGE UNIVERSITY GLIDING CLUB

Summer Camp: The Club proposes to hold an *ab initio* training camp open to all members of the public. The camp will be at Bourne Aerodrome, from August 31st to September 14th. All in charge, including accommodation £25. Enquiries to F. J. Cripwell, Pembroke College, Cambridge.

32/6
18/6
51/-

ROYAL AERO CLUB GLIDING CERTIFICATES.

We regret that owing to the large number of these now coming forward each month—usually several hundreds—we shall be unable to publish the list of those who gain "A" certificates for some time to come. It is hoped later to include them in a special supplement. For the time being only "B" and "C" certificates will be gazetted in SAILPLANE.

KENT GLIDING CLUB.

Will all ex-members and others interested and living in the Maidstone or Chatham area, contact the Secretary :

MRS. R. H. HADDOCK, "LENHURST," HARRIETSHAM, KENT.

SOUTHDOWN GLIDING CLUB LTD.

We shall commence Gliding and Soaring again at the Devil'sDyke. Old members and prospective members should write for details to :

Hon. Secretary, R. F. BRIGDEN, 99, NORTH STREET, BRIGHTON.

DERBYSHIRE & LANCASHIRE GLIDING CLUB,

GREAT HUCKLOW, TIDESWELL, DERBYSHIRE

The Club is now able to undertake *ab-initio* training conversion for service pilots. Full soaring facilities in club sailplanes on the famous Derbyshire Ridge.

Entrance fee, £2. 2s. 0d. ; subscription, £4. 4s. 0d. ; Associate Members, £1. 1s. 0d.

Full particulars from The Secretary, 87, Fargate, Sheffield 1.

Large Stocks of Technical Books

FOYLES

FOR BOOKS

New and secondhand Books on all subjects

119-125 CHARING CROSS RD., W.C.2

Tel.: Gerrard 5660 (16 lines). Open 9-6 inc. Sats

THE AERONAUTICAL BOOKSHOP

at 7, Hanover Court, Hanover Square, London, W.1. has in stock over 3,000 Books, covering completely every aspect of Aeronautics. Call or write. Expert advice available. Open 9 a.m. to 6 p.m. (Sat. 9 a.m. to 12.30 p.m.). 42-page catalogue of 500 titles sent on receipt of 7½d. stamp. Proprietors : Aircraft (Technical) Publications, Limited.

ANNUAL SUBSCRIPTION

13/- *post free*

Send to Rolls House Publishing Company, Ltd., at Bream's Buildings, Fetter Lane, E.C.4

ROYAL AERO CLUB GLIDING CERTIFICATES

"A" CERTIFICATES : 200 (Nos. 4493-4692)

"B" CERTIFICATES : 52.

No.	*Name.*	*A.T.C. School or Gliding Club.*	*Date.*
255	Ronald Edward Clear	Portsmouth and S. Hants. G.C.	20. 4.46
1451	William George Wood	Air Division G.C.	1. 1.46
1976	John Dudley Ruffle	London G.C.	6. 4.46
1998	Peter John Bullivant	13. O.T.C. G.C.	12. 5.46
2022	Graham Ira Twigg	Derby and Lancs. G.C.	1. 8.45
2217	Elliott Alexander Keay	189 G.S., Carlisle	5. 5.46
2303	Walter Karl Schultes	83. Moreton Valence	24. 3.46
2358	Richard Harvey Tickle	186 G.S., Speke	12. 5.46
2638	Derek Jordan	Leicestershire G.C.	7. 4.46
2789	Claude Ernest Savage	25 G.S., Leconfield	28. 4.46
2790	Edward William Duck	25 G.S., Leconfield	28. 4.46
2791	John Mahoney	25 G.S., Leconfield	28. 4.46
3264	Harry Trevor Piggott	143 G.S., Croydon	13. 4.46
3314	David Roy Hooper	94 G.S., Yate	14. 4.46
3517	Melvin Arthur Reid	185 G.S., Barton	14. 4.46
4059	John Crewdson	189 G.S., Carlisle	5. 5.46
4063	John Wilson	203 G.S., Newtownards	20. 4.46
4096	Charles Derrick Anderson	88 G.S., Wroughton	22. 4.46
4114	Geoffrey Laurence Cornell	145 G.S., Birch	14. 4.46
4181	Douglas Edwin Felce	Leicestershire G.C.	28. 4.46
4340	Ronald George Francis Fowler	143 G.S., Croydon	14. 4.46
4381	Geoffrey Lee	41 G.S., Hockley Heath	22. 4.46
4425	Geoffrey Wass	Cambridge University G.C.	30. 4.46
4435	Robert James Ross	R.A.E. Tech. College G.C.	5. 5.46
4436	John Brodie Bowman Johnston	R.A.E. Tech. College G.C.	5. 5.46
4437	Kenneth William Kimber	R.A.E. Tech. College G.C.	5. 5.46
4438	Bernard Lovegrove	R.A.E. Tech. College G.C.	5. 5.46
4439	Harry Usher Midwood	R.A.E. Tech. College G.C.	5. 5.46
4442	Donald Blan Minterne	R.A.E. Tech. College G.C.	5. 5.46
4443	William Michael Francis Rose	R.A.E. Tech. College G.C.	5. 5.46
4444	Laurence Jesse William Hall	R.A.E. Tech. College G.C.	5. 5.46
449	Trevor Roy Scott-Lowe	62 G.S., Llanishen	14. 4.46
4549	Ramon Clackett	R.A.E. Tech. College G.C.	5. 5.46
4587	John Tomasetti	203 G.S., Newtownards	29. 4.46
4596	George Eric Thompson	Derby and Lancs. G.C.	10. 3.46
4601	Eric John Freeman	R.A.F., G.C., Oerlinghausen	9. 3.46
4611	Gordon Richard Frederick Wiltshire	127 G.S., Panshanger	28. 4.45
4626	Dennis James Dawson	Leicestershire G.C.	28. 4.46
4631	Cyril Lowe	143 G.S., Croydon	14. 4.46
4632	John Leakey	189 G.S., Kingstown	5. 5.46
4646	James Abel	88 G.S., Wroughton	21. 4.46
4656	John Dennis Clough Phethean	B.A.F.O., G.C.	27. 1.46
4665	John Peter Ledeboer	B.A.F.O., G.C.	14. 4.46
4675	David Bramwell Jephcott	Leicestershire G.C.	11. 5.46
4676	William Joseph Geenty	83 G.S. Moreton Valence	22. 4.46
4682	William John Heard	Royal Navy	13. 4.46
4684	David Robert Carter	Royal Navy	27. 2.46
4685	Gerard John Christopher Paul	O.T.U. Middleton St. George	14. 4.46
4686	John Herbert Davies	13. O.T.U. Middleton St. George	12. 5.46
4687	Noel William Verney	13. O.T.U. Middleton St. George	12. 5.46
4691	Arthur Martinelli Dennia	Royal Navy	10. 3.46
4692	Herbert Graham	2. Group, Oerlinghausen	29.10.45

"C" CERTIFICATES : 26.

No.	*Name.*	*A.T.C. School or Gliding Club.*	*Date.*
158	Malcolm Sinclair	S.1., G.S., Dungavel	28. 4.46
255	Ronald Edward Clear	Portsmouth and S. Hants. G.C.	21. 4.46
1352	William Henry Murray	Derby and Lancs. G.C.	20. 4.46
1381	Raymond Frederick Brigden	Southdown G.C.	5. 5.46
1451	William George Wood	Air Division G.C., Barntrup	5. 1.46
1685	Joseph Alfred West	123 G.S., Bray	21. 4.46
1796	Victor NcNabney	203 G.S., Newtownards	29. 4.46
1966	Donald Bruce Hamilton	203 G.S. Newtownards	29. 4.46
1976	John Dudley Ruffle	London G.C.	7. 4.46
2013	Reginald James Brown	203 G.S., Newtownards	29. 4.46
2022	Graham Ira Twigg	Derby and Lancs. G.C.	2. 8.46
2044	Henry Bate Wright	183 G.S., Woodford	22. 4.46
2070	Samuel Anderson	146 G.S., Fairlop	19. 4.46
2357	Albert Frank Parslow	Portsmouth and S. Hants. G.C.	20. 4.46
2422	Thomas Reginald Young	92 G.S., Charmy Down	12. 5.46
2675	Harry Dobson	Derby and Lancs. G.C.	22. 4.46
4000	Edward George Eborn	Air Division G.C., Barntrup	27. 1.46
4032	Louis Patrick Murphy	48 G.S., Castle Bromwich	12. 5.46
4257	Denis William Corrick	127 G.S., Panshanger	31. 3.46
4388	Thomas Bartley Hughes	Cambridge University G.C.	21. 4.46
4587	John Tomasetti	203 G.S., Newtownards	29. 4.46
4596	George Eric Thompson	Derby and Lancs. G.C.	24. 3.46
4601	Eric John Freeman	R.A.F., G.C., Oerlinghausen	27. 3.46
4656	John Dennis Clough Phethean	B.A.F.O., G.C., Minderheide	28. 4.46
4682	William John Heard	Royal Navy	20. 4.46
4691	Arthur Martinelli Dennis	Royal Navy	20. 3.46

SILVER BADGES

61	Charles Maurice Ramsey		24. 3.46
62	Ann Courtenay Douglas		11. 3.46

THE "OLYMPIA" SAILPLANE



OUTSTANDING PERFORMANCE
SUPERLATIVE CONTROL
FULLY AEROBATIC

More Orders for Chilton OLYMPIAS have already been received than for any other high performance sailplane ever built or sold in Great Britain. Purchasers include some of the best-known personalities in the pre-war British soaring movement.

"The Olympia, is in my view, one of the finest pieces of balanced aerodynamic poetry which has been created by man."—*Philip Wills.*

CHILTON AIRCRAFT, HUNGERFORD, BERKSHIRE, ENGLAND

RFD COMPANY LTD

for Complete Safety



R.F.D. CO., LTD., 40, STOKE RD., GUILDFORD, SURREY
Tel.: Guildford 2222

AIRWAY · SEAWAY · HIGHWAY

Launches, Minesweepers, Landing Craft, Aircraft, Torpedo Boats, Invasion Barges, 'Dukws,' Trucks, Airborne Lifeboats, these and many other vessels and vehicles needed the protection of Cellon Finishes to enable them to face arctic seas, tropic sun, and the wear and tear of assault and battery. Throughout the war, the Cellon output was reserved for tasks in which durability of finish was essential to the efficiency of the weapon, vehicle or craft. The necessary high quality ingredients of Cellon Protective Finishes are now gradually becoming available for commercial purposes, and meanwhile Cellon's experience is making the best of those materials which are permitted.

CELLON
CERRIC CERRUX

FULL DETAILS OF FINISHES FOR ANY SPECIFIC PURPOSE FROM CELLON LTD., KINGSTON-ON-THAMES. TEL.: KINGSTON 1234 (5 LINES)

CVS-548

FOR YOUR
SAILPLANE INSURANCE

an organisation as wide in outlook as its Service is in fact

ROYAL INSURANCE COMPANY LIMITED

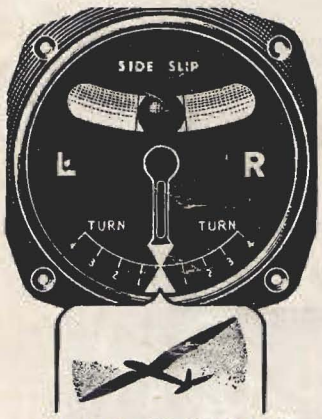
With offices in every important town throughout Great Britain (and throughout the world) the "Royal" is in a position to advise you and to serve you wherever wings may carry you.

The "Royal's" special Sailplane and Glider Policy not only protects the owner in regard to loss of, or damage to, the aircraft by fire, storm, tempest and theft; it also provides cover in respect of legal liability for personal injury to Third Parties (including passengers) and damage to property. There is also a policy to cover the Personal Accident risks of the owner and/or pilot.

Head Offices: 1 North John St., Liverpool, 2. 24/28, Lombard St., London, E.C.3

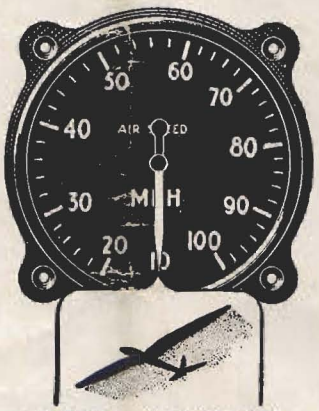
Essential Equipment

NOW AVAILABLE



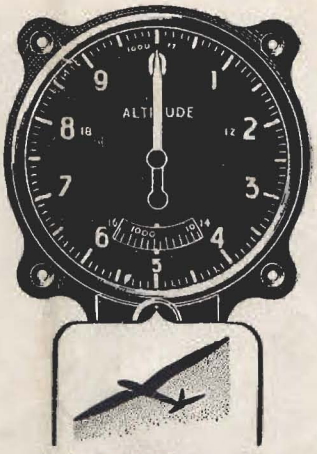
TURN & BANK INDICATOR

9v. Electrical
Operated by dry-cell batteries
Weight — 1 lb. 9 ozs.



AIR SPEED INDICATOR

Special Sailplane
Calibration — 20/100 M.P.H.
Weight — 9 ozs.



ALTITUDE INDICATOR

0-20,000 feet
Simple robust design
Weight — 12½ ozs.

K. D. G. Instruments Ltd

PURLEY WAY · CROYDON · UPLANDS 6888