JANUARY, 1946

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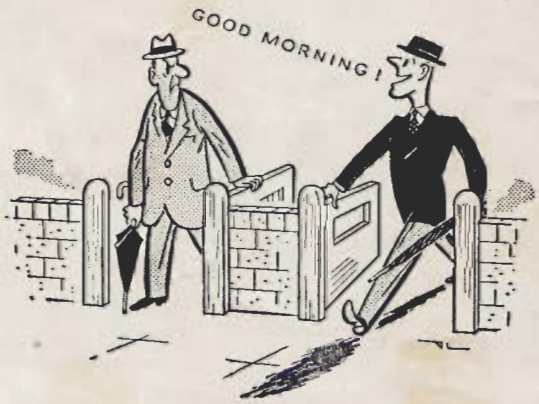

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Sailplane and Glider

THE FIRST JOURNAL DEVOTED TO SOARING AND GLIDING

JANUARY 1946 ★ Vol XIV No 1

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IT is hoped that there will be some form of Open Gliding Contests this year: the B.G.A. National Competitions for preference. The difficulties admittedly will be very great; there will be a shortage of sailplanes, barographs, trailers, cars, possibly petrol, and certainly accommodation for pilots and crews. Very few clubs will feel that they can give of their best this year, and naturally will be disinclined to put up an improvised or second-rate showing, but there are many reasons why the National Contests should be flown if at all possible, quite apart from the pleasure they will give to many after 6 years of prohibition.

Firstly. The Gliding Contests are held at the height of the soaring season. The spring, with its crops of interesting flights, usually of the Distance variety, produced by the tumultous weather that comes with the return of the sun, has passed. The Easter and Whitsun open week-ends, camps, and gliding parties have been exploited to the uttermost by all those who could get away to them, and pilots have settled down to the summer (which for a moment seems to stretch to infinity, and in another moment is passed and finished), some to break records, some just to enjoy themselves, and some to practice and fly, practice and fly, until they become masters of the art.

At the contest site, then, these pilots gather from all over the country, and mainly, they come for the same reason that they have flown so far, for records, pleasure, or to learn; but for whatever reason they come there is the added incentive of friendly competition—that priceless commodity—and however well these pilots have flown throughout the summer, they seem to be able to get just that little bit more from themselves and their machines. And so, little by little, year by year, the standard of high-performance soaring is raised.

This brings us to point two. Apart from making the extra effort at the contests, which are the climax of the soaring pilots' calendar, each pilot benefits enormously by the regular flying obtained throughout the eight days. Pilots who can fly whenever they wish are few and fortunate; for most it is hard work to squeeze enough sailflying into that brief time between Saturday noon and Sunday night to make the possession of a sailplane—probably owned by a Group—worth while. The Contests (usually the annual holiday) enable such pilots to consolidate their accumulated, but irregular, knowledge and practice, once again bringing a general raising of the standard of soaring.

The third point is a different one, and would bring its greatest return if the Contests could be held this year.

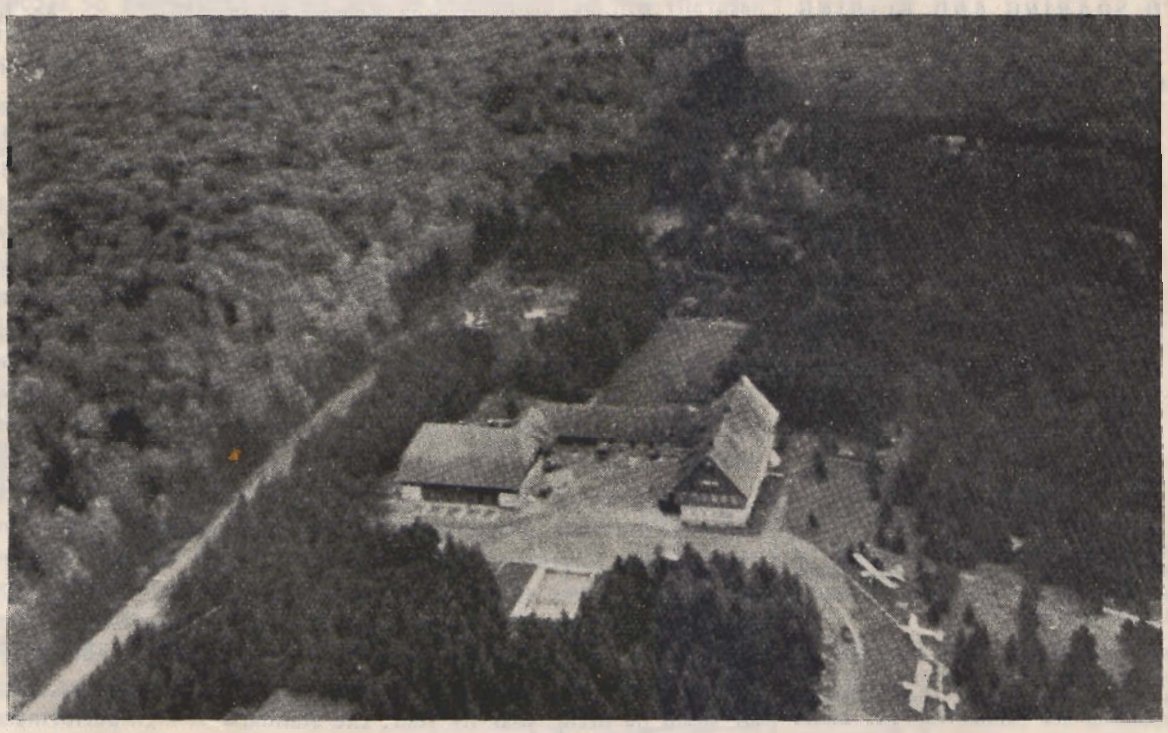
Since the ban on gliding at the beginning of the war, which of course excluded all forms of high performance soaring, many people have become interested in the sport of gliding, the A.T.C. and the British Services Gliding Clubs especially, and although the latter have first-class sailplanes for use, it is doubtful whether many of these post-pre-war pilots have seen any really high performance soaring. By this we do not mean merely staying up for an hour in thermal lift, but that sort of thing like Kit Nicholson's

(*Continued on page* 24)

GERMANY REVISITED

BY A. E. SLATER

(Continued from last issue)



The School Buildings taken from the " Kranich."

84 GROUP GLIDING SCHOOL AT SALZGITTER

THE shortest way to Salzgitter, in time rather than distance, is to skirt the north of Hanover on the Autobahn and then turn off through Brunswick and follow the main road to the S.S.W. for 20 miles. The Gliding Club is on a ridge 3 miles long, facing south-west, and rising to 500 feet above the plain below. It is covered with trees except for a bare piece of hill at the north end, which overlooks a large landing field. A wide corridor through the trees enables the machine to be trundled in comparatively calm air between the launching point on the bare hill and the hangars.

" MAD ENGLISHMEN "

This is the most luxurious gliding centre I have yet been in, excepting perhaps the Wasserkuppe. There is a multitude of rooms, all centrally heated and with double windows. The latter, however, did not come up to scratch as regards safety factors, as they were not designed for mad Englishmen who insist on opening their bedroom windows even in the face of south-westerly gales.

As one of these gales was blowing when we arrived, there seemed no immediate prospect of flying, so we went off for an afternoon in Goslar. Here we learned in a bookshop that the Control Commission had prohibited the exposure for sale of all aeronautical books; so the law against " dangerous thoughts " has been suppressed in Japan only to pop up again in another part of the world.

WEALTH

The types (in the old-fashioned sense of the word—meaning aircraft) in the hangars included " Weihe," " Olympia," " Kranich," lots of " Grunau Babies " and " Primaries," and what looked like a clipped-wing " Habicht," of the sort used in training for rocket-propelled aircraft, with a span of not more than 28 feet. This stock of machines would be large enough to satisfy several ordinary soaring clubs, but it is nevertheless small enough to cause considerable anxiety about its replenishment. No new sailplanes may be built; every barn and shed for miles around has been searched in vain for hidden aircraft; and while we were there a trailer arrived with

two crock-like machines which, in response to a rumour, it had gone all the way to Bremerhaven to fetch.

GERMAN STAFF

The workshops are occupied by an industrious German staff, who also help with launching and retrieving. One of them told me the place was built in 1936, and that Carli Magersuppe (well known in English gliding circles 15 years ago) had been in charge of it for some years before moving to a higher position in Cassel, where he administered gliding affairs in the whole of that portion of Germany.

The same informant told me that the best thermals come off the plain near the north end, and are particularly good around a large pool. A Standing Wave has also been found, no doubt set up by the Harz Mountains to windward. It occurs most frequently in November and in mid-winter, and is at its best in the southerly portion of the site. A German pilot once climbed 3,200 metres (10,500 ft.) in it in 20 minutes, from a bunjy launch.

GALE LAUNCHES

Next day the wind blew as hard as ever. All single-seaters were grounded, so bang went my hopes of an hour or so in a " Grunau," and the Editor's " C " Certificate receded once more into the future. But a " Kranich " was deemed capable of holding its own, so it was fetched out and repeatedly floated into the air off the shoulders of four men without the aid of a bunjy.

FLYING BACKWARDS

Among others we were each taken up for dual instruction. The air had been well churned up by the " Harz," which it could only have left a few minutes before. One bump threw the barograph into my lap from the rear cupboard, and in another the seat cushion was nearly flung across the base of the control stick. At our ceiling of 1,300 feet above the launch, the air speed bounced about between 70 and 115 km. per hour ; we tried to maintain an average of about 95, but at anything less than 85 km. (53 m.p.h.) the machine would drift backwards.

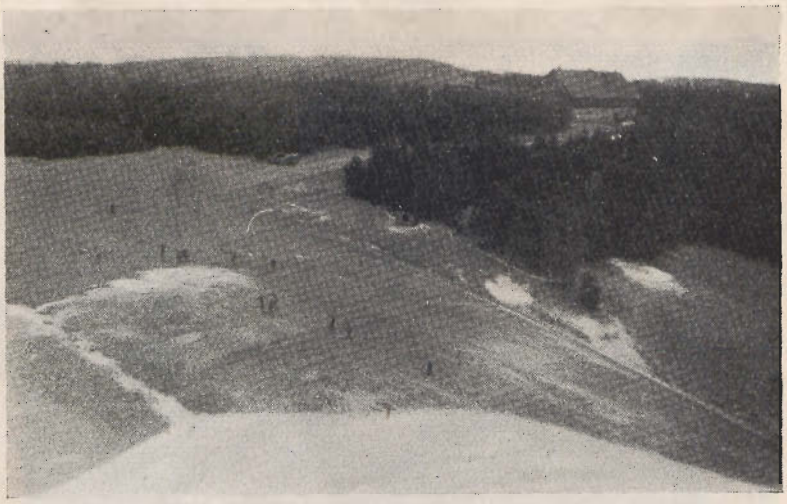
From the rear cockpit a large piece of landscape is blotted out by the wings ; and when one is hovering into wind, the invisible area happens to coincide with the soaring ridge ; so I had to ask the instructor repeatedly whether I was flying backwards, forwards or sideways. But the machine handled beautifully, and even at that speed the controls were so light that it was hard to believe that the man in front was not still flying it. A curious feature, at least at 60 m.p.h., was that only a small movement of the rudder sideways would cause it to flick over the rest of the way on its own.

VETERAN VISITOR

From Voelkenrode this day there came a visitor to lunch : G. Mungo Buxton, the gliding " veteran " who, fourteen years ago, was Britain's only Advanced Soaring Pilot, though in recent years his high technical qualifications in radio matters have kept him too busy to do much soaring ; however, he spared the time to do some in a " Kranich."

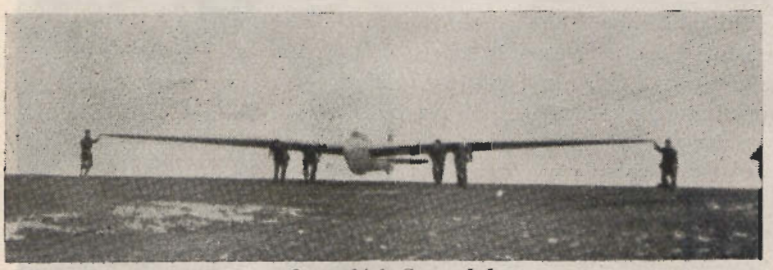
Salzgitter.
F./L. Haines getting into a " Kranich."

A cosmopolitan dance in the town, and a visit to the Airmen's

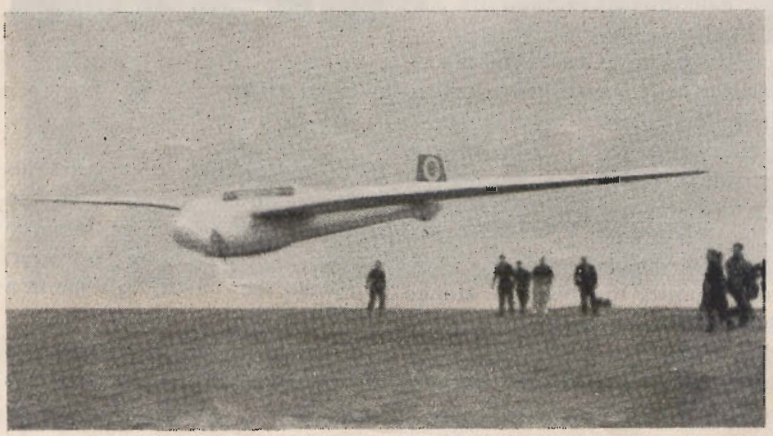


Salzgitter Slope taken from the " Kranich."

A Shoulder Launch which Failed.



One which Succeeded.



" Kranich " Away.

About to fly the " Krauich." Note Parachute.

Mess to play the only available piano, wound up a well-occupied day.

TWO MONTHS—SILVER "C"

On our day of departure, Geoffrey Haines gave us a few particulars of the training at Salzgitter. The Germans used to give pupils a month on " Primaries " and a further month to bring them to " Silver C " standard. This, they found, cut down considerably the time needed for elementary aeroplane training.

After the R.A.F. (84 Group) had taken over, the first training course began on July 17, 1945. Since then, roughly a hundred pupils have taken courses, of whom about 80 have obtained their " A " Certificates. Of these, about 35 have progressed to " C " stage, and another 15 to " B " stage. Fifteen pupils attend each course, one-third of this number being officers. Usually a course includes two men from the Army and one from the Navy, the remaining twelve being from the Air Force. Training begins with two-way winching at the bottom of the hill ; then, when the pupils can do circuits, they are bungied off the hill-top. Every day, before flying begins, pupils attend a lecture ; there are two sets of these lectures, one for those who haven't flown aeroplanes and the other for those who have.

EVEREST TECHNIQUE

At the end of our visit to Salzgitter we were taken to our next assignment, Detmold, in a pair of " Fieseler Storchs." We had a lively time, as the wind was still doing 30 m.p.h. over the hangar roof, and a lot more higher up. On the way Haines flew me right along the " Ith " ridge to Scharfoldendorf, the soaring site which the BAFO Club is taking over. It seemed interminable, but after looking down on 15 miles of tree-covered slopes we at last reached

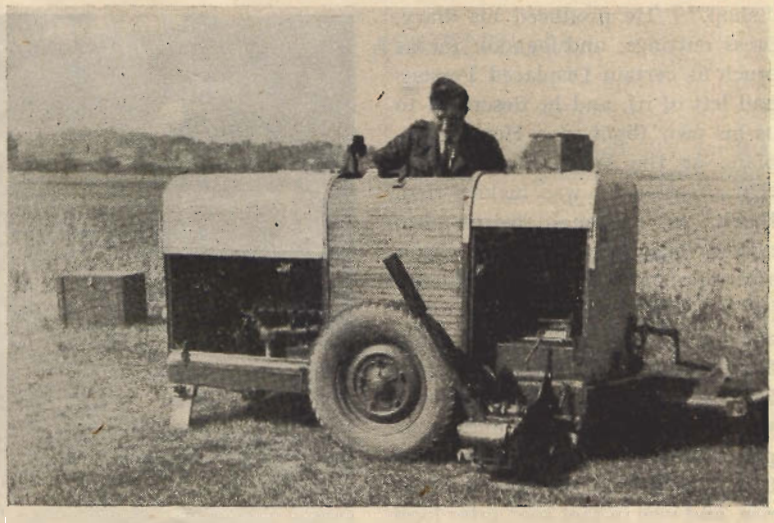
the bare patch where the hangars and clubhouses are perched. We circled round them, and in no time had been carried over the crest and pushed down below the top in the strong down-current. However, we adopted the technique of the Mount Everest fliers, charged back at the hill with open throttle, and got over with at least 100 feet to spare.

Our visit to the Detmold Club has already been described.

STRANGE BUT TRUE

In Berlin, where we went in an unsuccessful attempt to get into the American Zone, we were lucky in finding on sale the latest German book on Bird Flight (apparently thoughts about Birds are not considered dangerous); we also—so small is the world—ran across the latest purchaser of Eric Collins's "Rhönadler."

Our last piece of gliding business was a visit to the Aerodynamic Research Institute at Göttingen (where the wing-sections come from) in the hope of locating the Horten Brothers. They were unfortunately away on compassionate leave, but the British Scientific Officer who entertained us introduced us to

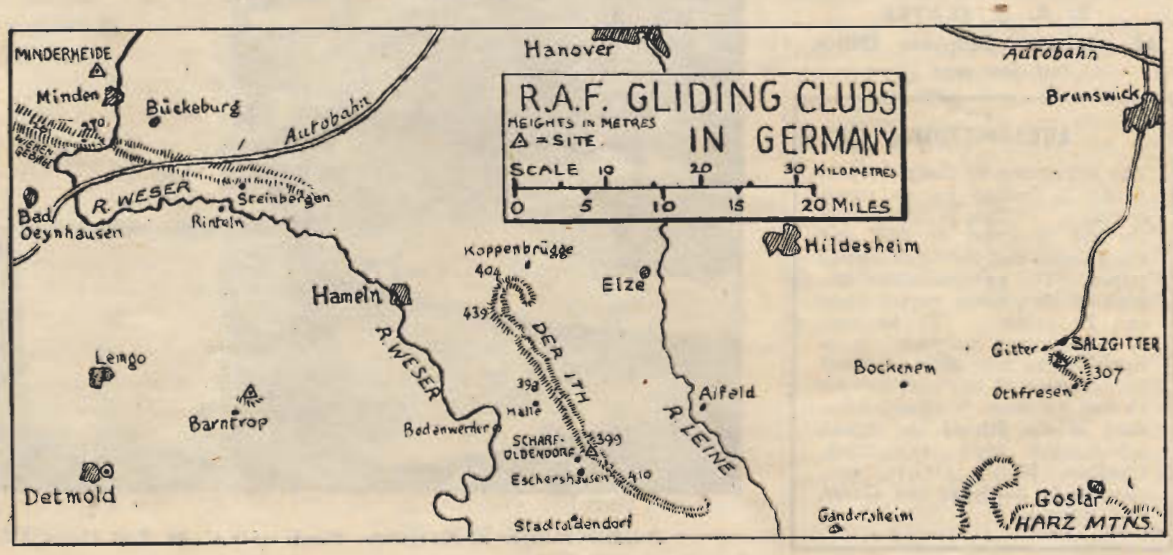


German Winch. Ford V-8 Engine. Note Guillotine and Worm Gear Cable Feed.

Herr Stüpyr ("Silver C" No. 55), who was one of the Aachen Group during the pioneer days of soaring in 1921, and is now associated with the Hortens. Stüpyr has done a climb of 4,500 m. (14,800 ft.) in a cumulo-nimbus cloud from an aero-tow at Göttingen. He also told us of the fatality to Blech after jumping from a "Horten III" at the Wasserkuppe in 1938; it is true, as previously related, that Blech was hit by the machine as it descended, but he had already been frozen to death because of the height to which his parachute had continued to rise in the up-current.

"MADE IN GERMANY"

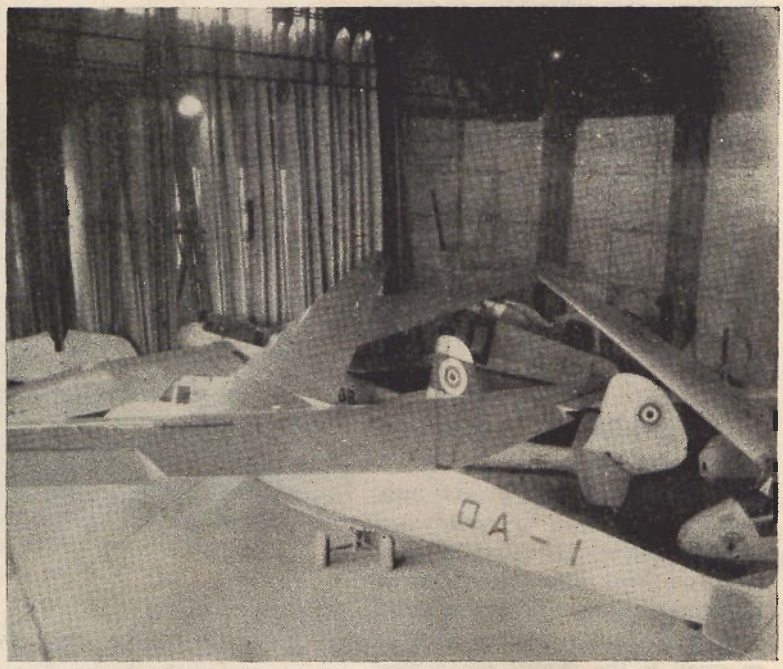
After this the whole party motored out to the village of Elhausen and descended upon the Horten Brothers' test pilot, Scheidhauer. His preliminary surprise soon wore off as we got down to the business of talking



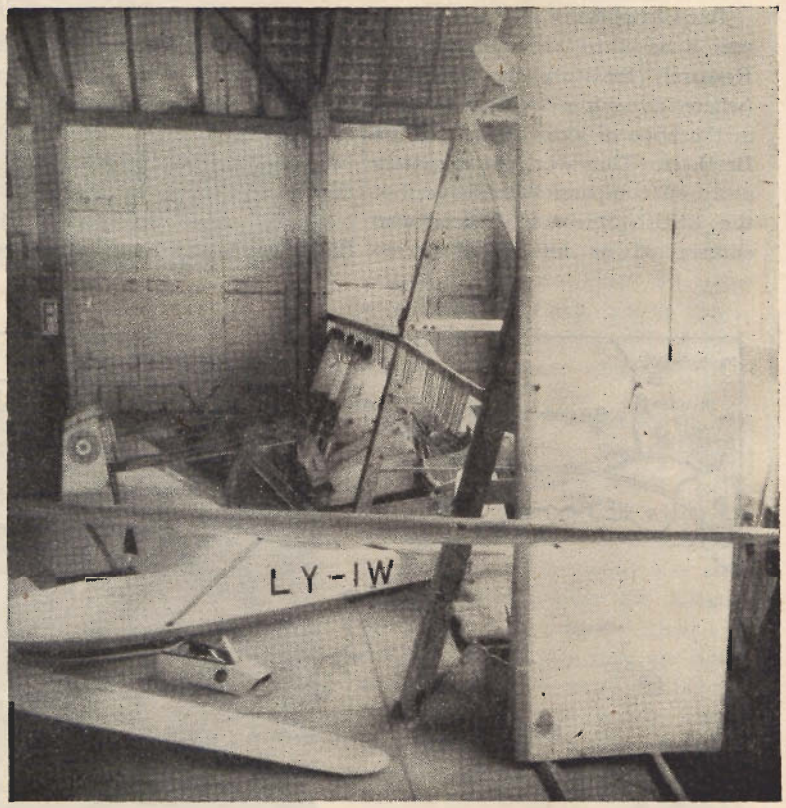
" shop." He produced his diary, press cuttings, and logbook (or as much as certain Displaced Persons had left of it), and he described to us his own flight in a Horten sailplane at the Wasserkuppe. On that occasion he was luckier than Blech, as, although frozen into unconsciousness for the same reason after jumping out at 6,600 m. (20,600 ft.), he got down alive, although with two frost-bitten fingers which had to be amputated. He was going up at 35 metres per second when he jumped, and as his parachute had a sink of only 8 or 9 m. per second, he continued to rise, and was in fact seen later high above the pilot Späte, who was himself at 7,500 metres. Scheidhauer's logbook fell out of the machine but was afterwards found and returned to him. He showed us some beautiful models of the Horten sailplanes, and before leaving were stimulated into making paper models ourselves, mine being duly labelled " Made in Germany."

SUBSCRIPTIONS

The circulation of *Sailplane and Glider* is limited by its paper quota. This is the reason for the reduction in size, and the thinner and therefore lighter paper. The publishers can dispose of far more copies than can be printed. To be sure of your copy, therefore, it is necessary to take out an Annual Subscription of 13/- post free for twelve numbers. Publication date is the 5th of the month which the issue is dated, Cheques, Money Orders, etc., payable to *Sailplane and Glider*, and crossed.



A Hangar at Salzgitter. Note the stacked wings.



Another Hangar at Salzgitter. Stacks of S.G. 38 *Tail Units.*

SUBSIDISING GLIDING CLUBS IN ARGENTINA.

By VERONICA PLATT.

AN interesting decree on the subsidising of flying and gliding clubs has been passed by the Argentine Government, and came into operation as from the 1st September last.

In order that a Club may be recognised as worthy of help it must first undertake to obey the rulings of the sporting section of the Civil Air Ministry in such matters as the theoretical and practical training of pupils and the advanced training of pilots already formed. It must set in force complementary instruction in navigation, encourage aero-modelling, and stimulate air-mindedness by keeping its people up-to-date with new aeromautical developments.

The aero-clubs must possess their own aerodrome or the use of a national or municipal one, or else be able to rent suitable ground for not less than five years. Those which do not already possess a flying field must acquire one within a year.

NO POLITICS

At the same time clubs are forbidden to indulge in politics, or to organize or exploit air lines. They are obliged to keep a permanent supply of petrol and oil, to maintain in good repair machines, parachutes, etc., and to assist all pilots who land at the aerodrome. The decree makes it clear that even though the clubs may conform to these rules, yet they will not necessarily qualify for a subsidy.

The subsidies are as follows :—

(1) Distribution of aeroplanes. These will be assigned to Clubs according to their importance, their locality, the number of pupils, and their flying activities both past and present.

(2) Periodic overhauls for C. of A. of Government aeroplanes will be paid for by the Ministry.

(3) Repairs of Government-owned aeroplanes will be paid for after accidents if the cost exceeds £35— unless crash due entirely to pilot's carelessness, in which case the costs must be met by the Club.

(4) A payment of 6/- per flying hour will be made towards the cost of flying any Government-owned aeroplane irrespective of horse-power.

(5) The following subsidies will be paid for Club machines :—

From 1 to 79 h.p. per hour	£1	0	0
,, 80 to 100 h.p. ,,	£1	3	0
,, 101 to 130 h.p. ,,	£1	7	6
,, 130 to 300 h.p. ,,	£1	11	0

(6) A subsidy of 6d. per 5 miles if the pilot is doing a navigation flight by order of the Instructor on a Government-owned machine.

SPECIAL SUBSIDIES

There are, besides these, some special subsidies. The aero clubs that enjoy these privilges must adjust their scale of charges per flying hour to a fixed scale according to the H.P. of the machines. This charge will be from 12/6 per hour for an aeroplane under 80 H.P. up to 22/6 for those of 150 H.P. For higher-powered machines the scale can be fixed at the time of flight. Joy rides shall be charged for at 6/6 per head.

Subsidised Clubs must pay all maintenance charges for Government-owned aeroplanes, repairs up to £35, aerodrome expenses, installations, etc.

GLIDING

For Gliding Clubs the subsidies will consist of :—

(1) Distribution of gliders and sailplanes. These will be assigned in accordance with the importance of the Club, its locality, the number of members, and their flying activities past and present.

(2) Payments up to 50% for the purchase of gliders or accessories made in the country, or imported if not obtainable locally.

(3) Payments up to 50% of the actual cost of training pilots to B or C or Patente National standard. (The Patente National is a comprehensive ticket including theory of flight meteorology, and some knowledge of construction.)

(4) Payments up to 50% of the cost of the flying hours of each B, C, or Patente National pilot. These subsidies to be fixed at the time by the Air Ministry.

(5) A payment of 6d. per 5 miles for every flight of over 30 miles from the base.

SUBSIDISED CONTESTS

Besides this, the Air Ministry will give thought to and propose special subsidies for the assistance of gliding in such cases as :—

building or improving workshops,
providing of instruments,
meteorological installations,
first-aid appliances,

and anything else it may consider necessary. (For instance, the Air Ministry paid the entire costs of the National Contest last February, including travelling and hotel expenses of competing pilots, mechanics, carpenters, etc.)

These subsidies will be paid to established Clubs according to their merits, the State being willing to pay up to 50% of the costs except in special cases, at the discretion of the Ministry, where the percentage may be higher.

The subsidies for aero-modellers' Clubs will be fixed in each case separately, and are to be employed in renting suitable buildings for workshops or in buying tools and materials.

Finally, the decree indicates that the subsidies will be paid either out of the annual grants for Civil Aviation or else by special grants, and states that any subsidy funds accumulated by the Clubs may be used by them for any activity directly associated with aeronautics.

THE MU 13 FLIGHT TESTED

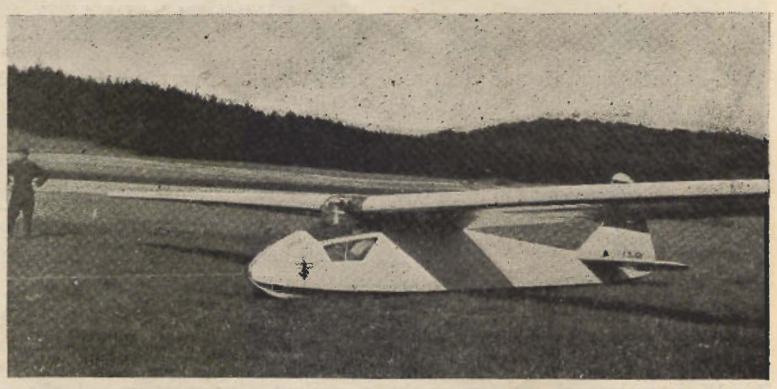
By PHILIP WILLS, C.B.E.

" MU 13 "

Span : 16.00 metres.
Empty weight : 145 kg.
Gliding angle : 1 : 28 at 70 kms./hr.
Minimum sinking speed : 0.58 m./sec. at 55 kms./hour.
Wing loading : 13.82 kgs. per sq. metre.
Aspect ratio : 15.05.

The equivalent of the machine I have been hoping will be built for post-war club use in England—a cheap cantilever sailplane. The wing loading is very low, being little more than that of the " Primary ", the wing is of wooden construction, and the fuselage is of welded steel tube covered with fabric. When we came to assemble it, we were horrified by the apparent crudity of detail. The German adjective applied to the machine is " geizig " (mean). The machine has a very low stalling speed, and a remarkably low sinking speed, and is therefore specially suitable for weak thermal conditions. It is extremely ugly, having a flat-sided fuselage, but a pretty wing. My first two winch launches on the machine (an " Mu 13a ") confirmed what I had previously been told, that for balance and sweet control she is not first class.

Owing, I believe, to the fact that the spar is relatively deep right out to the tip, aileron control is rather peculiar, and my first effort to claw on to a mild thermal at 400 feet by doing a snappy figure eight resulted in a drunken lurch that ended up in something approaching a power dive. The rudder is underpowered at low speeds.



The Mu 13a preparing to take-off on the winch-cable. Note the crude cockpit cover and fuselage, and the pretty wing which gives the machine an excellent performance of low speed.

The machine appears to fly well around 45 kilometres an hour (28 miles an hour) and on the A.S.I. fitted, stalled somewhere under 35 kilometres an hour (22 miles an hour) ! The best sinking speed is claimed as 0.58 metres per second, and the best gliding angle one in 28, both figures being about the same as the " Weihe ", but I should rather doubt the gliding angle claimed. The opinion I have previously heard expressed in Germany is that if you can fly the " Mu 13 " well, it unsuits you for anything else, and vice versa. It is certainly unusual, but not particularly difficult, except when one wants to get the best out of it in difficult conditions. On a thermal flight, being provided with a turn-and-bank indicator, I adventured into a small cloud, but the instability and unbalanced controls completely foxed me, and I left in an undignified manner. Later I saw, but did not fly, an " Mu 13d " and on this the fuselage was longer, the rudder larger and the wing tip depth smaller.

Please, though, will someone get down to the job of designing an English equivalent. It needn't be pretty, it certainly needn't be any better in performance, it could presumably have better handling qualities, must be a cantilever (for penetration) and must be cheap. What is needed, really, is a cantilever machine of not more than 50 feet span with the three-dimensional positive stability of the " Kranich ".

Letter to the Editor

46, Station Road,
Stoke Mandeville,
Aylesbury.

DEAR SIR,

I was interested in Capt. Wingfields letter in the October issue of SAILPLANE, on Dagling *v* Dual methods of training.

Having been connected with A.T.C. Gliding Training since its commencement, at a School fortunate in the possession of a " Falcon III ". I have had an opportunity to study the reactions of pupils to both methods. Whilst dual is advantageous in teaching turns and giving height experience to advanced trainees, I have found in the early stages it tends to give a false impression of security to the pupil, who, whilst handling the controls satisfactorily with an instructor by his side, sometimes fails dismally when launched solo.

A pupil starting ab-initio in a " Dagling " or " Kadet " soon develops self-confidence, and with keen observation of each flight, faults can be pointed out and corrected by careful instruction after each launch. This method has been proved satisfactory beyond doubt, pupils gaining their B.G.A. " A " Certificate after thirty launches, with an exceedingly small percentage of crashery. For training beyond this stage a two-seater is highly desirable.

Yours faithfully,
F./Lt. H. E. SPRAGG.

British Gliding Association

PETROL RATIONING

As a result of negotiations with the Ministry of Civil Aviation, it has been agreed that a limited amount of petrol will be made available to Gliding Clubs.

The procedure for obtaining fuel for Gliding Club activities is as follows :—

Motor Fuel. The Ministry of Fuel and Power is instructing all Regional Petroleum Officers to accept applications from Gliding Clubs for the amount of motor fuel required for winch-launching, retrieving and any other ancillary services (e.g., lighting).

Application is to be made by Clubs direct to their Regional Petroleum Officer.

Aero-Towing. Application for aviation spirit is to be made by Clubs direct to

AIR MINISTRY, E.36,
19-29, WOBURN PLACE,
LONDON, W.C.1.

In case of any difficulties, please inform the B.G.A.

HAROLD E. PERRIN,
20th December, 1945. *Secretary.*

On Forming a Gliding Club

PART IV

THE BRITISH GLIDING ASSOCIATION, LIMITED

While it is not compulsory, it is certainly advisable that your club should be affiliated to the British Gliding Association, or to the successor Association of Clubs, which may be formed in the future. The B.G.A. was not an external organization, but represented the corporate spirit of the Clubs.

Pre-war the club movement had been self-governed and self-disciplined through this central organization, which co-ordinated the scientific and sporting aspects of gliding, and represented the country in international contests. The Royal Aero Club recognised it as the Gliding Authority, and had delegated certain powers to it.

It is difficult at this period to give a clear statement of the position and policy of the B.G.A., because the question of the reconstitution of the Association, and the revision of its Rules, as approved at the Annual General Meeting of 25th February, 1938, is at present in hand. By the time this article is published it is likely that a definite announcement will have been made.

PRE-WAR OUTLINE

A brief outline of the pre-war activities and functions of the B.G.A. may, however, be of assistance to organisers of new clubs.

It was an association of affiliated clubs, controlled by the clubs themselves. Its constitution provided for membership of individual members and affiliated clubs. Its Council consisted of club representatives; individual member representatives; and one representative each of the Royal Aero Club; The Royal Aeronautical Society, and the Royal Meteorological Society.

Affiliated clubs with over 25 paid-up flying members were entitled to nominate one representative for every 100, or part of 100, paid-up flying members, up to a maximum of five representatives per club.

An affiliation fee of five guineas, and capitation fees of one shilling per annum for each flying member, was paid by affiliated clubs.

The Association had co-ordinated committees covering all the important activities of the National Gliding Movement.

B.G.A. NEEDS SUPPORT

Every Club, and each club member, should have an interest in the success of the B.G.A., or its successor. This Association will have much new work before it, and there are many channels yet to be explored, in addition to the services required by existing and prospective clubs.

To sum up these services, the B.G.A. was responsible for the development and control of the Movement. The issuing of Certificates of Airworthiness for all gliders and sailplanes, and the provision of local inspectors for this work, was arranged by the B.G.A. until the Air Registration Board could undertake glider work. The control of gliding competitions and the Rules and Regulations for these. The observation of tests for glider pilots' certificates in accordance with the regulations of the Fédération Aéronautique Internationale, under delegation from the Royal Aero Club.

The B.G.A. was also prepared to loan lantern slides and to give practical advice to clubs.

TECHNICAL COMMITTEE

The Technical Committee issued recommendations for launching and aero-towing, etc., and standard charges were made for preparing complete strength calculations for C of A for new designs, which were submitted complete with drawings. Arrangements had, however, been made for the Air Registration Board to take over the checking of designs and stress calculations for new gliders, at the same fees, in order to comply with the proposed new Air Ministry Regulations, which were to include gliders. The A.R.B. had already undertaken the examinations for licensed glider engineers, when the war broke out.

C. OF A.

A certificate of airworthiness was valid for one year, and the principal fees, pre-war, were five guineas for a new type; two guineas for subsequent machines of the same type by the same manufacturer; three guineas for subsequent machines of the same type by another manufacturer, and one guinea per annum renewal fee.

These charges included the B.G.A. Inspectors' fees and expenses, but not the cost of any necessary alterations, renewals or replacements.

SUBSIDY

The distribution of Government subsidy was arranged by a Subsidy Committee of the B.G.A. under the supervision of Trustees appointed by the Air Ministry.

The Association also assisted the clubs by providing for sale at reasonable prices, official log books for gliders, and glider pilots' log books, thereby creating a standard pattern.

In November 1943 the B.G.A. appointed a special sub-committee to negotiate with the Director-General of Civil Aviation, and other authorities, in regard to a policy for post-war gliding. This Committee working with the Royal Aero Club, has made strenuous efforts towards having the ban on

gliding raised, and submitting proposals for a subsidy for post-war gliding.

IMPORTANT

Registration. The next important step after affiliation to the Association of Clubs, will be registration of your club.

Registration will give the club corporate existence and will render it capable of acting as a limited liability company.

The Companies Act involves expense and has numerous obligations and penalties, which can be avoided by registration.

The club can be registered either under the Friendly Societies Act, or under the Industrial and Provident Societies Act. This latter Act is the most advantageous and applicable to gliding clubs, as it gives all the benefits of limited liability.

Greater freedom of expenditure is given under the Industrial and Provident Societies Act than under the Friendly Societies Act. No trustees are required, and the clubs may act under their own seal as a corporate body in the same manner as a limited liability company.

The information in this article, unless stated otherwise, refers to registration under the Industrial and Provident Societies Act.

The word "Limited" must appear on all letter-headings; official publications and advertisements, and the registered name of the club must be affixed in a conspicuous manner outside the registered office, and all other club premises.

Cost. The cost of registration under the Industrial and Provident Societies Act is £10, but this fee will be reduced to £3 if existing Model Rules are adopted. To this should be added the purchase of a seal—about £2, and the cost of printing books of Rules, which at present is about £14 for 250 copies. These Rules may, however, be duplicated at a much lower cost.

A fee of £2 must be paid to the Registrar on the registration of each partial amendment of Rules, and £4 in the event of a complete amendment.

There is no charge made for the change of address of the registered office of the club, and the Registrar must be notified within 14 days of any change, on a form specially provided for this purpose.

Rules. Model Rules for registered gliding clubs were prepared by the British Gliding Association, and if copies are not available from this source application could be made to one of the existing registered gliding clubs, or to the Registrar of Friendly Societies.

Alterations to Rules should be made upon special forms, and will not be valid until registered with the Registrar.

The club must supply a copy of its Rules to any person who demands one, members or otherwise, and a maximum charge of 1/- may be made for each copy. It is an offence punishable by law to refuse to supply a copy of the Rules.

Shares. A share must be held by each member, and these shares may be as low as 1/. Each member should hold only one share, which is not withdrawable and on which no dividend is paid.

A record of shareholding members must be submitted to the Registrar each year, denoting new and lapsed shares.

Public Auditor. The accounts of the club must be audited annually by a public auditor. On application to the Registrar a list will be provided showing the names of the accountants in the area in which your club is registered, who have been appointed by H.M. Treasury to act as public auditors. Any one of these public auditors may be selected by the club. No other accountant will be accepted by the Registrar.

The Treasury has arranged standard charges for this work, but the public auditors may charge more if extra work other than straightforward auditing.

These charges are three guineas when the sum of receipts and payments does not exceed a total of £2,000, with the addition of one guinea for every additional £2,000 or part, in excess of the first £2,000.

Annual Returns. The Registrar will provide forms for Annual Returns which must be certified by the public auditor and forwarded before March 31st, in each year, accompanied by a copy of the current Balance Sheet.

The secretary of the club is liable to a penalty of £5 for every week of default in the event of the Annual Return not being forwarded within the specified period of time.

Legal Matters. Provision is made within the Industrial and Provident Societies Act, for proceedings in the police court against any person withholding or misapplying money or property belonging to the club.

If a club is registered under the Friendly Societies Act civil proceedings may be taken out by, or against, the trustees, whereas in the case of clubs registered under the Industrial and Provident Societies Act these proceedings would be conducted in the name of the club.

Handbook. A copy of the Friendly Societies Handbook costing 1/- pre-war, should be obtained from H.M. Stationery Office, or from the Registrar of Friendly Societies, whose present address is Grand Hotel, Morcambe, Lancs.

Administrative Officers. The duties of officers attached to the flying side of the club have already been referred to, and to complete this series of articles it is perhaps advisable to pass some remarks on the selection and duties of the administrative officers.

Chairman. The simplest method of electing the Chairman is for the promoters to agree tacitly upon the person most suited for this important office, and then as soon as one of their number nominates him, the assent of the meeting is given in a manner practically unanimous.

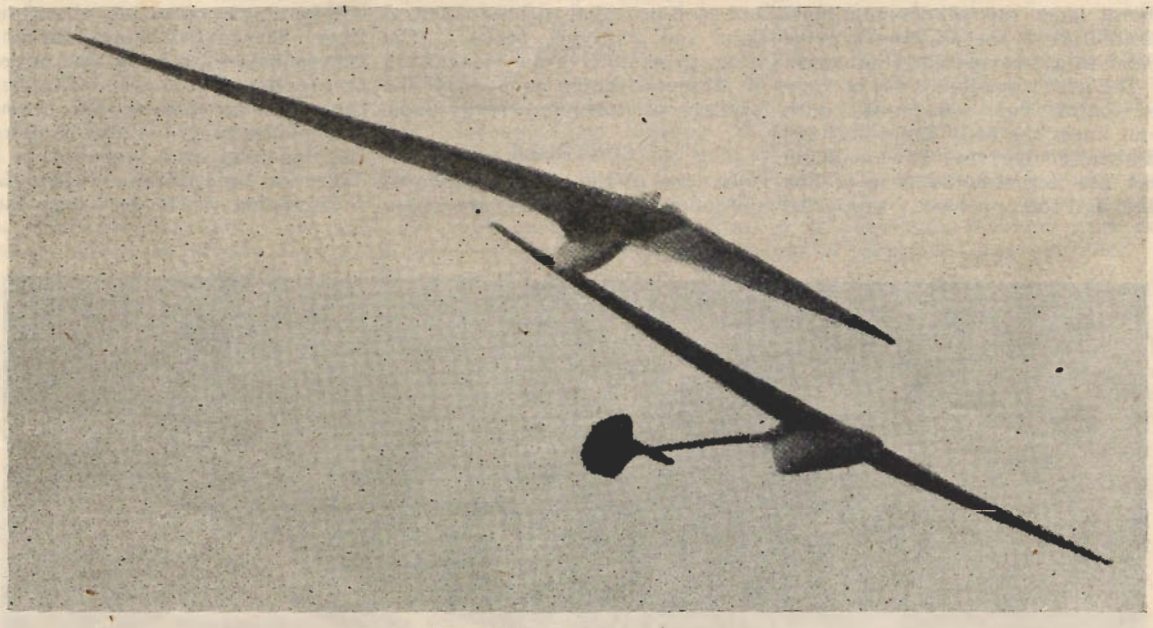
The Chairman should be chosen mainly for his ability to hold a meeting together, to command respect, to be of good social standing, and able to conduct meetings on efficient lines. His position may be compared with that of a judge. He should have a genial temper; tact; courtesy and firmness, and in the case of all gliding clubs the Chairman must have a good business head.

The Chairman is invested with great power and influence, and if a capable man with whole-hearted sympathy in the Movement is appointed, every effort should be made to have this man elected each year, so that he may continue to navigate the club successfully.

Hon. Secretary. This officer must keep his fingers on the pulse all the time, and his duties

(*Continued on page* 23)

THE HORTEN IV



"Horten I V" and D.30 "Cirrus."

THE design of an "all-wing" glider calls for the solution of two conflicting problems :—

(*a*) To obtain the necessary space for accommodation of the pilot and fittings inside the wing.

(*b*) To obtain the high aspect ratio essential for maximum performance.

The smaller dimensions of a single-seater glider make it more difficult to find room for the pilot in the wing. Discarding the fuselage, the wing-root thickness must be not less than 0.6—0.7 metres, for which the corresponding wing chord is at least 3.0 metres. The preceding glider models, Horten I, II, III therefore had a rather low aspect ratio, since if the wing taper is to be considered prescribed by stability limitations, the aspect ratio will be a direct function of the wing span. In the all-wing models, H. I, II, III the wing span was therefore progressively increased (12, 16, and 20 metres respectively), which apparently exhausted the means of increasing performance, since at wing spans exceeding 20 metres the disadvantages of greater bulk and increased moment of inertia about the longitudinal axis begin to counterbalance the advantages.

HIGHER INDUCED DRAG

This development led to exceptionally large wing areas and correspondingly low wing loading. The low rate-of-climb coefficient ca3/cw2 due to the low aspect ratio is compensated by the low wing loading, and the stalling speed is therefore also low; the gliding angle, on the other hand, is affected only by the lift/drag ratio ca/cw and thus independent of the wing loading. An all-wing glider with a low aspect ratio is therefore at a disadvantage compared with a glider of normal type owing to the higher induced drag, even though this is counter-balanced by the absence of parasite, no-lift surfaces. A further disadvantage of the low wing loading is, however, that the best gliding angle is attained at a lower speed of flight; low wing loading therefore decreases the performance in descending air currents. The cruising speed is similarly affected by the displacement of the velocity polar due to low wing loading. On the other hand, the smaller turning radius possible with low wing loading will enable the ascending currents to be better utilized, *i.e.* the aircraft will climb better, but this is only a partial compensation for the lower gliding speed.

USEFUL FOR EXPERIMENT

Up to the present, these considerations for and against the all-wing glider type have had to take second place in the face of the necessity for research into the aerodynamic and flying properties of the type: gliders having been always considered a cheap and convenient means of experimentation. On the completion of these researches, however, the resulting conclusions were applied to the development of power-driven aircraft, and led to the design of the "Horten V" all-wing aeroplane. However, to reserve the experience gained, and keep alive the conception of the "all-wing" aeroplane. the design of a high-performance, all-wing glider—the "Horten IV"—was put in hand.

SEMI-PRONE POSITION

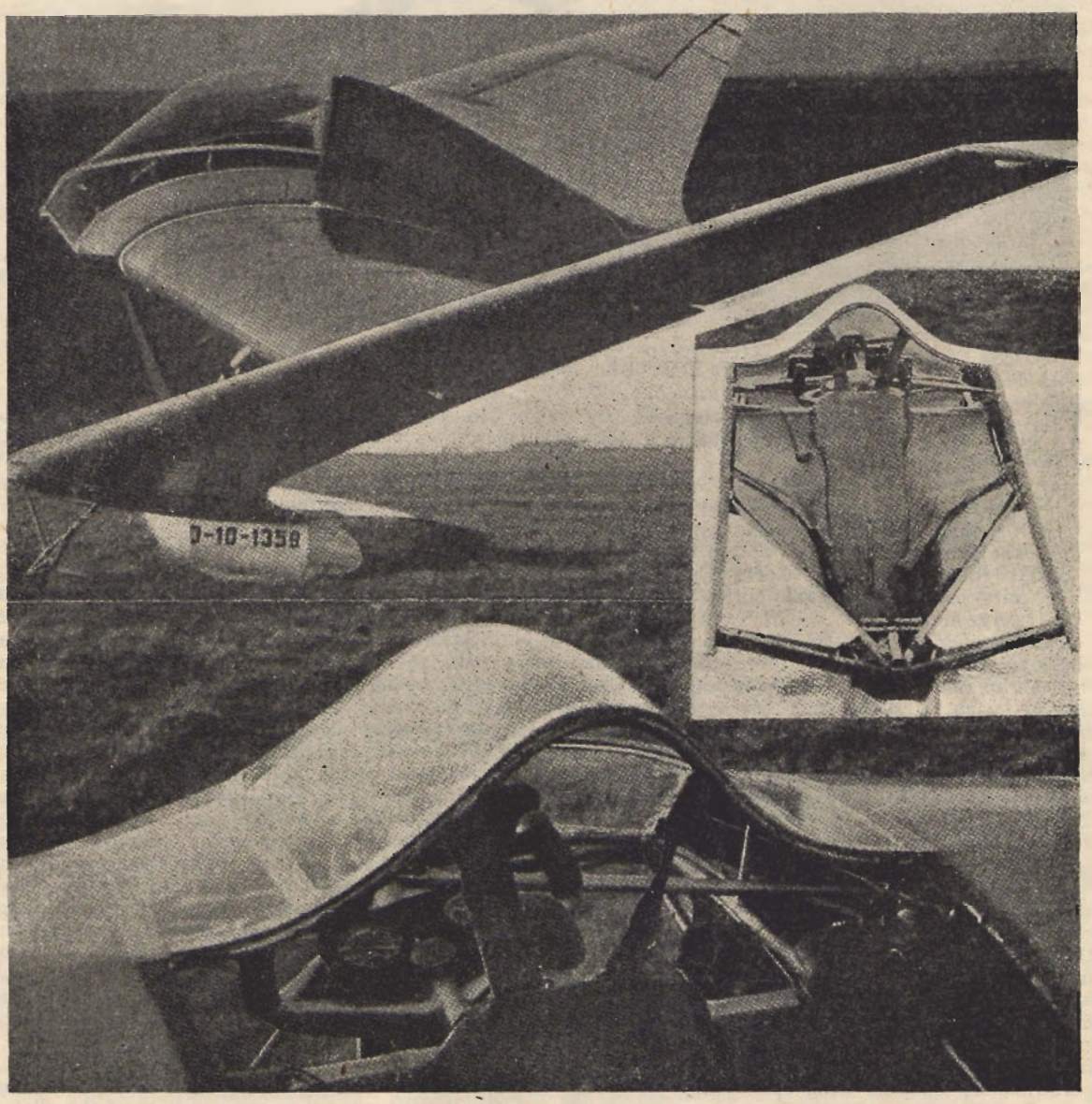
In this design, the possibilities of the prone position of the pilot—first suggested by the designs of the "FFG" glider research group in

Stuttgart—have been utilized, enabling the aspect ratio to be increased to 21, while retaining a wing-root thickness of 16% of the chord, and the above-mentioned disabilities of the all-wing type of glider to a great extent eliminated.

The pilot's position is not entirely horizontal but sem-prone, with bent knees the body being inclined at about 30 degrees. The knees and feet are accommodated in a box skid, and the upper body supported by the steel main spar of the 1.6 m. long mid-section of the wing. The root sections of the 5-part airframe are of monospar wood construction and each provided with two control flaps and a diving brake. The wing-tip sections of 2 m. length are of all-metal design and carry the tip flaps (ailerons) and rudder flaps.

CONTROLS

In view of the prone position of the pilot, the controls have been designed of the tilting handwheel type. Each wing accommodates two distinct control systems, incorporating push-rods working in ball-bearings, operating the three flaps. The tip flap is provided with a horn balance coming into action at negative flap angles. This flap can act as an elevator with a very small deflection. For aileron effect, the flap is given a larger angle of deflection by a suitable differential transmission. The two wing-root



Top: Streamline cockpit covers for upper parts of pilot's body. Middle to left: Lower part of cockpit for thighs, knees and feet. Middle right: Looking into the pilot's bed. Bottom: Close up of cockpit.

flaps act as elevators and/or ailerons, as in the design of the "Horten III." In view of the type of transmission adopted, the flaps in the middle have principally a positive elevator action, while the inner (wing-root) flaps act predominantly as negative elevators. This ensures most efficient elevator control, and preservation of the dihedral with negative elevator: with "starboard elevator up" and "port elevator down," the wing-root flaps also have an aileron effect, in which the tip flaps take part at varying angles of deflection—*i.e.* with positive elevator the flap angle increases towards the wing tip, or *vice-versa*. The differential action of this warping arrangement reduces yawing about the vertical axis, and is assisted by the horn balances of the tip flaps.

DRAG RUDDERS

The rudder flaps, which also have a braking action, are made up of two electron-metal surfaces fairing into the skin plating of the wing nose when closed. These flaps are operated by a pedal yoke rudder bar through control cables.

The glider can be assembled by three persons in about five minutes. The wooden wing-root sections are attached to the mid-wing section by two taper bolts, while the metal wing-tip sections fit on to the wooden wings by means of quick-release joints.

The undercarriage landing gear consists of two tandem skids, of which the front one only is retractable. Both skids are sprung.

Aid in landing and diving is afforded by an air brake of 2.0 m. length on each side, giving a falling speed of 8 m/sec. when fully open, within the speed range of 50-90 km./h, and limiting the diving end-speed to 180 km./h.

HEATING

The glider is equipped with a small electrical plant operating the turn indicator and capable of heating the control stick and pilot's gloves for some hours. Fixed oxygen-breathing apparatus is provided, with an outboard pipe connection, and further safety measures include a quick-jettisoning device for the cockpit hood, coupled with an automatic body-belt release, facilitating baling out by parachute. The other instrumental. etc., equipment follows standard practice in modern gliders.

TESTS

The prototype glider was built in the winter of 1940-41 and tested for about 20 flying hours. Operation and control were very satisfactory, even though the pilot's postion was somewhat exceptional, and the performance results uniformly good.

Wing Span	= 20 metres
Wing Area	= 19.1 sq. metres
Aspect Ratio	= 21
Equipped Weight	= 240 kg.
Flying Weight	= 350 kg.
Wing Loading	= 18.3 kg./m2
Gliding Ratio	= 37
Vertical Fall, rate of	= 0.5 m./sec.
Capacity	= 1 person

Further details of the design, which have been tested and proved their worth in over 220 flying hours, are as follows :—

COCKPIT AMENITIES

The cockpit base is of sheet electron metal padded with 5-20 mm. of sponge rubber, covered with fabric or leatherette. In the later models the cockpit is suitably adjustable to the proportions of the pilot, the adjustment being made before leaving the ground. Easy escape by parachute is enabled by a quick release catch on the cockpit hood, operating the pilot's body belt at the same time.

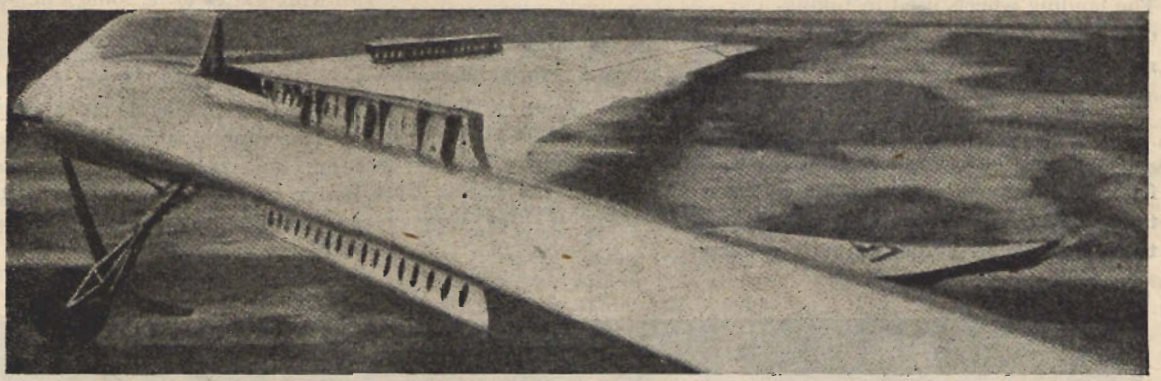
The automatically - operating parachute is stowed in a pocket on the cockpit hood. Experiments with a manually-operated back or breast pack, are being continued.

ASSEMBLY

The assembly of the 5-piece glider airframe can easily be effected by four persons in five minutes: in the packed condition, the whole assembly can be carried on an ordinary glider-transporting truck. To assemble the airframe, the wooden sections of the wing are attached to the mid-wing main spar by two taper bolts; the attachment is by a cylindrical auxiliary spar. The hollow attaching bolts are fitted with internal follower pins, which tighten the bolt taper when turned to the right, and automatically releasing the bolt when turned in the opposite direction. The joints of the control rods are of a special quick-release type, operating without the use of loose pins or special tools.

LANDING GEAR

As already mentioned the undercarriage landing gear consists of two skids in tandem. The rear skid is fitted with rubber shock absorbers, the skid deflection being communicated to the shock absorbers by a lever transmission giving greater movement of the



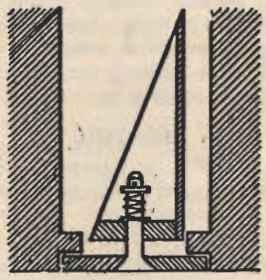
Dive brakes extended; the cockpit cover is off.

spring in deflection under load than in recovery. The transmission ratio is thus continuously variable, the resulting spring characteristic allowing of a considerable deflection of the skid under light loads, thus effectively absorbing the shock. Under heavier loads, the shock is transmitted to the structure to a certain extent, but in any case contact of the cockpit bottom with the ground is rendered impossible, even with full deflection of the skid.

The front skid is fitted with a pneumatic shock-absorber leg with auxiliary oil damping, suitably adjusted to possess the same spring characteristic as the rear skid. The landing wheels used in taking-off are automatically dropped when retracting the skid.

THE DIVE-BRAKES

The diving brakes are prevented from unintentional opening by a toggle lever, and are designed in the form of a perforated strip:



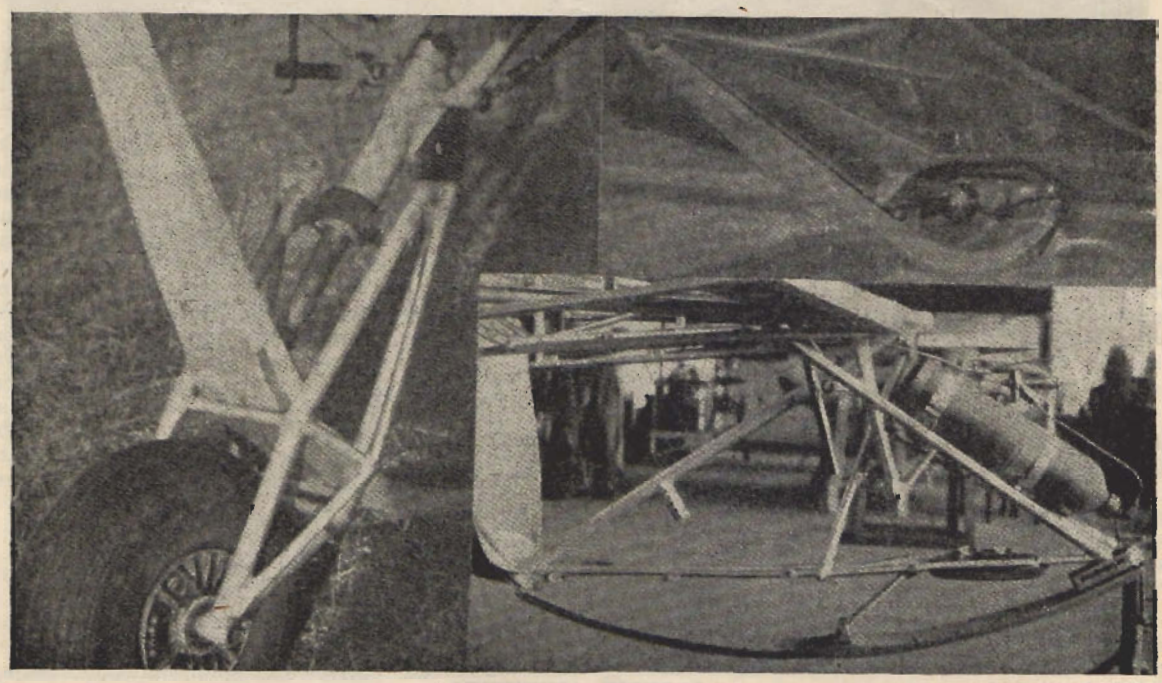
Cross-section of the dive brakes, showing the surface steel.

this preventing wing vibration, while the drag of such a perforated strip is not noticeably less than that of a full section. When retracted, the brake is faired into the wing surface by an electron metal strip fitting corresponding rebates on the wing surface before and behind the brake slot, and elastically attached to the brake strip. The attachment is slightly in tension when closed, and the fairing thus fits well even if the wing is warped.

GOOD ALL-ROUND PERFORMANCE

In conclusion, it may be pointed out that the extreme outer layers of the spar flanges are made of Lignafol and thus have a higher bending strength than the wooden structure. The scantlings are adapted to the higher cruising speeds of modern gliders, the maximum gust speed being assumed at 145 km./h. In consideration of the development of the velocity polar, this appears to be quite a practicable speed. Comparative test flights in dual tows with "Reiher," "Condor III" and "Weihe" gliders of normal type, showed the falling speed of the all-wing glider to be some 1 m./sec. lower, at a reference speed of 100 km./h.; the advantage increases at higher speeds of flight and the prospects for long-distance flying are thus more favourable. Furthermore, no competitive model has better performance in slow flight and turning, in spite of the high reference speed.

(Acknowledgements to A.T.P.—3 M.A.P.)



Left: Front retractable skid, with jettsonable wheel. *Right top: Front skid retracted.*
Right bottom: Back skid showing the "V" shaped membe and the rubber cable shock absorber.

The History of the Yorkshire Gliding Club

IN 1929 interest in Gliding was aroused by the arrival in this country by two German Sailplane Pilots, Herr Kronfeld and Herr Magersuppe, who gave a number of demonstrations in various parts of England, one of which was at Beamsley Beacon, near Ilkley, Yorkshire. Several spectators, inspired by their performances and recognising the possibilities of this new sport, returned to their home towns to establish local Gliding Clubs.

A meeting was held in Bradford, and the Bradford Gliding Club was formed with Mr. N. H. Sharpe as Chairman, Mr. E. Craven as Treasurer, and Mr. S. Young as Secretary. Two ex-Royal Air Force Pilots, Mr. H. Jones and Mr. A. M. Verity, gave a very sound instructional basis to the Club and gave invaluable service. It is interesting to note that Mr. Sharpe and Mr. Verity still play a leading part in its activities, both being Directors of the Limited Company which was formed later, but strangely enough with positions reversed—Mr. Sharpe being the present Chief Instructor and Mr. Verity the Chairman.

FOUR CLUBS—ONE SITE

The gift of a " Dickson Primary " by the Bradford newspapers allowed them to commence operations at an early date despite their shortness of funds. This machine was built at Saltaire, nearby, and was tested out on the Pastures, a large flat field at Apperley Bridge, where the opening ceremony was held to inaugurate the new Club. As the ground only allowed for very limited low flat hops it soon became apparent that a hill site was absolutely essential for progress, and so many likely looking places were visited and tested before the Club landed at Weeton, half-way between Harrogate and Leeds, where they found the Leeds Gliding Club in possession.

Here both Clubs settled down, independently, to train their members up to " A " Certificate stage. Quite often they were joined by both the Harrogate and Ilkley Gliding Clubs when real field days were had.

UBIQUITOUS LEEDS CLUB

Even Weeton, however, had its limitations, as it was almost impossible to obtain a " B " on its steep but short slopes and the Club's exploring party lighted upon Dobruddan Farm, Baildon Moor, near Bradford, which had suitable training terrain facing in almost all directions, and so the Club moved in to its first permanent flying ground with the use of a barn as a hangar. The members improved so much that a number of times the Club took a glider to a soaring site miles beyong Malham, in the Pennines, over 40 miles away, with the intention of gaining several " C "s, where they met the ubiquitous Leeds Gliding Club again. The weather, however, always defeated their object, and they eventually concentrated their efforts on improving their flying at Baildon.

B.G.A.

It was about this time that the Club got into touch with the British Gliding Association, but we did not affiliate with it than as we did not approve of its organisation and constitution. When in 1932 the B.G.A. was reformed so as to give the clubs effective control, we affiliated with it to our mutual advantage.

Soon after this we took over the assets of the Halifax and Huddersfield Clubs and amalgamated with the Leeds Gliding Club to form the Bradford and County Gliding Club. These three clubs had found increasing difficulty in finding suitable sites, and as they were losing most of their members through this and other discouragements they were glad of our offer to take over their machines and equipment and—in the case of Leeds—a number of members besides.

FIRST CAMP

Easter 1932, an Instructional Camp was held—the first of a long and successful series, which varied from *ab-initio* to high efficiency training.

In order to gain experience and widen their gliding outlook members of the Club visited various clubs, The Derbyshire Club at Eyam, The Furness Club at Askam (during the National Competitions), and even took a glider all the way to Dunstable, the London Gliding Club ground, to improve their flying, but the weather, as usual, was against them and nothing much was learnt.

Years of hard work in the approved German manner—glides down the hill of a few seconds with their attendant rough landings at the bottom (unless you landed on the Golf Club's fairway) and long grinds up the rugged moorland slopes back to the top for the next flight (if the machine was still in one piece)—had its reward when the Club in 1933 sent a team of six men and three machines to the National Soaring Competitions at Sutton Bank, one of the first Clubs ever to send a representative team to these events. It was a courageous gesture, as the team had had no chance of practicing soaring and only one, Mr. R. F. Stedman, had obtained his " C."

OUT OF THE RUT OF FRUSTRATION

Then the B.G.A. made one of their most vital and enterprising decisions, which pulled the Club out of the rut of frustration and set it up as one of the foremost Clubs in the country—a position it has held ever since. In May 1934 the SAILPLANE announced that successful negotiations with the Ecclesiastical Commissioners of York had resulted in the B.G.A. obtaining a lease of Sutton Bank on very satisfactory terms, and it was proposed to instal the Bradford and County Gliding Club—now to be known as The Yorkshire Gliding Club—as the caretaker club.

Messrs. F. N. Slingsby, P. A. Wills and N. H. Sharpe had worked exceedingly hard to acquire this famous hill as a National Soaring centre. It was the scene of the 1933 National Competitions and had been " discovered " and thoroughly explored by Messrs. Slingsby, Wills, Buxton, Dewsbury, Magersuppe and many others, and was considered by them to have the finest soaring terrain in the country. Probably due to this unique beginning, when many members of the London Gliding Club worked

hard and enthusiastically side by side with the Yorkshire members to create the first fully-equipped high efficiency site, we have had many links with the London Club and they have been steadfast friends of ours ever since.

BEAUTY IN ISOLATION

This flying ground stands on a promontory of the Hambleton Hills on the south-western part of the well-known North-Yorkshire Moors at a height of 980 feet above sea level. Lying between Thirsk and Helmsley—both six miles away—it is in the centre of some of the loveliest and most historical scenery in England, with such noted beauty spots as Rievaulx Abbey, Byland Abbey, Helmsley Castle and Bilsdale only a very few miles away.

The west face overlooks the Vale of Mowbray, some 700 feet below it, and the view stretches out over the 20-mile wide valley to the entrance to Wensleydale, the whole panorama being bounded by the Pennines 40 miles distant. To the south the light grey stone of York Minster stands out in the centre of the Plain of York with the Yorkshire Wolds 30 miles away forming a darker background. To the east stretches the wild moorland, while to the north the tempting soaring slopes of the Hambletons curve their way towards Ingleby Greenhow, 20 miles from here. The Club itself is bounded by the well-known landmark of the White Horse to the south, the soaring slopes to the west, with Castern Dyke, an ancient British earthwork about 9 feet high, on the north side and by a good road leading from Kilburn to the main Helmsley road on the eastern boundary. Hood Hill, a 750 feet high outcrop of the main ridge a half-mile to the south-west, strangely enough, appears to offer no real interference to soaring whatever the direction of the wind.

THE CLUB BEGINS

Due to the generosity of a number of true sportsmen, the Club was able to start operations with a clubhouse, winch and two-seater, besides their other machines and, of course, a large wooden hangar large enough to house about six fully-rigged gliders. For the first time Yorkshire members were able to realise that " one crowded hour of glorious flight is worth an age without a plane." (Scott ?).

The famous climb at Sutton Bank seen from the soaring site.

For a time Baildon was retained as a training ground, but new methods soon made it redundant and it was left to the plovers and the lovers.

BIRTH OF WINCHING

On taking over this site the Club came up against many difficulties, the most serious being the training of *ab-initio* pilots. As the ground is on the top of the hill, with 44 acres of level moorland forming the aerodrome, the old bunjy slope launches were impossible, so a new technique had to be developed. Under the directing genius of Mr. N. H. Sharpe, to whose organising abilities the Club to a large extent owes its continuous success, an entirely new method of training was built up. Starting with car-towed bunjy launches the system was constantly altered in the light of the experimental work under his guidance until the new method was perfected and this eventually became the standard system of training in all clubs where winching could be used.

FEES

An entrance fee of £1 1s. was charged (this was waived in certain cases where power pilots had had considerable flying experience) and the annual subscription was £3 3s. Non-flying members paid £1 1s. and Lady members 10/6. Junior members subscribed 5/- per annum.

Flying fees were 3/- per day no matter how many " flights " were made for *ab-initio* pilots, while soaring was 3/- for the first quarter of an hour and 1/- for each subsequent quarter (6/- per hour), with a maximum flying fee for solo work of 10/- for the day irrespective of the number of hours flown. Various damage liabilities and an insurance scheme were also included in the financial arrangements.

NATIONAL CONTEST

A great send-off was given to the official opening by the B.G.A. staging their second National Competitions here in August 1934, when a number of records were broken, and 106 hours' flying completed by the competitors.

Outstanding flights of this meeting were J. Laver's duration flight of over 12 hours (beating his own previous record also made at Sutton Bank), G. M. Buxton's height record of over 8,000 feet, which remained undisturbed for several years, and which beat P. A. Wills's figure of 4,514 feet set up at Sutton Bank in August, and Eric Collins's out and return flight to Osmotherley (18 miles distant) and back. The competitions were without doubt the most successful ever held up to that date and created quite a stir in British flying circles.

During the first year of the club in its new home we gained 17 certificates—6 A, 6 B, and 5 C's—a record for a Provincial Club at that time.

REALISTIC ATTITUDE

From the beginning the Club adopted a realistic attitude, providing more and better aircraft and better and better Club amenities year by year, yet never allowing its ambition to over-reach its resources. Latterly a resident Steward and Stewardess were installed, while a full-time Ground Engineer, Mr. H. Holdsworth, an original member of the Bradford Club, had been at the service of the members almost from the earliest days.

These facilities allowed flying to be carried out at any time during the week as well as the usual week-end. This was particularly appreciated by R.A.F. Officers and some of the more enthusiastic members, who thought nothing of travelling the 80 odd miles to the Club and back on a summer's evening if thereby they had a decent flight to compensate them for their effort.

Once more the B.G.A. held their National Competitions at Sutton Bank and 1935 proved that the standard of pilotage had again improved beyond all expectation when another record of flying was broken with over 150 hours completed by the competitors.

HOME-BUILT TWO-SEATER

During 1935 two of our members qualified for " Silver C " Certificates—the first time this award had been won entirely on a Provincial Club site with Club machines. Mr. J. C. Neilan made a flight of 56 miles to Withernsea, reaching a height of 4,000 feet on the way, and F./Lt. P. M. Watt flew to Brough, a distance of 40 miles, with a maximum height of 5,100 feet. 1935 also saw Mr. R. F. Stedman gain the Official height record for two-seaters, when he ascended 3,500 feet with a passenger in his own home-built machine—" City of Leeds."

100 HOURS A MONTH

1936 was another milestone in Club history, as in July we exceeded over 100 hours' flying time, six members, Messrs. R. F. Stedman, H. F. Hastwell, J. Wordsworth, A. Pick, L. A. Alderson and W. R. Watson making flights of over five hours each, and August saw the introduction of our first Open Annual Training Camp, when 29 certificates—12 A, 10 B, and 7 C—were gained by 20 pupils—a record for British Instructional Courses. Credit for this outstanding success must be given to the Instructors and members of the Club who assisted, and which proved that the Club justified the award of the subsidy assistance which had been inaugurated in 1934. Additional amenities in the shape of a Dormitory holding 25 beds and a brick-built hangar holding 12 fully rigged machines, whilst still allowing sufficient space at one end for the Ground Engineers' workshop, greatly facilitated the work of training and gave greater comfort to the members of the camp.

AERO TOWS ON TAP

Through the great generosity of our President, Major J. E. D. Shaw, who placed his private Aerodrome at Welburn, near Kirbymoorside, North Yorkshire, at the Club's disposal, we were able to offer aero-towing facilities at any time by appointment and so we became one of the pioneers of regular club aero-towing in this country. Major Shaw's pilot, Mr. S. McMurdo, was an indefatiguable and enthusiastic advocate of this form of launching. This arrangement replaced one by which we were able to call upon the York Aero-Club for similar but more limited facilities. Full use of this scheme was made by the British Team in training for the International Competitions in Germany in 1937, and which incidentally included three Yorkshire members, Messrs. P. M. Watt, J. C. Neilan and P. A. Wills, though, of course, the latter could be claimed by the London Club with greater justice, as he carried out most of his flights from their ground and has always been a member of it.

BRITAIN'S GREAT GLIDING BENEFACTOR

It is fitting here that tribute should be paid to two of the British Gliding Movement's greatest friends, who never achieve the spectacular limelight, but, it will generally be agreed, have played a unique part in making British Gliding such a successful organisation.

Major Shaw not only was a generous and very helpful friend to our Club, whom he was always anxious to assist in every way possible, generally in such an unobtrusive way that the ordinary member never realised to what extent the Club was indebted to him, but he was a real benefactor to the whole of gliding throughout the country as well. To mention only two instances of his help, he provided both the plane and the pilot (Mr. " Mac " McMurdo, a Yorkshire Club Member), so that aero-towing facilities could be available for retrieving and other purposes during the International Competitions for our team, and " Mac " was recognised by the German authorities as our official pilot. He also greatly assisted, behind the scenes, the building of the Special Machine—the " King Kites "—by Mr. F. N. Slingsby.

" SLING "

Another personality is Mr. F. N. Slingsby, a member of the Yorkshire Club's Committee since 1934, and the leading Glider and Sailplane manufacturer in this country since the very earliest days. He built the sailplanes for the British Team at very short notice and greatly assisted them to uphold our prestige against the best that Government sponsored teams of other countries could do. He has helped the Club continually not only by his very practical assistance and advice but in innumerable other ways, perhaps, the greatest of which was his position of Chief Instructor at our Annual Training Camps. The fact that the Club year after year gained more certificates at these Instruction Camps than any other club was in no small measure due to his efficient and enthusiastic supervision, and their success is a fitting tribute to his personality. He ranks amongst the highest of those who put the Movement first and without whose unselfish devotion to the cause Gliding would have died long before it grew up.

" PHILIP "

Mr. P. A. Wills has also been one of our greatest friends, and although his work for Gliding needs no reiteration from me, the Yorkshire Club feels in a very personal sense a deep debt of gratitude to him for all he has done for us. We have always been proud of his association with us, and prior to the commencement of the war we were very pleased to elect him a Vice-President of the Club as a tribute to his work for the Gliding Movement in general and our own Club in particular.

1937 proved an exceptionally good flying year, and at the Annual Training Camp 34 Certificates were gained (10 A, 10 B, and 14 C) by 25 pupils, four of whom were *ab-initios* who obtained their A, B and C Certificates.

1938 SEASON

The season 1938 was a very busy period and the number of certificates gained exceeded all expectations. Club members qualified for 133 certificates, 56 A, 41 B, and 36 C, and in addition four more members obtained the coveted " Silver C," Messrs. Barker, Deane-Drummond, Raphael and Haslinger. Other excellent flights were made by Messrs. R. H. Shaw, S. O'Grady, R. C. Pick, S. McMurdo, A. Pick and O. Furlong at Sutton Bank. Flights of over 5 hours were made by Messrs. Locke, Massey, Burningham, Smart and Inglesby.

200 HOURS' SOARING

It is interesting to note that Mr. A. Pick brought his total flying time to over 200 hours' soaring with a flight of 13 hours 17 minutes on the last day of the Club year, 31st July, 1938.

We found that the Instruction Camps were a great asset to the Club, many camp members becoming enthusiastic permanent members. The general progress of the Club in this respect can be gauged by the following figures. The number of certificates gained for the first four complete years at Sutton Bank are :—

1934/35	..	17 Certificates
1935/36	..	42 ,,
1936/37	..	68 ,,
1937/38	..	133 ,,

These figures speak for themselves.

AERO-TOWING

During this year (1938) the Club instituted the first Instruction Camp ever to be organised by a Club to train pilots for the " Silver C," and full aero-towing facilities were provided at Welburn Aerodrome through the kindness of Major Shaw, and " Mac " and an Avro Cadet were placed at our disposal for this purpose. A new type strutted " Gull " (the prototype of the famous cantilever " Gull ") was bought specially for the course and fitted with blind flying instruments. All pilots carried a parachute and sealed baragraph. Despite unfavourable weather the week's course was an unqualified success, several pilots who had never done any aero-towing before became very efficient and enthusiastic about its possibilities. A minimum standard of 6 hours on a " Grunau " or similar type of machine was insisted on so that no time was wasted in any initial training. Under the able supervision of the Chief Instructor of the Course, Mr. L. H. Heath, everyone improved their flying technique, and all who took part in the innovation returned to their home clubs feeling they had taken part in a great and successful experiment.

FEEDER CLUBS

The Club especially set itself out to encourage officers of the Royal Air Force to be interested in Gliding, and some of our keenest and best pilots were recruited from the neighbouring units.

(*Continued on page* 21)

Sutton Bank and a " Grunau Baby." (Taken from a " Kite ").

GLIDING IN HOLLAND

(FROM OUR OWN CORRESPONDENT)

THE Dutch gliding movement, which was started by a few enthusiasts in 1930, has after a pretty long period of slow progress met with more and more success in the years since 1937.

In 1938 we made several fine flights, *e.g.* Ypenburg (the Hague) —Namur (Belgium), 110 miles and the first goal flights of approx. 50 miles. We got our first high-perforance sailplane, an imported "Minimoa," and soaring became compulsory in the training of K.L.M. pilots. Most gliding clubs owned a "Grunau Baby" and an "E.S.G.," the same kind of glider as the English primary. All clubs were united in the League of Dutch Gliding Clubs.

May 1939 saw Mr. Nienhuis win the 2nd prize in the "Concours Internationale de Virtuosité en planeur," near Paris.

LAST PRE-WAR SUMMER CAMP

In the summer of 1939 the League held an Olympic soaring competition with the intention of getting a number of experienced pilots for the Olympic games at Helsinki. Some 1,250 miles were flown.

The year culminated in the 3rd Netherland Soaring Camp, this time in the neighbourhood of Eindhoven. 16 pilots flew with 3 "Grunaus," 2 "Bussards," a "Kranich" two-seater, and a "Minimoa." Two D.H. "Moths" were used for aero-towing. Many very fine flights were made into Belgium, Germany and even France. Mr. Nienhuis, who served during the war in the R.A.F., flew to Les Mazures in Northern France, while the K.L.M. pilot Koch broke the national goalflight-record with a flight of 150 miles to St. Quentin. Mr. van Zanten, after a 5½ hours' thermal flight, got his "Silver C" as the 4th Dutchman. Most launches were made by aero-towing, some by wind. We learned very much from this camp, obtained much experience and found that in our country and in our climate too, real soaring is possible.

BAN PARTIALLY LIFTED

Unhappily all civil flying was prohibited with the outbreak of war in September 1939, although Holland was still neutral. Many glider pilots were mobilized and served in the Netherlands Army and Navy Air Force.

In the spring of 1940 the ban was partially lifted after the same sort of fight as in Great Britain, and we got permission for training in several airfields. On May the 5th we made our last flights for 6 days later the Germans invaded our country and naturally all flying activities were stopped at once.

PRE-WAR RECORDS

At that time the Dutch national records were as follows :—

Distance—Goal Flight : O. Koch, 150 miles.

Duration : J. K. Hoekstra, 24 hours, 3 min.

Height : No official record.

Unofficial approx. 10,000 ft.

700 A, 450 B, 100 C and 4 "Silver C" licences were issued. Many Dutchmen made 2 of the required 3 flights for the "Silver C." The lack of good slopes in Holland is a great disadvantage, obtaining the required 5 hours. This is a real bottleneck !

The last 5 years, actual flying was impossible, but that didn't mean that nothing was done ! More secondaries and advanced sailplanes were built and a new form of organisation was created.

Dutch Cross Country Flights in 1939.

Messieurs O. P. Koch, Netherlands Soaring Champion, and Dr. de Koster, leader of the Soaring Camp at Eindhoven with a "Minimoa."

DUTCH ROYAL AERO CLUB RE-ORGANISED

The " Koninklijke Nederlandsche Vereeniging voor Luchtvaart " (the Royal Aero Club of the Netherlands) to which the League was already closely associated, was reorganised on January 1st, 1945. The members were grouped into the following sections :—

Sporting flying.
Gliding and Soaring.
Ballooning.
Model Aviation and
Aeronautical Engineering.

Of course the local clubs continued on the old lines. The formation of " districts " was new. A district is a region, consisting of one of the bigger towns and its neighbourhood in which exist several clubs, belonging to the various sections of the Aero-Club. The council of the district is made up of representatives of the sections and organizes meetings, conferences, lectures, etc.

The gliding clubs get the drawings of gliders and high-performance sailplanes free of charge and also the help of a central workshop established during 1939 by the Aero-Club. This workship carried out the repairs on club gliders for which only the cost of materials were charged. During the time the glider was under repair, a similar one was loaned to the club in order to continue the training of the members without disturbance.

INSTRUMENTS FREE

Besides this the clubs get the instruments and a barograph for home-built sailplanes free.

The clubs obtain a bonus for licences, 10/- for the " A " to £5 for the " Silver C." Thus a credit account with the Aero-Club towards the purchase of new equipment is created. A smiliar bonus is given for licences for instructors and technicians and for cross-country flights. For contests a "Minimoa," a " Bussard " and a " Grunau Baby " can be placed at the pilot's disposal.

Mr. R. Snellen, who was also known in England, was commissioned to design a new secondary for the Aero-Club. This plane was to replace the " Grunau." It had a wing of 40 ft. in one piece and tailsurfaces in V-form (as in the American " Nomad "). The performances are slightly better than those of the " Grunau Baby."

The drawings of this plane were nearly completed when the Reichskommissar Seiss Inquart appointed a number of Quislings in the council of the Aero-Club, with the result that almost all members left the Aero-Club. The Gliding Clubs voluntarily discontinued their activities, of course with the intention of starting them again as soon as circumstances permitted it, which meant after our liberation. The Aero-Club under the new management was active only so far as aero-modelling was concerned.

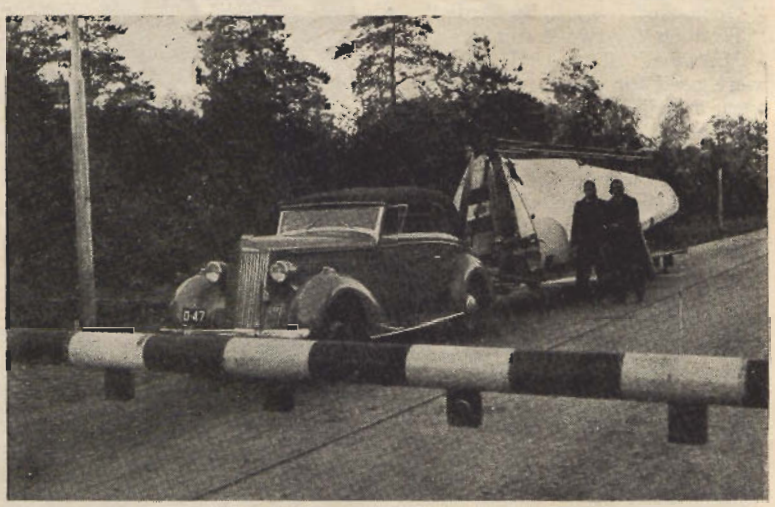
As the Allies reached the Southern borders of Holland most Quislings disappeared in Eastern directions.

A PROUD RECORD

During the 5 years of occupation many of our friends were killed, some in the R.A.F. and the Royal Netherland Navy Air Force. Several were shot by the Germans for active resistance, some died in concentration camps and prisons. Among the latter were Mr. Snellen and Mr. Verwaal (former secretary of the Gliding Section). Two of our " Silver C " men were captured some 30 miles off shore in a canoe. trying to escape to England. They were held prisoner for nearly 3 years. Miss Ida van Zanten, one of our girl C-pilots, managed to escape by way of Portugal and joined the Air Transport Auxiliary.

ARNHEM

The central workshop in which a great part of our sailplanes were stored was located in the immediate neighbourhood of Arnhem, and after the heroic battle in September 1944,



Retrieving after a cross-country flight into France. The " Arend " a Kranich two-seater, passes the Dutch-Belgian border in August 1939, *after Nienhuis flight to Les Masures.*

there were only a few planes which could be repaired. Many were wantonly damaged by the Germans. All parachutes, most instruments, tools, lathes, etc., were stolen.

On May 5th the 1st Canadian Army liberated the last occupied Western provinces, and in no time the activities of our gliding enthusiasts were resumed. The clubs held meetings and new committees were chosen. The former council of the Aero-Club was back again, and Mr. A. Jager, secretary of the Hague Gliding Club for many years, was appointed secretary of the Gliding and Soaring Section of the Aero-Club.

FIRST POST-WAR MEETING

In July the commanding officer of the R.A.F. in Holland told us that all civil flying was allowed. Naturally we were very enthusiastic but it was not until September that we could make the first flights. It was very difficult to find an airfield, which was not either devastated or in use by the R.A.F. After a long search, we found a private airfield near Eindhoven, where we held a meeting from 8—15 September. 85 pilots made 474 launches by winch. Austers of No. 6 Dutch Auster Squadron towed 164 times our "Babies," a "Minimoa," a "Kranich" and "Goevier" two-seater. The object of the camp was the renewal of our licences. We found that most pilots had not forgotten the art in those five years they were grounded.

To-day gliding is possible on only 2 airfields, and to give an example the members of the Hague Gliding Club have to make a 100-mile journey for a gliding week-end.

H. SCHWING.

THE HISTORY OF THE YORKSHIRE GLIDING CLUB

(*Continued from Page* 18)

1938 also saw the formation of our first "Subsidiary Branch," where training up to "A" and "B" standard could be attained. This branch, located at Sunderland, under the Chairmanship of Mr. J. Maw, with Mr. H. D. Hartness, the able and hard-working instructor, became a very important "feeder" to the parent club, and many "C"s were gained at Sutton Bank by this very lively group.

A second similar Branch Club was formed in the opposite direction at Penistone in the West Riding. Here under the guidance of Mr. C. Brooke a successful scheme of training was inaugurated, greatly assisted by the gift of a hangar by a local supporter, but this was interrupted by the commencement of hostilities just as it was producing splendid results.

A.T.C.

In 1939 the Club undertook the training of Air Defence Cadets, and Mr. A. M. Verity, our Chairman, joined the Bradford Squadrons as Liaison Officer between the Club and the Cadet Wing. It so happened, however, that he gradually found himself teaching the Cadets on the parade ground and in the lecture room instead—as he had hoped—assisting them to learn the rudiments of Gliding. Three camps of a fortnight each were held before the war stopped further activity in this direction, with 20 Cadets attending each course together with one or two of their officers. They were given full board and accommodation and received long hours of training each day, except for the few days when the weather prevented flying. Out of 20 Cadets at the first camp 18 qualified for the "A" Certificate and the training at the subsequent camps was equally satisfactory.

THE COST

Looking back upon the record of the Club we are very proud to have played some part in the early training of R.A.F. and Glider Pilots, who served their country when they were so badly needed.

It is with profound regret that owing to war casualties there will be several gaps in our ranks and that of other Clubs, but we can only hope that some of the new generation will assist us to keep the flag and sailplanes flying.

When the ban of Gliding is lifted on 1st January, 1946, we shall be in a position to resume gliding activities again, but owing to the uneconomical costs of training *ab-initio* pilots, this form of training has been suspended for an indefinite period until the Government allocate a subsidy to the Gliding Movement. Training in two-seater and solo machines will be continued, however, for approved aeroplanes and glider pilots.

In conclusion we hardly need to say that the Club looks forward to another successful decade of gliding and is tackling cheerfully many problems confronting us with all the old confidence and enthusiasm.

NEW GLIDER MANUFACTURING COMPANY.

HAWKRIDGE AIRCRAFT COMPANY

Messrs. H. E. Bolton and E. P. Zander announce that they have formed a new glider manufacturing company and hope to obtain production space near Denham airfield, familiar to many Glider Pilots in the war as a satellite airfield to the Elementary Flying School at Booker.

The Registered Office of the new firm is at 68, Victoria Street, S.W.1, Tel. Victoria 9132.

It is understood that the first machine will be produced in borrowed production space and be ready for tests in February. It is a new side by side two seater, expected to sell at about £450. The news has already been well received in Gliding circles and there have been several enquiries for the new type.

Both principals were well known before the war as ground engineers and designers, and it is no disrespect to Mr. Zander to state that Mr. Bolton has a reputation second to none for knowledge of construction and airworthiness.

LETTERS TO THE EDITOR

H.Q. 2 Wing G.P.R.,
R.A.F. Station,
Finmere, Buckingham.
16th Nov., 1945.

DEAR SIR,

I looked in vain in the November SAILPLANE for a reply from a more authoritative pen than mine to Charles Wingfield's letter in support of solo training. So here, for what they are worth, are the points of argument as I see them.

I can find only three valid arguments in favour of solo training. Operations can be started (1) with comparatively small capital outlay, and (2) without a pilot-instructor. (3) The pupil does not have to cope with the change-over, perhaps for his first solo, from a large two-seater to a small single-seater. The weight of this objection to dual training can only be assessed when we have had experience of the latest two-seater training sailplanes, which may well be found to handle more like a good single-seat trainer than does a primary.

The arguments, in my opinion overwhelming, in favour of dual training follow.

Pure Merit (apart, that is, from considerations of economy or convenience).

1. The "dual" can be taken straight over the soaring site, there to learn the art of controlling a sailplane as far from the ground as may be. This he does in the best possible conditions, that is in the disturbed air of the slope lift or thermal currents, and is therefore in no danger of being taken unawares by the first gust encountered in solo flight after ground-slides and hops in the smooth air over a flat field. He is given experience, too, of the stall and unaccustomed attitudes of the aircraft.

2. He then approaches the tricky business of landing and take-off, and in due course his first solo (which need be no more than a "hop"), not only with the confidence derived from the knowledge that he *can* fly, but with complete mastery of the attitude and direction of his aircraft, and with accustomed reactions in place of the nervously-remembered rules of thumb with which he otherwise has to face situations entirely new to his experience.

3. Turning, stalling, spinning and piloting technique in general can surely be demonstrated and taught more expediently in the air than from the ground.

4. It is sometimes argued that the solo pupil gains more confidence from the start: but of what use is confidence without experience? Spectacular in the extreme is the departure of this confidence at the top of the pupil's first high launch.

5. It has also been said that the use of controls is best learnt on something crude and sloppy. Granted that some of our finest pilots started on open primaries, but surely they acquired their "good hands" in spite of and not because of this.

6. Dual training can proceed on many days which are too rough for ground-slides and hops.

7. Apart from this the rate of training of an individual is surely greater in an aircraft which spends so much more of its time in flight.

8. The bruised bottoms and crumpled carpentry associated with ground-slides and early hops are eliminated.

Economy—Financial.

9. With solo instruction, at any rate in the early stages, the aircraft have to cover the same distance on the ground being towed back to the starting point as they cover in slides or in flight. With dual instruction aircraft can normally land in the vicinity of the take-off point. The resulting reduction in wear and tear, as well as the practical elimination of crashery, obviously account for the difference in annual cost of aircraft quoted on page 12 of the SAILPLANE for November (2-seater £90, Primary £125).

10. But a 2-seater spends as much or more time on the job than a battery of say three single-seaters operating from one winch. Allowing for one machine undergoing repairs and 50 per cent. more flying days for the 2-seater, the annual aircraft cost of the equivalent number of primaries rises to 6 + £125 = £750, or of secondaries to 6 + £100 = £600. I would prefer to put the annual cost of the 2-seater at £200, but assuming the same number of pilots turned out (and I would back the 2-seater to turn out more) this still leaves the aircraft cost of dual training at 1/3 that of solo training. Further, the advantage of lower capital cost of single-seaters is lost when they, and retrieving apparatus, are multiplied for this set-up.

11. There is a further, and very considerable, economy in fuel and wear and tear of winches and retrieving cars with dual training and aircraft landing in the vicinity of the take-off point.

Economy—Instructors' Time.

12. Assuming a solo training set-up which turns out pilots at the same rate as a 2-seater trainer, it would appear that the cost in instructors' time would be the same. But this is not the case. With solo training an instructor is required at the take-off point to coach pupils and send them off; but it is well known that the winch driver for slides and hops must have considerable skill and experience—sufficient to classify him as another instructor. With dual training no such skill and experience is required of the winch driver, and he may be dispensed with if bunjy launching is used during soaring conditions. Hence the cost in instructors' time is halved with dual training.

Practical.

13. The solo method may conceivably be adopted by a gliding school laid out primarily for training, on an aerodrome or very large flat field. A soaring club which undertakes training may have no such field available and in any case may not have the resources to run a separate school. In such cases the dual method, operating at the soaring site, very clearly has the advantage.

Yours faithfully,
R. E. PEARS, Capt. A.A.C.

ANNOUNCEMENTS

LEICESTER GLIDING CLUB

An aerodynamic course with windstream models is being instituted, also a construction group. Those interested should get details from the Secretary, who will also supply details of the visits, etc., arranged for the summer, Leicester Gliding Club, Park Road, Blaby, Leicester.

Lectures: Senior Cmdr. Phillip Wills, Feb. 2nd, and S./Ldr. R. Kronfeld, A.F.C., March 14th. Special Club Field Day, Feb. 3rd.

THE MIDLAND GLIDING CLUB LIMITED

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

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

Full particulars, booklets, etc., from Secretary, 87, Fargate, Sheffield, 1.

NEWCASTLE GLIDING CLUB, Ltd.

(founded Feb. 1930)

Applications for Membership now invited in Reorganised Post War Club.

Special Registration Fee 6/-

Ensures Membership when activities restart.

Further Particulars apply

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

THE SURREY GLIDING CLUB.

The Surrey Gliding Club will re-open near Redhill as soon as adequate facilities for members can be made available.

A further announcement will be made here giving details of aircraft, subscriptions, and other relevant information, when these can be finally determined.

The Secretary is: A. Dukinfield Jones, 23, Rose Hill, Dorking; but in the meantime, prospective members are kindly asked not to write for general information.

The Surrey Gliding Club is intending to offer full training and soaring facilities, with winch launching and aero-towing available throughout the week.

ROYAL AERO CLUB GLIDING CERTIFICATES.

We regret that owing to the large number of these now coming forward each month—in the matter of 250—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

THE YORKSHIRE GLIDING CLUB. SUTTON, BANK YORKSHIRE.

Full Flying facilities will be offered to all *Soaring and Power Pilots* on and after the 1st January.

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.

SOUTHDOWN GLIDING CLUB LTD.

We shall commence Gliding and Soaring again at the Devil's Dyke, on January 1st. Old members and prospective members should write for details to:

Hon. Secretary,
FLT/LT. S. G. STEVENS,
"SOUTHERLEA,"
MEADOW CLOSE,
HOVE, 4.

ON FORMING A GLIDING CLUB.

—(*continued from page* 10)

are by no means of a trivial character. He must be prepared to go through a good deal of drudgery, which us isually taken for granted.

He should be a person of tact, who can be trusted with both private and public correspondence. When necessary, and this is often, he answers questions and takes action upon his own account, but where possible he places important matters before the Committee for guidance.

He must be acquainted with the ordinary forms of business, have a sense of proportion and be a practical idealist. To get the most out of a secretary in a gliding club, he should be a non-flying member, otherwise he will not remain long in office and the continual change of secretaries is not good.

The secretary will convene all meetings and write up all minutes, unless there are sub-secretaries who will do this work for sub-committees, under the responsibility of the secretary of the club. He must discharge the duties required in connection with the registration of the club; the licensing laws; insurances, and the collection of all subscriptions.

The secretary's duties should be limited at meetings to reading letters, etc., thereby leaving the function of oratory to the Chairman. The secretary will have plenty to do coaching and priming others.

To describe all the detail work and obligations of the secretary would require an increase in the paper ration, so we will pass on and conclude with the Treasurer.

Treasurer. It is of great importance that the Treasurer should be a man with a practical knowledge of accountancy. A man with sound knowledge of this subject and a deep interest in the financial workings of a gliding club, can be worth his weight in gold (or post-war gliders).

In order to carry out his work efficiently he must keep in close contact with the secretary, and must have an exact record of all financial transactions. He should be able at any time to produce a statement of the debits; credits; assets and liabilities of the club.

A. P. M.

ROYAL AERO CLUB GLIDING CERTIFICATES

There were 226 "A" Certificates granted at the same Royal Aero Club Meeting.

		School.	Date taken
"*B*"	*Certificates* (33).		
3583	Albert Peter Berry	S.3 E.G.S., Macmerry	7.10.45
3595	Basil Sinclair	S.W. 81 E.G.S., Yeovil	14.10.45
3598	John Garth Stephens	N.W. 192 E.G.S., Little Sutton	14. 7.45
3601	Frank William Schrier	84 Group Gliding Club, R.A.F., Salzgitter	29. 9.45
3602	Reginal Gatford	Ditto	29. 9.45
3603	Albin Bratowski	Ditto	22. 9.45
3604	Alpha Delmour Curl	Ditto	22. 9.45
3605	Leslie Jack Pople	S.W.87 E.G.S., Weston-super-Mare	29. 9.45
3606	Robert Melvin McDougall	Ditto	30. 9.45
3001	Peter Alan Duggan	N.W.192 E.G.S., Little Sutton	30. 9.45
3543	Grace Winifred Bailey	N.W.185 E.G.S., Barton	14.10.45
2966	Reginal Alfred Moss	M.41 E.G.S., Knowle	13.10.45
3640	Richard Charles Birch	C.124 E.G.S., Aldenham	17. 9.45
3654	Marquess of Londonderry	203 E.G.S., Newtownards	14.10.45
158	Malcolm Sinclair	S.1 E.G.S., Dungavel	14.10.45
3692	Cyril Powell Choularton	B.A.F.O. Sailplane Club	14.10.45
3693	John Frederick Llewellyn Cartwright	Ditto	23. 9.45
3698	Arthur Hamilton Paget-Wilkes	C.130 E.G.S., Cowley	20.10.45
3701	Gordon Machell Chapman	B.A.F.O. Gliding & Sailplane Club	13.10.45
3702	Michael Thomas Judd	Ditto	5. 8.45
3722	Edward Neville Bradley	84 Group Gliding Club, R.A.F.	19.10.45
3723	William Anthony Ingram	Ditto	22. 9.45
3737	Ralph William Furness	C.125 E.G.S., Denham	4.11.45
3751	Steward Dalton Henderson	S.9 E.G.S., Errol	2. 9.45
3699	Percy William Nutt	C.130 E.G.S., Cowley	4.10.45
2935	Maurice Riddihough	M.41 E.G.S., Knowle	13.10.45
3767	Philip Ross Thompson	M.41 E.G.S., Knowle	7.10.45
3771	Leonard Ainley	84 Group Gliding Club, R.A.F.	13.10.45
3772	Bernard Jacob Pekar	Ditto	29. 9.45
3773	Kenneth James Gillings	Ditto	7.11.45
3788	Arthur William Webb	M.49 E.G.S., Derby	11.11.45
3793	Aubrey Eric Gibson	W.65 E.G.S., Cardiff	11.11.45
3796	Anthony William Smith	Eastern Command, A.T.C.	11.11.45
"*C*"	*Certificates* (8).		
3701	Gordon Machell Chapman	B.A.F.O. Gliding & Sailplane Club	23.10.45
3702	Michael Thomas Judd	Ditto	6.10.45
1506	Donald Morison Holman	U.S. 142nd Infantry Gliding School, Teck, Germany	25.10.45
2120	Otto Heller	C.126 E.G.S., Booker	14.10.45
3722	Edward Neville Bradley	84 Group Gliding Club, R.A.F., Salzgitter, Germany	19.10.45
3723	William Anthony Ingram	Ditto	22. 9.45
1957	Malcolm Sidney Cross	S.9 E.G.S., Errol	26. 8.45
3711	Leonard Ainley	84 Group Gliding Club, R.A.F., Salzgitter	23.10.45

EDITORIAL—*Continued from page* 1.

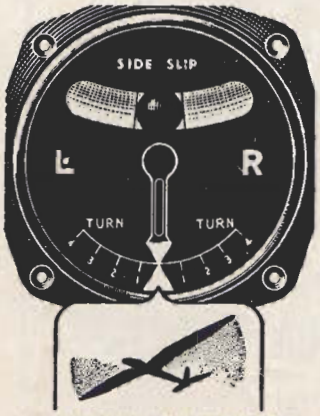
goal flight (destination announced beforehand) from Dunstable to Lympne Aerodrome in 1938, or his goal flight of 162 miles from Bradwell Edge (Derbyshire) to Southend Aerodrome during the 1939 Competitions. Or Philip Wills' record flight from Heston to St. Austell in Cornwall, when he had planned his route every mile of the way, and had worked out the necessary average speed for every hour of the six plus that he was in the air.

The Contests should give the newcomers to civil sporting gliding an insight into the real thing.

Lastly, it is hoped that too much time will not pass before some form of International Soaring Competitions are resumed, and when they are it is sincerely hoped that this country will be able to put forward a team, well prepared and practised, to take part. But the best experience for contest flying is contest flying, and this year could give some much-needed practice.

As stated earlier, it will not be easy either to run the contests, or for many to take part in them, but with hard work and co-operation it should be possible. The result may produce nothing spectacular, but it will at least provide a start, a breaking in, to those which will follow.

Essential Equipment

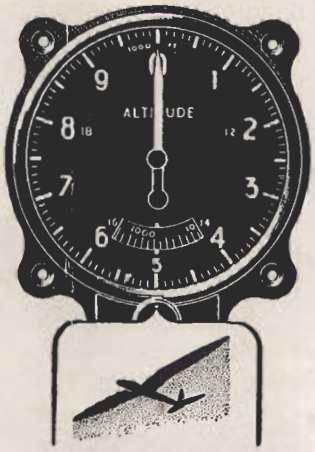


TURN & BANK INDICATOR

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

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THE "OLYMPIA" SAILPLANE

OUTSTANDING PERFORMANCE
SUPERLATIVE CONTROL
FULLY AEROBATIC

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

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