SAILPLANE

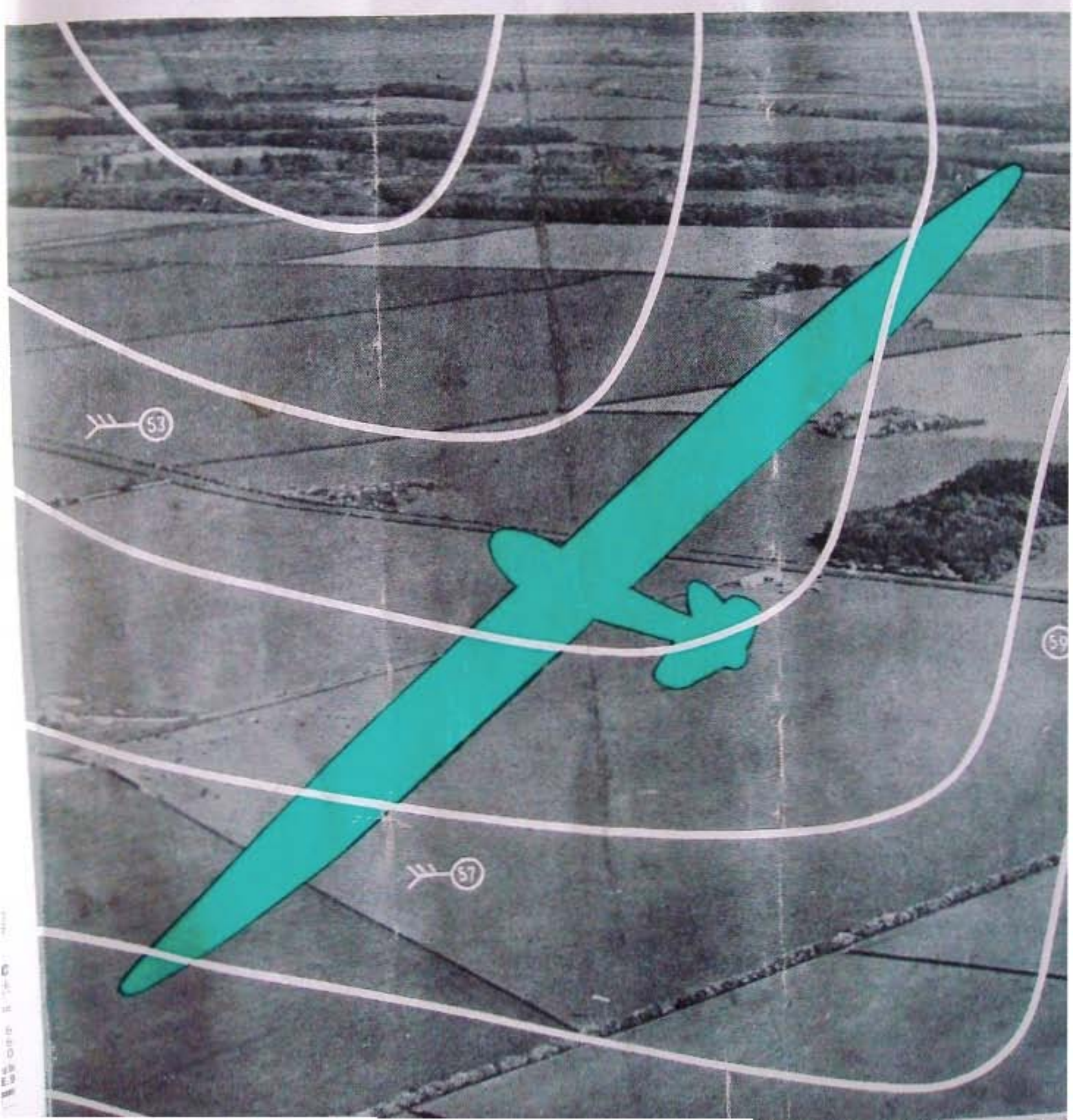
MARCH
1936
Vol. 7 No. 3

AND GLIDER

PUBLISHED
MONTHLY
Editorial Offi
13, Victoria St., S.

Official Organ of the British Gliding Association

EDITED BY ALAN E. SLATER



SLINGSBY SAILPLANES

Now the KIRBY KADET ! !

(Span 40 ft.; Chord 4 ft. 6 in.; Weight 260 lbs.)

Designed to fulfil the demand for a simple type of secondary machine to supersede the Prüfling and Hols.
Simplicity of construction for economy in maintenance and repair.
Quick assembly.
Robust construction for rough handling.
Stable in flight, yet responsive on controls; excellent lateral control.
Good view for pilot.
Can be flown with safety in strong winds, with good performance in light winds.
Fitted with safety harness.
A machine suitable for Clubs or private owners.
Price with C. of A. **£85.**

PRIMARY	**£52 10s.**	With C. of A.
FALCON	**£130 0s.**	
GRUNAU BABY TYPE	**£125 0s.**	
KIRBY KITE....	**£145 0s.**	
FALCON TWO-SEATER	**£200 0s.**	
HJORDIS	**£190 0s.**	

Several machines in stock, our well equipped works can give quick deliveries of all types.
MATERIALS, FITTINGS, SPARES, TRAILERS.
Free advice on Club formation, choice of sites, training methods and equipment.

AERO PLYWOOD—Specially manufactured with damp resisting cement film, and to give maximum torsional strength. Both surfaces sanded to a high finish.
1.0 mm. and 1.5 mm. thicknesses, 4½d. per sq. ft.
2.0 mm. thickness, 4¾d. per sq. ft. Carriage forward. Write for samples.

SLINGSBY, RUSSELL & BROWN, LTD.
KIRBYMOORSIDE, YORKS.

CELLON DOPE

for SAILPLANES AND GLIDERS

Cellon Ltd., Upper Ham Road, Kingston-on-Thames

Phone No.: KINGSTON 6061 Telegrams: "AJAWB, PHONE, KINGSTON-ON-THAMES"

THE SAILPLANE *and* GLIDER

Official Organ of The British Gliding Association

Editorial Offices: 13, VICTORIA STREET, LONDON, S.W.1 Telephone: ABBEY 2615-6-7

Vol. 7 No. 3 MARCH, 1936 Published Monthly

Gliding Instruction

THIS is the time when holidays are being planned, and there are doubtless many readers who would be glad of an opportunity to get gliding instruction in a more concentrated and continuous form than that obtainable at week-end club gatherings. To that end it would be of advantage to summarise what instruction courses are available, both in this country and out of it, as far as our present information goes.

Instruction in England

At Dunstable, the London Gliding Club is organising an instruction camp of seven days' duration to include Whitsuntide (Whit Sunday being May 31st), and another for a period including the August Bank Holiday (which is August 3rd). Application should be made to the Club Secretary at 13, Victoria Street, London, S.W.1.

The Yorkshire Gliding Club has announced a fortnight's instruction camp to take place at Sutton Bank, near Thirsk, from Sunday, August 2nd, to Saturday, August 15th, inclusive. The fee for the course, which covers flying instruction, meals in the clubhouse and full camping accommodation, is £12 12s. for the 14 days. A seven-day course can be taken for £7 7s., but the full course is recommended where possible, especially for novices. Early application should be made to the Assistant Hon. Secretary of the club at Aspen House, Driffield, Yorkshire.

The Hon. Secretary of the Southdown Gliding Club (7A, First Avenue, Hove, 3, Sussex) writes that the club is arranging a four-day instruction camp at Easter. The fee for flying instruction is a guinea, and visitors make their own arrangements for accommodation.

Instruction Courses Abroad

In Germany all the gliding schools are under State control, and our latest information is that only the Grunau school in Silesia is allowed to take a certain number of foreigners. Perhaps the best course for intending pupils would be to write to: Leitung der Segelfliegerschule, Grunau i. Rsgb., Schlesien, Germany.

The Austrian Aero Club runs a gliding school in delightful surroundings near Salzburg, and welcomes foreign pupils. The Anglo-Continental Express Co., Ltd., 177, Regent Street, London, W.1, will make all arrangements at an inclusive fee for anyone going from this country to attend the courses, which last just under three weeks each. The charge is £16 18s. for the beginners' course, and £21 8s. for the advanced course, and the fee includes third class travel (second on boat) from London to Salzburg and back, board and accommodation at the school, and flying fees.

Forthcoming Meetings

EASTER.—Derbyshire and Lancashire Gliding Club At Home to private owners and clubs at Camphill, Bradwell Edge, Derbyshire; contest for *Daily Dispatch* prize of £25.

WHITSUN.—Yorkshire Gliding Club at Sutton Bank; open meeting with competitions, May 30th to June 2nd, inclusive.

AUGUST BANK HOLIDAY.—Yorkshire Gliding Club; open meeting with competitions, Saturday, August 1st, to Monday, August 3rd.

B.G.A. COMPETITIONS.—The date of these has not been definitely fixed, but as we go to press it appears almost certain that they will be held about the end of August, probably at Sutton Bank, for a period including two week-ends and the week between. In this case the period would be either August 22nd to 30th, or August 29th to September 6th.

GERMANY.—The National Soaring Competitions will be held on the Wasserkuppe, in the Rhön Mountains (Central Germany), from August 16th to 30th. The annual model glider meeting will be held at the same place at Whitsuntide, May 30th to June 1st.

OLYMPIC GAMES.—At the opening ceremony at Berlin on August 1st, 12 sailplanes will be towed by four aeroplanes over the Stadium, where they will cast off and respond to orders by short-wave radio from the ground. On the morning of August 4th there will be a soaring demonstration, open to international participation.

HUNGARY.—The annual meeting of the "Istus" (International Commission for the Study of Motorless Flight) will be held at Budapest from May 18th to 24th inclusive. Nine papers and reports, lasting 45 minutes each, will be read.

U.S.A.—The seventh annual national soaring contest will be held at Elmira, N.Y., from June 20th to July 5th inclusive.

INTERNATIONAL CONTEST.—There will be none in 1936, but plans are under way for an international contest in 1937, sponsored by the Aero Club of Germany.

Correspondence

Temperature Measurement: A Suggestion

SIR,

There is, I am told, a desire to find some means of measuring, and recording, the varying temperature of the air passed through in flight.

I suggest an instrument similar to a recording aneroid barometer except that the metal box, instead of being evacuated, should contain a few drops of some suitable liquid and, of course, its vapour. The pressure within the box would then be determined entirely by the temperature and would serve to record it. The movements of the diaphragm and needle would also, of course, be influenced by the variations of pressure of the atmosphere outside the box, but these would be known from the readings of an adjacent barometer, also recording.

What would be the most suitable liquid depends upon the requirements of the diaphragm makers about which I know little. Perhaps Isopentane would do as it has a vapour pressure of 164 mm. of mercury at −10° C., 257 mm. at 0° C., 390 mm. at +10° C., and 572 mm. at +20° C.

The time lag of such an instrument should be small since but little heat has to be absorbed to raise the temperature. The amount of substance changing state from liquid to vapour or vice versa is very small, with a correspondingly small latent heat, and the metal box can be very light and so have small heat capacity. Its conductivity, too, would be helpful. Experience with an instrument based on the same principle (but without diaphragm) indicates that it is rapid in its response.

I am sorry that I have no facilities for experiment with aneroid boxes, but if anyone who has finds the suggestion helpful, I shall be very glad.

L. J. HUDLESTON,
"Greystoke," Llandre, Cards.

Keeping to the Rising Air

SIR,

So far as present-day soaring depends on rising patches of air and on the glider preferring to steer into those patches, the natural tendency of a glider must be to do the wrong thing. How that is so is easily illustrated. Suppose the glider has an ordinary angle of incidence of three degrees and a headway of 37 feet per second, and suppose it suddenly enters air rising one foot per second on the left and descending one foot per second on the right. The acting angles of incidence on the left and right wings are then altered from three degrees to (3+57·3/37) and (3−57·3/37), or to (3+1·55) and (3−1·55), or to 4·55 and 1·45 degrees respectively. The lift on the left being then about three times as much as on the right makes the glider tilt right-handedly as viewed from the rear, and because that develops a horizontal component of the lift, acting to the right, the glider necessarily circles to the right and *into the falling air*. Of course, it goes to the ground faster than if there had been no opportunity for soaring. Of itself it is therefore an *anti*-soarer.

In THE SAILPLANE AND GLIDER of March, 1935, Mr. Wills attested the above kind of happenings in his practical experience, and explained how, as a consequence, good results were obtainable from discerning on which wing the air was rising and then making the glider do just the reverse of what it apparently wanted to do. In the example above assumed the glider needs steering to the left, into the rising air, against its natural inclination to go to the right.

Perhaps the more expert pilots need no aids to their sensitive discernment of the side of the rising air and of the manœuvre they should adopt, but for the majority the case may be different. For them what is wanted may be something which will distinguish the rising air on the left from the falling or relatively falling air on the right, and then suitably operate an indicator the pilot can see. Of several arrangements that can be thought of the most promising may possibly accord with the following description: On the left and right wing extremities are to be added two miniature ailerons or detectors hardly one square foot in area. These are connected across the glider by the usual warping cables, but very slender ones; and these cables, usually connected to the control lever, are connected to an instrument needle before the pilot, possibly through some fluid or magnetic damping to suppress insignificant wagglings. The connection is such that on the left-hand miniature aileron warping up/down and the right-hand miniature aileron warping down/up, the needle is moved to the left/right. Then, when the glider enters the air of the example, while the pilot keeps the lateral pose substantially level or free from sudden change, the left-hand small aileron blows up through 1·55 degrees and the other similarly down, and the needle is moved to the left, say, two divisions. By that the pilot is to understand he is to steer to the left and so into the rising or relatively rising air—straight for the centre of the rising column when the needle is brought to zero.

The general rule for the pilot must be to keep substantially level or steady by the main warping and steer left or right as the needle directs, so as to keep the needle gently hunting after zero. It may be desirable a little to augment the spread of vertical surface near the cockpit to help the steering couple of the rudder, to the extent that quite full and prompt banking is not being adopted. And although miniature ailerons have been described, it may be better to fix the little detector surfaces near the ends of yard-long wooden rods, frames or levers, to make them work more decisively. But whatever might be the defects or failures of this particular proposal, it does seem possible that further advances in soaring may arise from developing sensitive appliances that will direct and aid the pilot in doing the right things.

S. L. WALKDEN.

In Short

The Pace Grows Furious.—The 200th international "Silver C" certificate was granted on February 15th. The new list includes 19 Poles.

* * *

Flowerpots Go Soaring.—On February 4th, during a whirlwind in the Tremolat district, near Bordeaux, a woman about to enter a grocer's shop was astonished, says a Press report, to see a row of flowerpots drawn up into the air and whisked away over her head.

Modifications to "Minimoa"

[The high-performance sailplane "Minimoa," or "Göppingen 3," was described in our October issue last year, page 167. The designer is Wolf Hirth, who has already performed several fine flights in it, including one of 261 miles. The machine is produced by Sport-Flugzeugbau Göppingen, Württemberg, Germany, under the direction of Martin Schempp, who now sends us the following additional particulars of the production model.—ED.]

As a result of experiences gathered during the past year with the sailplane GÖPPINGEN 3, various alterations and improvements have been undertaken, which are here briefly summarised.

The employment of split flaps (landing flaps) on the under side of the wing was shown to be imperative for reducing the landing speed. These flaps, which have a total area of 1·2 sq. m. (12·9 sq. ft.), can be turned through 90 degrees, and are actuated by a lever inside the cockpit. The split flaps are built up entirely of steel tubing. The ribs of the flaps, arranged diagonally, are of 5 mm. steel tube, and are welded to a steel tube spar, which serves to actuate the flaps.

The pendulum elevator proved to be too sensitive at high speeds, so that in future a damped elevator only will be fitted.

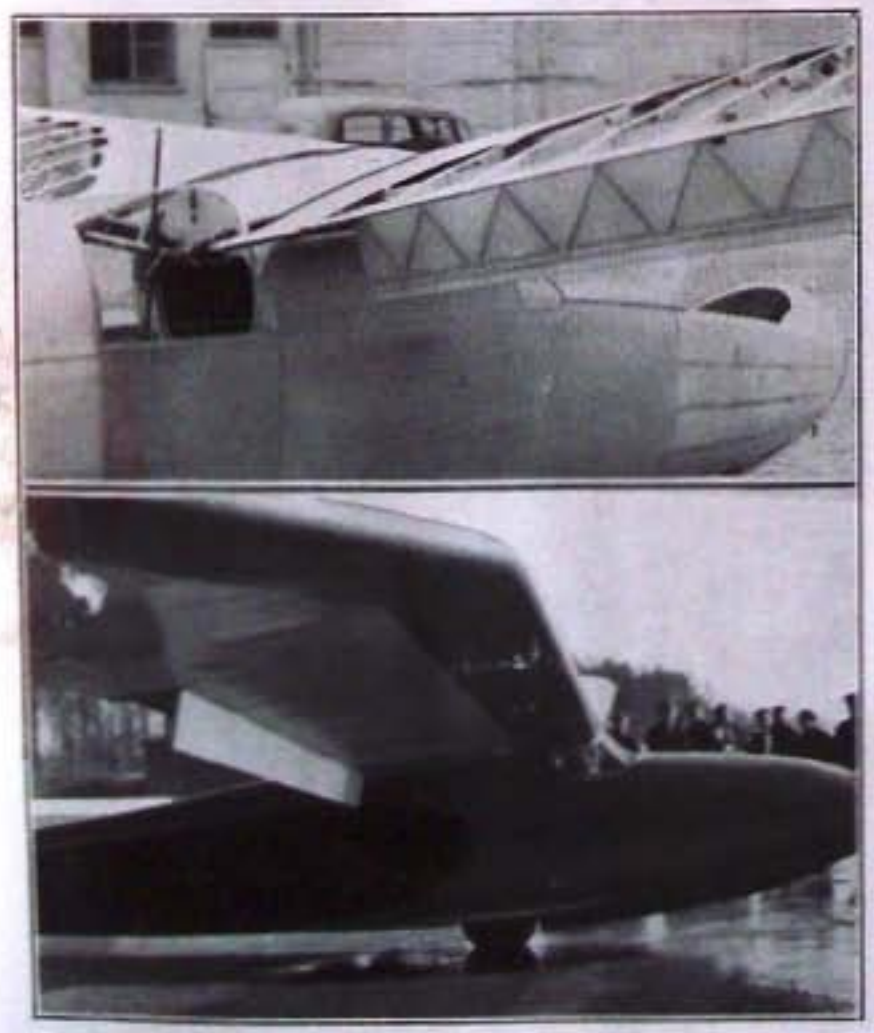
The forward part of the fuselage has been somewhat strengthened, and has double plywood walls.

The rigidly built-in single wheel landing gear has proved itself well. A balloon tyre, 38 × 15 cm., runs between two ash supports, and is provided with a simple brake. During flight the brake lever lies forward on the cabin floor, and it is only brought into use when landing. If desired, a foot brake can be fitted between the rudder pedals.



The "Minimoa" makes a sharp turn.

Special attention must be called to the useful speed range of the GÖPPINGEN 3. It extends over 70 km.: that is, from 50 to 120 km. (31 to 75 miles) per hour. At a forward speed of 60 km. (37 miles) an hour the minimum sinking speed of approximately 60 cms. (2 feet) per second is attained. By increasing the speed to 75 miles an hour, the sinking speed is only raised to 2½ metres (8 ft. 2 ins.) per second. By bringing the split flaps into action a landing speed of only 45 km. (28 miles) an hour is obtained.



The "Minimoa" (type "Göppingen 3") is provided with split flaps which can be brought into action to reduce the landing speed, as well as steepen the gliding angle during an approach.

Gliding Certificates

The list and table of gliding certificates, published in our last issue, were compiled from the official returns issued by the Royal Aero Club.

The Midland Gliding Club states that the table underrates their true position, largely no doubt because not all of those who made the necessary test flights have applied for or received certificates. The actual *qualifying flights* made by club members during the year were: 26 "A," 15 "B" and 3 "C," making a total of 44.

The Secretary of the Southdown Gliding Club also writes that several club members have done qualifying flights but not yet been granted certificates; if these are included, the figures for the year are: 8 "A," 4 "B" and 6 "C" (H. J. Dunning, N. T. Whiteman, R. J. Parsons, L. E. Hatcher, A. R. Jameson, W. E. Filmer).

A correspondent writes expressing surprise at the Southdown Club's claim, in their Annual Report, to a total of 60 "A," 30 "B" and 21 "C" certificates, and quotes the Royal Aero Club's official returns for this club as being: in 1932, 2 "B's"; 1933, 1 "C"; 1934, nil; 1935, as already given. It should be explained that the Southdown Club was formed in March, 1932, from an amalgamation of various clubs which had been operating in different parts of the South Downs, and evidently the certificates obtained by members of these clubs (possibly, in the case of some "B" and "C" certificates, after the amalgamation) are included in the totals.

A Review of 1935

By P. A. WILLS

(continued)

5—Sailplanes in 1935

A BRIEF review of the characteristics of nine current machines flown during the past year may be of interest. These are: SCUD II., GRUNAU BABY I. and II., CAMBRIDGE, KIRBY KITE, FALCON I. and II., FALCON III., RHÖNBUSSARD and HJORDIS. I propose to base these remarks on the following table of characteristics, and for interest I have added to it the apparent characteristics of the RHÖNADLER and RHÖNSPERBER.

TYPE	WEIGHT (lbs.)	STALLING SPEED (m.p.h.)	MIN. SINKING SPEED (ins. per sec., approx.)	SPAN (ft.)	NO. OF PERSONS TO OPERATE (incl. pilot)	ESTIM. FLYING SPEED (m.p.h.) at 2 metres per second sinking speed.	CONTROLS (grouped in four classes)
Scud II	220	26	35	40	2–3	45–50	Class IV (medium)
Grunau Baby I ...	240	24	30	45	4	45–50	Class I (excellent)
Grunau Baby II ...	280	26	35	47	4	45–50	Class II (good)
*Cambridge ...	285	25–6	35	47	4	45–50	Class I (excellent)
*Kirby Kite ...	270	25–6	30	47	4	45–50	Class III (fair)
Falcon I	280	25–6	35	41	4–5	40–45	Class II (good)
*Falcon III (2-seat)	380	25–6	34	58	6–7	40–45	Class II (good)
Rhönbussard ...	305	29	29	48	5	55–60	Class I (excellent)
*Hjordis	310	31	24	51	3	60–65	Class III (fair)
Rhönadler... ...	375	26	23	57	6–7	55–60	Class I (excellent)
Rhönsperber ...	360	38	29	53	3–4	70–75	Class I (excellent)

(* NOTE.—Machines starred were the first of their type; consequently subsequent machines may be expected to be improved in detail, which should be borne in mind when reading the following remarks.)

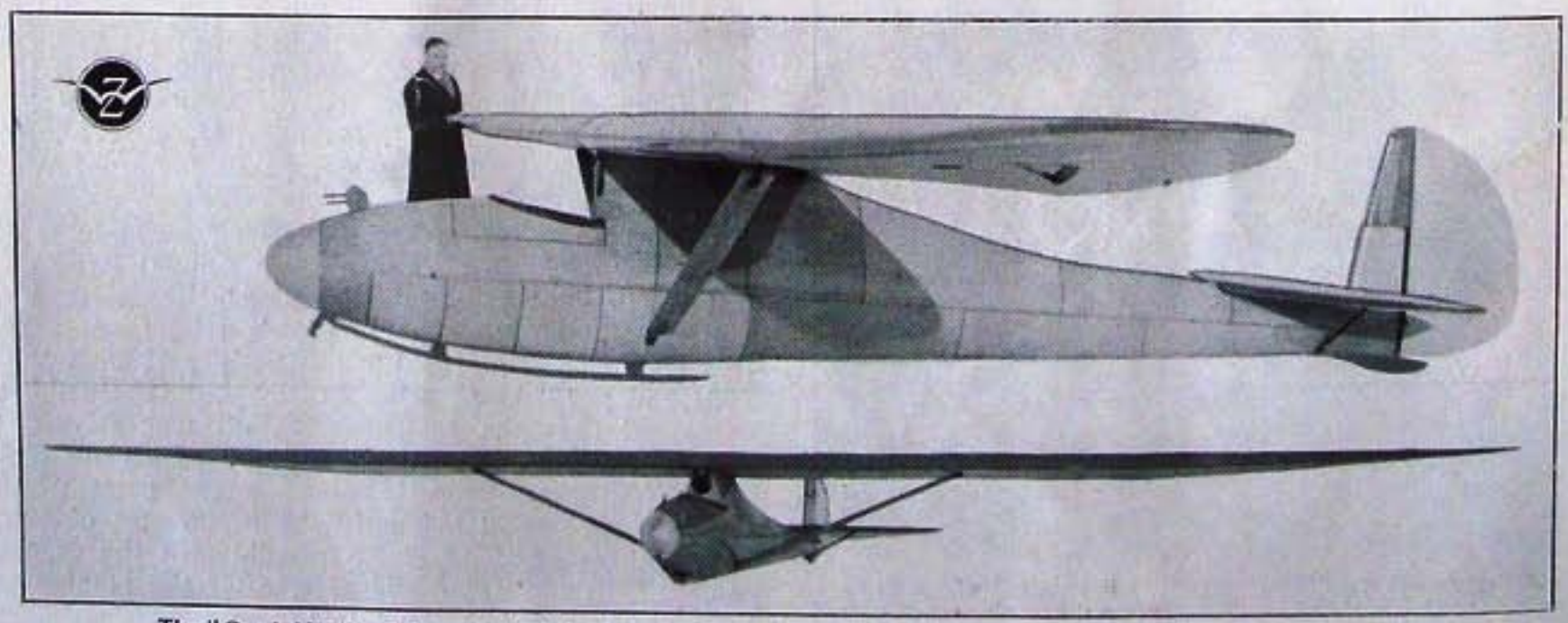
A—The Intermediate Sailplanes

It will be apparent from this list that nearly every machine possesses one or other merit which distinguishes it from the rest.

To start with our old friend, the SCUD. This is probably now the oldest design on the list. Her merits are her lightness and handiness on the ground, and her delightful "cockle-shell" feeling in the air. She feels quite unique, like an air canoe, which sensation is belied by her actual robustness. She has stood up in her time to the most horrific drift landings, which would have produced in the much-vaunted GRUNAU BABY a passable imitation of a baked whiting.

By modern standards her controls are poor. The ailerons are too slow and stiff in action; the elevators adequate but, being exactly balanced, are without "feel"; the rudder is just right—emphasising the lack of homogeneity or balance in general controllability. But she is a sweet gipsy owner-pilot's machine.

The GRUNAU BABY I. on my list is the London Club's Desoutter machine. It is some 40 lbs. lighter than a G.B. II., and, whether or not due to the supreme



The "Cambridge" sailplane, designed and produced for the private owner by Messrs. Zander & Weyl, of Dunstable.

workmanship of the constructor I cannot judge, she has a performance and controllability nothing short of marvellous.

Assemblability not comparable with the SCUD.

The GRUNAU BABY II., as befits a school machine, is a compromise in all things. A fairly good performance; fairly heavy; fairly handy; fairly good controls; and only fairly robust, at least in sideslip landings.

The remaining relations are variations on this theme. The CAMBRIDGE, with a monocoque fuselage, has better-balanced and sweeter controls—in fact in that respect I put her in the top rank. The one I flew, possibly because it was the first of its type, seemed to have an unexpectedly mediocre sinking speed, probably having come out on the heavy side.

The KIRBY KITE, on the other hand, seems to have an unexpectedly low sinking speed. Again I flew the first machine off the stocks, and thought the balance of controls only fair. From what I have seen of the second of the type, in the air, she is now improved in this respect, and may have gone up to Class II., "good." From the point of view of looks, she is certainly the beauty of the family.

Last on the intermediate list we come to the FALCON family. The single-seaters, FALCON I. and II., are pretty indistinguishable—to the occasional pilot, anyway. Their special characteristic is well known, and in my opinion their wonderful stability and general ease of flying make them the perfect school machine—except, on crowded sites, for their blindness. This can be partly cured by celluloid panels in the centre-section.

The FALCON III. is a marvel. In spite of her size and weight she is as sweet and reasonable as the single seaters, and, for those moments when the beauty of the world unshared produces an ache in the pit of the stomach, she provides the cure. She is the perfect machine for dual instruction, and is going to open many people's eyes to the possibilities of this method of training in the near future.

By their nature the FALCONS are all brutes to assemble and dismantle.

These intermediate machines therefore seem to satisfy the following demands:—

1.—SCUD II.: For the sporting "gipsy" type of private owner of moderate means.

2.—KIRBY KITE: For the private owner of rather more ambition and with a larger car.

3.—CAMBRIDGE: Either a club machine or a syndicate of No. 1 type private owners.

4.—FALCON I. and II.: Club machine for instruction immediately after the primary stage; also perfect machine for staider private owners who want lots of fun without the sterner emotions.

5.—GRUNAU BABY II.: Second stage club soaring machine.

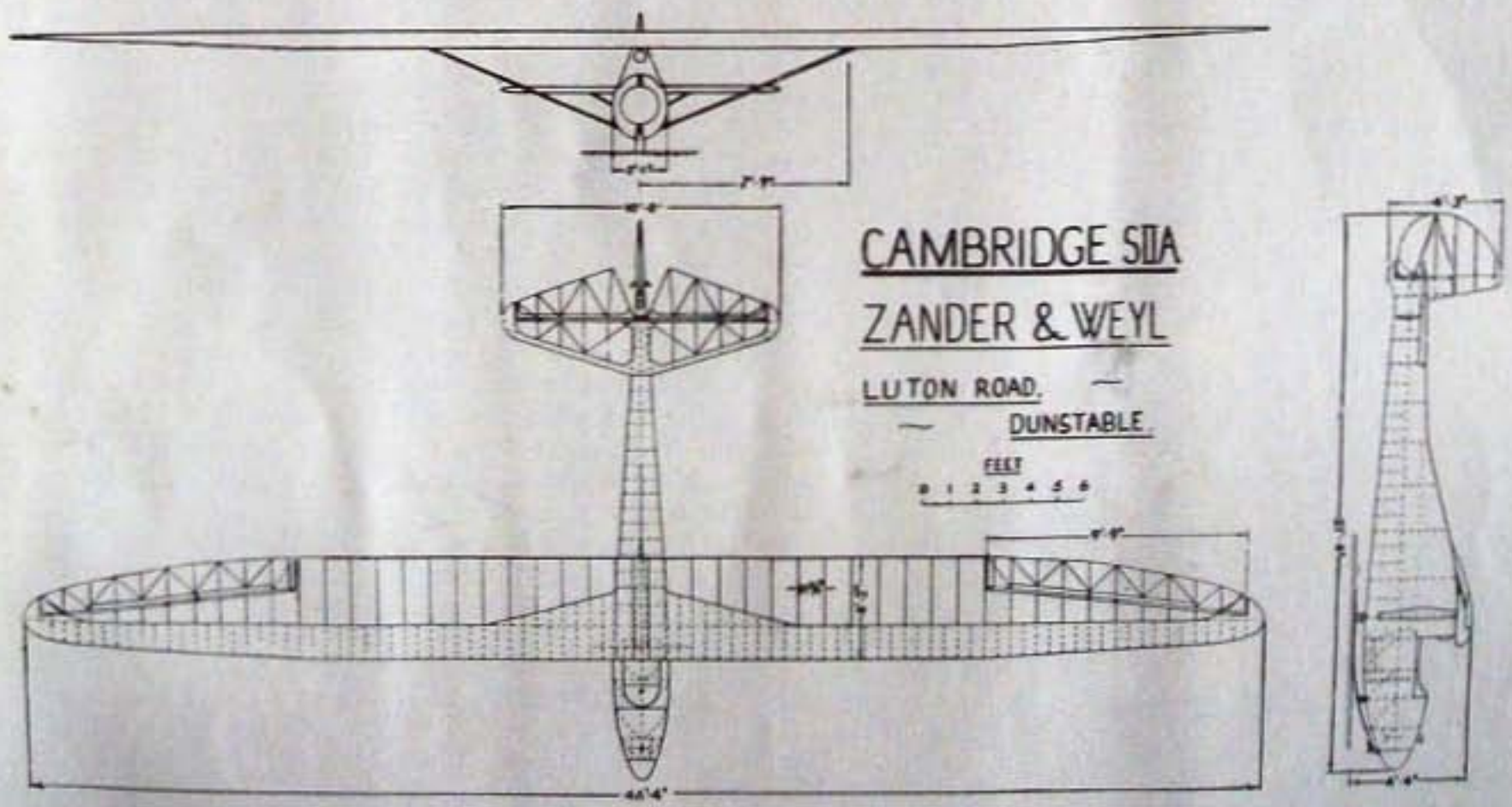
6.—FALCON III.: Dual instruction soaring machine, also for rich and companionable private owners of Class 4.

B—Advanced Sailplanes

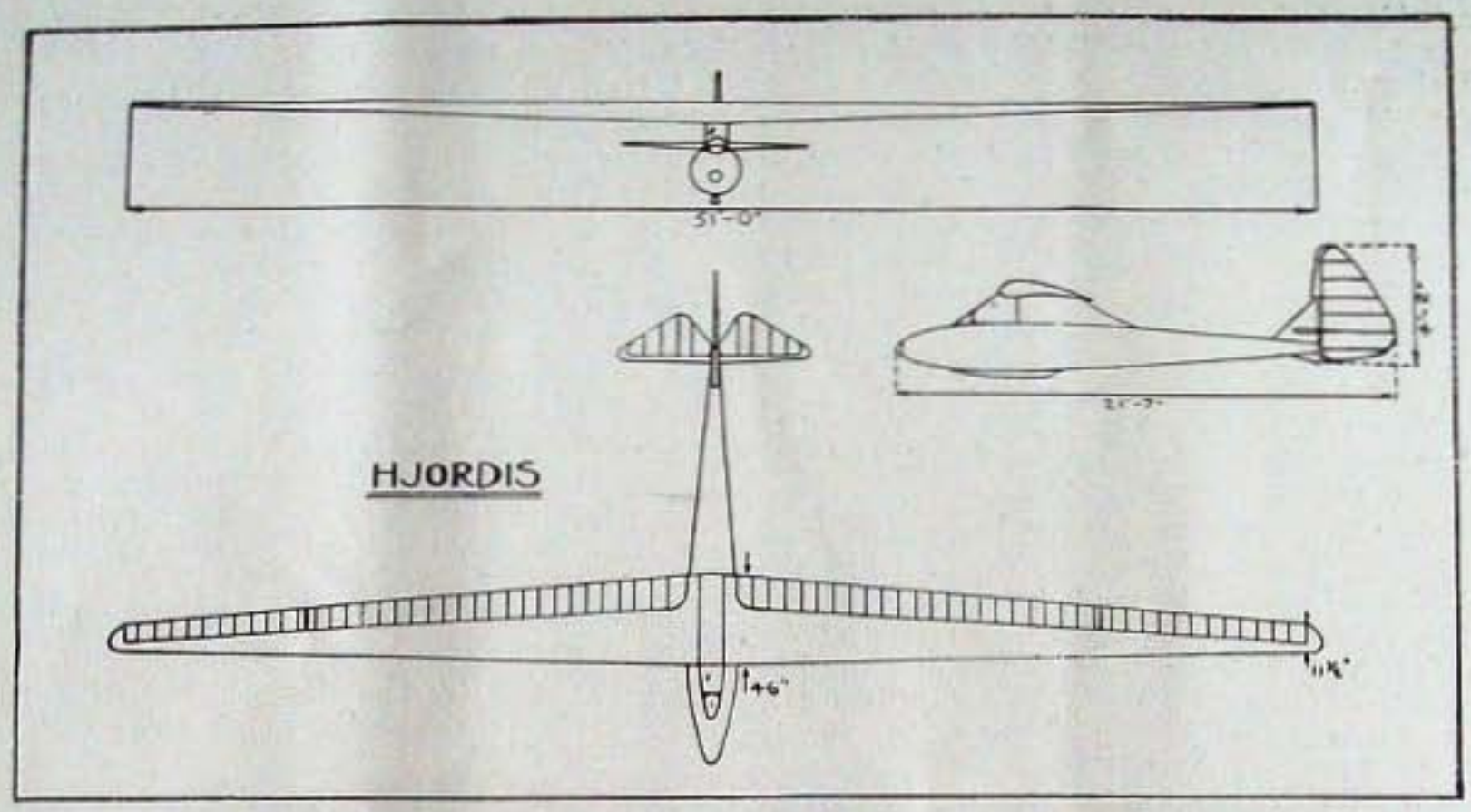
Coming to the advanced sailplanes, a new factor of some importance is introduced, that is "cruising speed."

I am defining this as the forward speed at a sinking speed of two metres per sec., since this is apparently the sort of average up-current found along a cloud-street, hence the speed at which one can economically set out on a cross-country flight, having reached one's cloud-street.

The latest German designs sacrifice a good deal in other directions in order to attain high cruising speeds.



The 1936 version of the "Cambridge" sailplane. It embodies certain improvements on the original "Cambridge," such as a reduction in weight and slightly larger ailerons. The wing area is 160 sq. ft.; approximate weight, without instruments, 245 lbs.; with full load, 450 lbs.; wing loading, 2.81 lbs. per sq. ft. Photos of the machine in flight appear on page 43.



The "Hjordis" high-performance sailplane, whose characteristics are described in the accompanying article. Designed by G. M. Buxton and built by Messrs. Slingsby Sailplanes. Area, 124 sq. ft.; empty weight, 310 lbs.; wing loading, 4.1 lbs. per sq. ft.

The RHÖNBUSSARD is a perfectly sweet introductory machine to the class of advanced sailplanes. She introduces the budding pilot to the sensation of a machine with a somewhat higher stalling and flying speed, which is one of the first important differences between the intermediate and the modern advanced sailplane; but in her case she is not so rapid as to require more than the average number of hairs on her pilot's chest. Her controls are precise and firm; I flew her for an hour, and felt completely at ease in five minutes. She is as clean as a nut, so teaches accurate flying: for an excess of speed is easy to gain and hard to lose. Her sinking speed is good but not sensational, and no doubt her cruising speed is in the same category.

Having got so far, I feel that I have earned some fun, so will write my views on HJORDIS: views which will cause no heartburnings because obviously no one will credit them.

I believe HJORDIS I. is the best machine so far produced for British conditions. And further I believe that HJORDIS II., now under way or about to be started, will be the finest production sailplane ever built in any country.

(HJORDIS II., I may say in brackets, will do away with the present neck, have lift-spoilers, pepped-up controls, slightly lighter, probably oval fuselage—and how I hope I am allowed to fly her before she is finally delivered to some fortunate buyer.)

HJORDIS I., to stop this wistful day-dreaming, is a bit faster than the BUSSARD but a lot slower than the RHÖNSPERBER, in stalling, flying and cruising speeds. In the matter of minimum sinking speed, which I put as the most important single factor in this country, she is a lot better than both, but just inferior to the RHÖNADLER. This last, however, she easily outclasses in the matter of assemblability and weight. Her cruising speed is a lot down on the RHÖNSPERBER, but better than the RHÖNADLER.

In the matter of controllability she is fair, but it is no use pretending she approaches as yet the sweetness of the German machines. At present we are pepping-up the elevators slightly, perfect harmony of controls being a matter of experiment. In such ways the Germans have the advantage of us by sheer weight of numbers.

Her controls then are adequate but not delirious; her rudder is grand, and makes side-slipping—one's main standby in machines of this efficiency—a joy. The wheel control for the ailerons was much criticised at first, both by Slingsby, for being a tricky job constructionally, and by me. However, the line of argument which finally appealed to me was as follows:—

One buys an advanced sailplane; fits it with blind flying instruments. Then a parachute, quick release harness and quickly removable cockpit-cover follow as a matter of course. Why? Answer: To enable one to bail out as a last resort in a thunderstorm or other act of God, rashness or bad pilotage. And what are the circumstances under which one would want to do such a thing? Answer: A wing breaking off by flying into a violent up-current at high speed, etc.

Now, if such a catastrophe should strike you, with the wing must also snap off one or more 10-cwt. aileron cables, and in so doing the normal type of stick will strike the pilot above the knee with a blow of many hundredweight force; possible breaking his leg and making it impossible to get out, possibly numbing him for a few vital seconds.

One answer is a wheel control. One gets used to it in a very short time, and it makes much more room in the cockpit. This is a blessed change for the outsize pilot, who is expected to fly most machines in an attitude something after that of Rodin the Thinker.

One of the first sensations of a cabin machine is the heat. One's face is in a perfect forcing frame *à la* vegetable marrow, and on the first few flights I nearly died of apoplexy. Then we bit crude semi-circles out of the side, which no doubt slightly marred the drag but greatly improved the pilot's complexion.

Next, with the removal of the wind on one's face one

loses a valuable natural airspeed and slip indicator, and so is inevitably forced to a closer inspection of one's instruments. This is a pity, and you doubtless lose a feeling of freedom and a certain amount of fun thereby. Then you suddenly look down and find you have been magically lifted out of the *mêlée* below into an atmosphere untrammelled by other machines, and forthwith are comforted.

At present she resolutely refuses to spin: this is probably due to the large rudder, which has a small travel. Since one is now told that a spin is the best, and sometimes the only, way out of an unruly cloud, we are altering that. The high-lift wing section (Göttingen 652) is the main reason why she has such a remarkable performance with so high a wing-loading (4·1 lbs./sq. ft.); and this section packs up suddenly at 60/65 m.p.h., when one's sinking speed goes up with a bound (or down with a leap). Her designer has been heard to suggest hopefully that this is a Good Thing, as it provides a still easier way out of a cloud. Actually, the vital rule is: "When in a mess, *keep your speed down*, and you will almost infallibly live to dandle your grandchildren on your knee. This formula is for High-Up messes only.

As for landings: By using the correct, if rather untidy, method of bringing her in slightly high, and then slipping it off, they can be made in a reasonably small space.

With such a machine, on the maximum number of days one can climb to cloud-level; then starts the next phase of the pilot's education, the most fascinating one yet: What to do when the initial height has been reached. Where is the lift? What cloud means what? Practise in blind-flying; in altitude and distance flying. A whole vista of new worlds is ahead; to her enthusiastic owners Columbus may well seem in comparison a mere amateur.

Sailplane Construction for the Amateur

13—Eye Splicing in Wire Rope

By W. BUTTERFIELD

The Lock or Over-and-Under Style

HAVING turned in the thimble and secured it as shown in Fig. 1, keeping the splicing ends to the left, open out the strands three to the right and three to the left, whip or twist up their ends, then cut out the short core close down. The strand nearest the main wire to the right we will call No. 1; working to the left in rotation are Nos. 2, 3, 4, 5 and 6.

Now insert the spike, from right to left always, under two strands, and tuck No. 1 under the spike and in the opposite direction, as shown in Fig. 2. Pull strand well home before withdrawing the spike, insert spike as before, only under first of the two strands that No. 1 went under, and tuck No. 2 as with No. 1, insert spike under the next strand to the left and tuck No. 6 as before, pulling strand well home as in Fig. 3, but do not draw the spike. Next tuck No. 3 under and in the same direction as the spike went in. Insert spike under next strand to the left as before, and tuck No. 4 as with No. 3. Lift the next strand to the left and tuck No. 5 as before, pulling the strands well home. This completes the first tuck as shown in Fig. 4. The next tuck should be started with the lower strand, i.e. the one near the eye of the thimble, say the original No. 6, now No. 1. Insert the spike under the second strand to its left, and tuck No. 1 under and in *same* direction as the spike. Thus the strands in this tuck go over one and under the next strand as shown in Fig. 5.

Repeat the above operation with the other five strands in rotation, working to the left; pull all strands well home and beat with copper hammer or mallet. This completes the second tuck. Third and fourth tucks are exactly the same as the second, as shown in Fig. 6.

In the next tuck the strands are reduced by turning back one-third of the wires; each strand is then in rotation tucked over one strand and under the next, as shown in Fig. 7. This completes the fifth tuck.

In the last tuck *three* strands only are tucked, Nos. 1, 3 and 5 respectively; these in turn are tucked over one strand and under *two* strands; by this means an effective *lock* for all strands and a neat taper is obtained. Now beat well round, cut or break off all ends; the splice is then complete, as shown in Fig. 8.

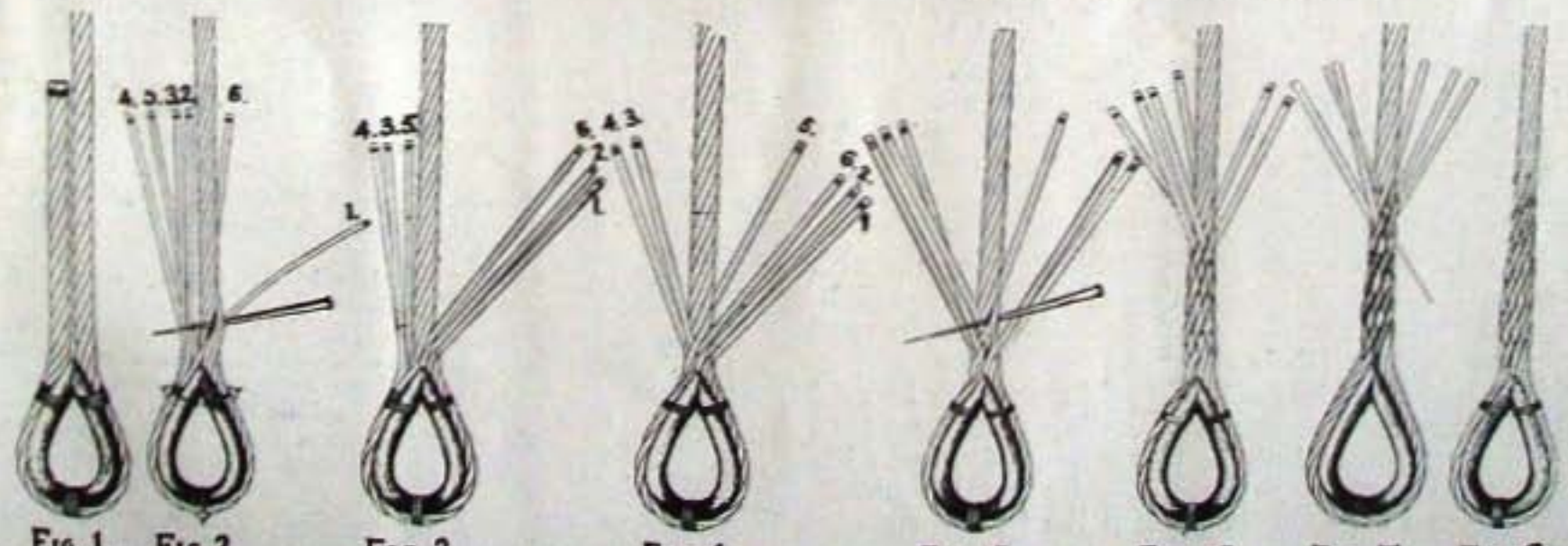


FIG. 1. FIG. 2. FIG. 3. FIG. 4. FIG. 5. FIG. 6. FIG. 7. FIG. 8.

The Back Splice

The method shown in Fig. 15 is sometimes employed when a wire rope is to be fitted with a socket as shown.

Preparation: First put a fine whipping on the end that is to pass through socket, allow sufficient rope for splicing, and mark with a piece of twine under two strands. This will not obstruct the passage of the socket as a whipping may do, and will not shift along the rope, altering the length during fitting. Pass the socket into place and apply a good soft wire binding at the place indicated by the twine (*a*).

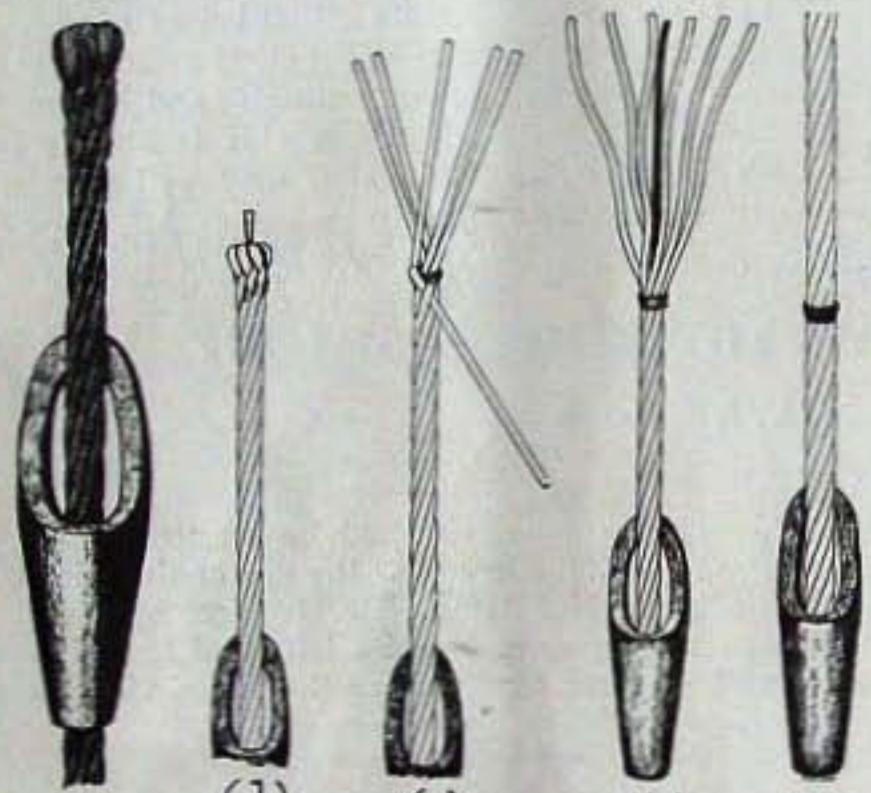


FIG. 15.

Open out the strands for splicing, as shown at (*b*). With Ordinary Lay rope the turns will come out of the strands as they are tucked; with Lang's Lay it is good practice to untwist the strands before they are tucked.

Start the splice by bending the first strand down over the binding, and tuck it over one strand and under the next, working to the left—e.g., against the lay, as shown at (*c*).

Repeat same with other five strands in rotation, pull strands well home and beat round. Next cut off all ends, the splice being then complete. A round conical wedge, about the size of the core, should be driven into the centre of the splice, as shown at (*d*).

If the length of basket permits two tucks may be put in, using half the strands only for the second tuck; (*e*) shows a back splice of two tucks in a Lang's Lay rope.

When the splice is completed pull well home into the basket. It is sometimes advisable to run up with white metal, and if the wires have been washed in petrol to remove all trace of grease, and resin be used as a flux, a good job is assured.

If equal parts of hydrochloric acid and water be used for cleansing the wire must not be dipped for more than a minute or two, and afterwards thoroughly washed in water and allowed to dry before white metal is run in.

A socketed rope should develop the full strength of the rope.

News from the Clubs

London Gliding Club

Saturday, February 1st.—A smooth W.S.W. wind was soarable for most of the afternoon, but later backed and dropped, and was finally replaced by rain after dark. Soaring flights were put in on the Desoutter GRUNAU, WHITE WREN, CRESTED WREN, the Davis Brothers' SCUD, and the FALCON, while a nacelled DAGLING sometimes kept up and sometimes didn't. The last machine, wanting to make a spot landing in the chalk square, was not far off making one on the FALCON, which had got there first; however, the pilot knew what he was about. Things were very different six years ago when the club was operating two primaries near Tring; then, one primary had to be cleared right away off the landing field before the other would dare to risk a descent into the same field.

Sunday, February 2nd.—Again a soarable wind, first from W., then dying down during a rainstorm, and subsequently freshening from N.W. After the veer the only soarable beat was that over the power cables, and an interesting exhibition of comparative performance was seen; Nicholson in the RHÖNSPERBER was able to keep well above two GRUNAU BABIES, and this on a short beat and in a wind so light that even the FALCON couldn't quite hold its height.

Other machines to go off the hill during the day were the PRÜFLING, open and closed DAGLINGS, WHITE WREN, Davis's SCUD, Armstrong-Fox SCUD (test descent after reconditioning), and CRESTED WREN, which flew off with the launching rope owing to the ring twisting round on top of the quick-release hook. There was a tense moment as the knotted ends trailed through the bushes on the Bastion, but the machine carried its antennæ safely on down without the pilot being aware of anything amiss except that Sinking Feeling.

The rainstorm provided an opportunity to test the old question: Can one see where one is going with rain on the spectacles? The answer proved to be in the affirmative, both with an almost imperceptible drizzle and later when it came pelting down like hail.

Sunday, February 16th.—The previous week-end had been unflyable, and this one looked like being the same, owing to the mist. However, eight members had primary instruction with visibility about half the length of a ground-hop. Pupils were launched into the void and the instructor had to use his ears, instead of his eyes, to judge the quality of their landings.

Sunday, February 23rd.—A smooth and comfortably soarable west wind provided the best day's flying so far this year. There were often six and sometimes seven machines in the air together, the latter figure being only possible when one or two were away at the Zoo, as the belt of lift is none too thick at this time of year, what with low lapse rates.

Adding up the flights which were timed, and making a conservative estimate for those that were not, the flying time amounted to at least 26 hours, and possibly 28. Flying money receipts were £7 9s. (at a charge of 3s. per member per [illegible] per club machine up to 20 minutes' flying—longer flights be[illegible] charged according to duration and type of machine, and 1s. per private machine per winch haul up the hill).

The following performed:—

FALCON III. Two-seater.—This has just been acquired by the club from Slingsby, who brought it down by road in person, accompanied by Sproule, now his test pilot. It was put to work at once, and made about six flights with passengers, totalling four hours. Pilots were Nicholson, Barker, Ivanoff, and Wills (three times).

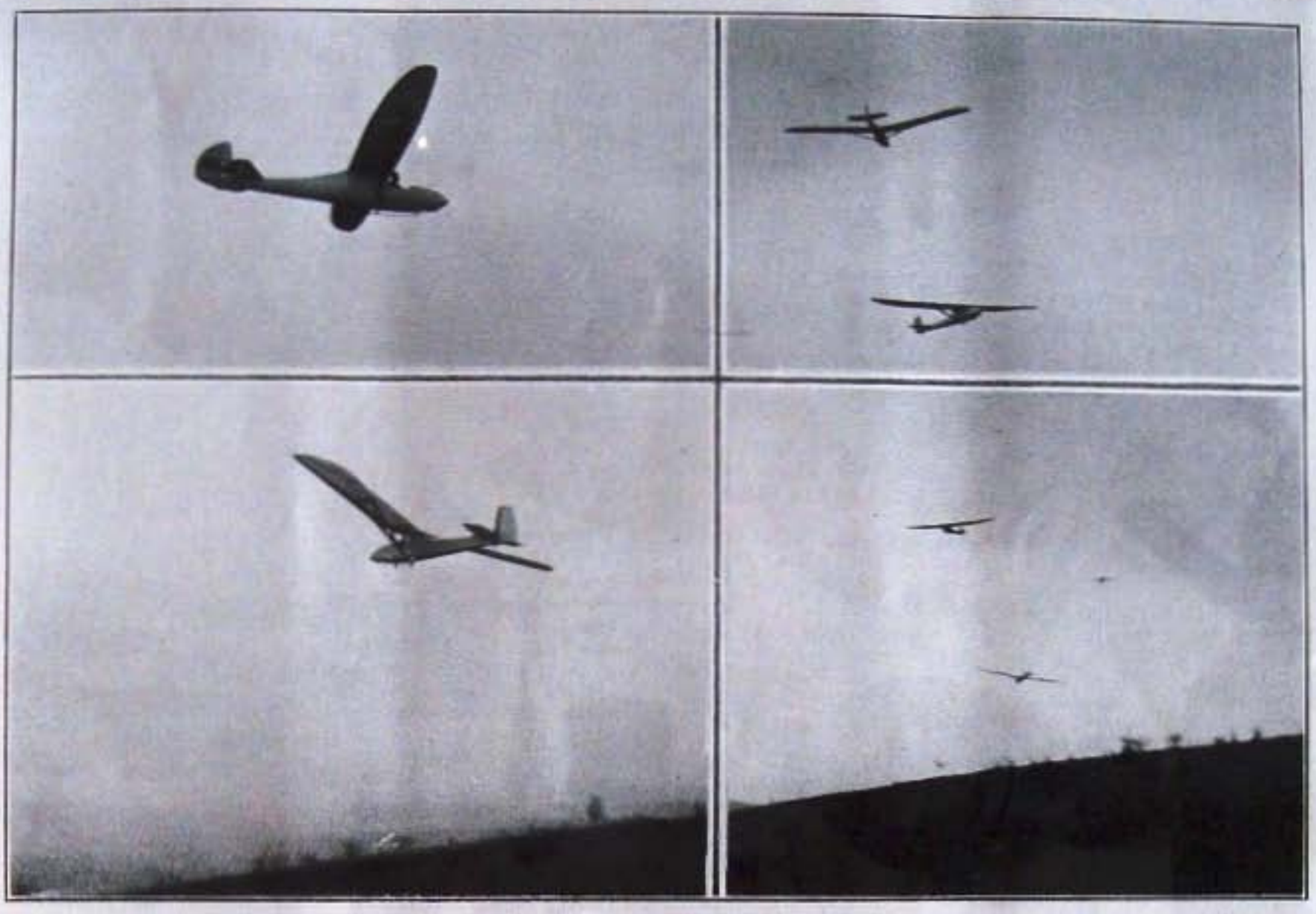
GRUNAU BABIES.—The Desoutter GRUNAU was flown by Sproule for one hour, and the Slingsby GRUNAU by various pilots, among whom Baker did 1 hour 40 minutes, Robertson 1 hour 20 minutes, and Armstrong 1 hour.

CAMBRIDGE I.—Brought out late in the day by the Duke of Grafton and flown for half an hour.

CAMBRIDGE II.—A new machine, owned by Rattray and Furlong, and flown by them for a total of two hours, this being the first time it has soared. It is much the same as the first CAMBRIDGE, except for a little less weight and a little more aileron.

RHÖNSPERBER.—Got up higher than anything else—something like 750 ft. Dewsbery and Nicholson flew it, the former for 1¼ hours.

KIRBY KITE.—Hiscox flew it for 2½ hours and got up 600 ft., being only beaten in height by the RHÖNSPERBER.



A busy day at Dunstable: some of the machines which helped to swell the total of 26 hours' soaring put up on February 23rd. Left, above: the "Cambridge 2" piloted by E. J. Furlong; below, the "Falcon III" up with a passenger. Right, above: "Falcon I" (pilot, C. L. Ruffle) and "Cambridge 2"; below: a skyful of sailplanes—there were five visible on the negative but they may not all show in the reproduction.

SCUD II.—This machine, the first of the type to be built, formerly owned by Buxton, Wills, and Briscoe, has been bought by P. B. and H. L. Davis, who took their "A" Certificates only last April. They have now added 8 lbs. of lead to the nose, just above the front end of the skid, as they find it flies much better that way. They have also painted all the woodwork buff. To-day they soared the machine for a total of two or three hours.

WHITE WREN.—Soared by its two owner-builders. Richardson did ½ hour, and Morland 2 hours 20 minutes.

FALCON.—Ruffle, flying it for the first time, performed like an old hand for 40 minutes. The Editor also flew (17 minutes).

KITFLING.—Four pilots totalled 1 hour 40 minutes.

TWIN-SKIDDED DICKLINGS.—Two were in action, and several soaring flights were made.

OPEN DICKLINGS.—Some "A" and "B" tests were done, but we were unable to collect the names, except that of Herr Pfeister. He is a student at the Imperial College, and has 300 hours of power flying in Germany to his credit, but, strangely enough, had never before handled a glider.

Finally, there are some 40 or 50 primary instruction hops to be recorded.

A welcome visitor was M. V. Laurie, formerly a club member, who has been in India for the last three years. While there he wrote to THE SAILPLANE to point out that it should be possible to make a contour-soaring flight of 560 miles along the Western Ghats in the prevailing S.W. wind. To-day he handled a glider again for the first time for three years, and found he had not regressed from the stage he had previously reached.

Latest news is that Thomas has ordered a CONDOR II. from the Bley works in Germany; for the present, however, he is hanging on to his CRESTED WREN. Frl. von Roretz has decided to get a GRUNAU BABY, instead of a RHÖNSPERBER, from the same country. The late Eric Collins's RHÖNADLER has been bought by Vigers, a Midland Club member, who has now migrated to London. The KEEBLING has been sold to the St. Austell and South Cornwall Gliding Club by Rae. He wonders how he is going to get it there. Keeble, who is now with Zander and Weyl, is building himself a large-span high-performance sailplane of his own design in their workshop, but he does not expect to finish it in time for this year's thermal season. And, as a final item, Mrs. Collins turned up with the good news that the famous Collins type variometer has again been put into production; in fact, she is now selling it. At first there were only a limited number made, and it used to be a bit of a scramble to get one at all.

The list of machines published in January failed to include M. Toth's KASSEL 25, which he brought over from France some time ago rather the worse for wear. He puts in an occasional week-end on it, and with luck should get it into flyable condition before the year is out.

Workington and West Cumberland Gliding and Flying Club

This club was formed in September last year and membership has now reached 75.

The club's first machine, a Slingsby primary, was purchased before Christmas, and flying activities commenced on January 12th, when 16 members received their initial ground-hops. Since that time 77 launches have been made, many members having had their first air-borne flights. The weather has been anything but satisfactory, but when conditions become normal good progress is anticipated.

Negotiations are already in hand for an intermediate type machine, as this will soon be necessary to relieve the pressure on the primary. A soaring site has been chosen and it is hoped that the negotiations for the use of this will be successful. In the meantime primary training is being carried out at Winscales on a site kindly lent by Colonel Chance.

The annual subscription is £2 2s. for flying membership, and £1 1s. for non-flying.

[It is evident from the name that the club is open to all, and not confined to the Steelworks at Moss Bay, as might have been inferred from a statement in our last issue.—ED.]

Midland Gliding Club

The First Year's Flying.—As a little more than a year has passed since the club held its first flying meeting at Handsworth, we may be excused if we devote a few lines to a survey of the progress made since the initial ground-hop on Boxing Day, 1935.

In the beginning, training proceeded in open and nacelled DAGLINGS at Handsworth primary site, until "flaming" June brought hay and we were banished to Castle Bromwich Aerodrome for six weeks. We were fortunate in obtaining permission to carry on training by means of auto-towing at the aerodrome and thereby gained much valuable experience as well as several certificates. Soon after returning to Handsworth, a winch was rigged up and fresh fields (including a golf course) were explored. Now training continues at Handsworth by means of bungy, auto, and winch launches.

Two branch sections of the club have recently opened training grounds at Hereford and Northfield Aerodrome, Birmingham, the latter section having built a hangar and taken over a new open DAGLING from the parent club.

The club soaring site is at the Long Mynd, Church Stretton, where 25 acres of land have been acquired. A fine new hangar has just been completed to which a club house will be added this summer.

As for machines, the club is fortunate in already possessing:—

3 Open DAGLINGS (one each for Handsworth, Northfield, and Hereford),
1 Nacelled DAGLING (presented by Mr. Hardwick),
1 KIRBY KADET (new),
1 PRÜFLING,
1 FALCON I. (new),
1 PROFESSOR.

Privately owned machines:—

1 FALCON II. Owned by Mr. Hardwick.
1 FALCON III., two-seater. Owned by Mr. Hardwick.
1. SUPER HOLS (DUNSTABLE DEVIL). Owned by Mr. Felton.

A further KIRBY KADET is ordered and should be ready for the Mynd hangar opening on March 14th.

Two members, Olver and Barnes, are building an "H 17" machine designed by the Hütter brothers of Salzburg, which should emerge late this summer.

This is progress of which we are justly proud, but without the untiring help and support of Mr. Hardwick, to whom our very real gratitude is due, little of the above would have been accomplished.

February 1st.—At Handsworth a good muster of all grades turned up and kept the open and nacelled DAGLINGS busy with various types of launches. Everell was promoted to Grade C3, which allows him gentle winch launches.

February 2nd.—Mr. Hardwick, Williams, Barnes, Olver, Reilly, Felton, Thwaite, and Healey, made an early start and arrived (by road) at Hereford to give that branch of the club a demonstration with the KADET. All the above pilots and Dugdale, of the Hereford branch, took the machine off the top of the hill and were delighted with its controllability. (The meeting is described in a separate report from Hereford.)

Training continued at Handsworth with both DAGLINGS until the open model cracked its king-post during a heavy landing.

February 8th to 23rd.—On the first and last of the three week-ends the weather was too bad for flying, but on February 15th and 16th a large number of flights were put in by the few who attended at Handsworth.

Annual General Meeting.—This was held in Birmingham on February 7th, and was well attended. The progress of the club and its future policy were outlined, and club officers duly elected

Hereford Branch.

The inaugural demonstration meeting was held on Sunday, February 2nd, at the club training ground four miles from Hereford. A party of members of the Midland Club brought down the KIRBY KADET for its first trials with the club. In a light to moderate N.W. wind the morning was spent in test-hopping and the afternoon in flights from the top of the hill. The craft seemed an exceptionally good secondary trainer, with sweet controls and docile behaviour. All pilots were delighted with it and looked forward to flying it at the Mynd.

Commander Williams put up an extraordinarily good show in getting the outfit to the site. He left Kirbymoorside at 11 p.m. on Friday night, drove all through the night to Birmingham, spent Saturday at the club ground at Handsworth, left Birmingham 7 a.m. next day and reached Hereford at 9, spent the day tending the KADET, left at 8 p.m., parked it at Church Stretton and got back to Birmingham in the small hours of Monday. *Qué Hombré!*

We were delighted to see Mr. Hardwick and to find him so enthusiastic about our site for training purposes.

The local site has been prepared for use; hedges have been lowered or removed by an interested farmer. A sturdy and roomy hangar is nearing completion and the R.F.D., by Slingsby, is ready for delivery at any time.

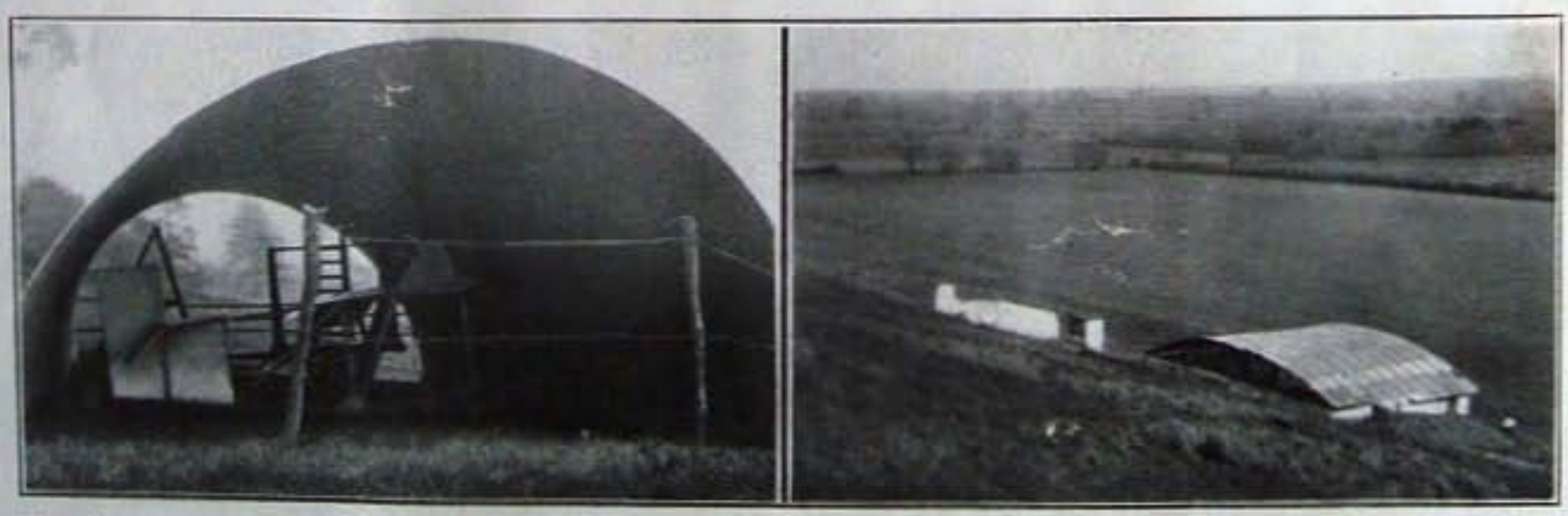
Seven members from Hereford attended the Annual General Meeting of the Midland Club on February 7th, and were afterwards entertained to supper and intelligent gliding "shop," both of which were delightful.

Leicestershire Air Sports Club

Annual Dinner.—Our first annual dinner was held at the Tower Restaurant, Leicester, and support exceeded expectations, in that club members were outnumbered by about four to one. Dr. Millard (president), in toasting "The Gliding Movement," made an entertaining speech to an audience which included members of the local Aero and "Flying Pou" Clubs. The committee is to be commended for arranging a very enjoyable evening, which included an after-dinner entertainment.

At Clack Hill.—Work on the erection of our first hangar, combined with bad weather, prevented flying for three out of the last four weeks, but on Sunday, February 23rd, the PRÜFLING was flown at Clack Hill in a light S.W. wind. W. and H. Adcock, in four prolonged descents, again demonstrated that they can obtain a useful amount of lift from the slope, though poor launches frustrate any attempt to return along the bowl. Our winch, which is still at Six Hills, would be useful here.

The B.A.C. II. was rigged for inspection after its recent overhaul and flying will commence on it as soon as weather permits.



Out of the past: two photographs taken in 1931. On the left, the "hangar" of the S. Shropshire and N. Herefordshire Gliding Club at Dinmore. On the right, the ground of the old Midland Gliding Club near Wolverhampton, photographed from the "soaring slope" (which was never soared over): the white object is a pair of Avro wings belonging to the club's "Secondary sailplane." Both clubs have long been defunct: a new Midland Gliding Club has been born, and its Shropshire branch operates with the identical machine shown in the first picture (renovated, of course).

Newcastle Gliding Club

In the Workshop.—During the latter half of January an average of 11 members were present every Saturday, Sunday, and Thursday, engaged on such jobs as the manufacture of trestles, tool racks, cupboards, and shelves, fitting up of stove, sorting tools, and overhaul of trailer, while Alex Bell worked on the CRAMCRAFT (P4). In the first half of February from four to eight members put in eight days' work on the repair of the DICKSON (P2); on Sunday, February 16th, even the wrecker of the machine turned up and said he would report again on Monday night.

All this time Tate has been giving his care and attention to the lighting set petrol engine, and on February 16th got it running at last.

Test Flights of the "Merlin."—On Sunday, February 2nd, there was a large turn out of members at Moat Law to witness the first tests on Hick's three years of "hard labour." This machine, which was originally called the MERLIN, was later changed to the KESTREL at the request of Mr. Neilan, and although given that name, and announced in THE SAILPLANE a considerable while before the Dunstable Sailplane Co. took up the name, Mr. Hick has agreed to revert to the original name "Merlin."

The machine was described by Mr. Neilan in THE SAILPLANE of March, 1934 (p. 35), but we will repeat the general particulars: span, 34 ft. 4 in.; area, 80 sq. ft.; length, 14 ft. 9 in.; weight, 90 lbs.; wing section, Göttingen 652; automatic camber rudder as in the WINDSPIEL. It is fitted with combined air speed indicator and variometer, and is painted with blue Valspar.

The results of the tests were exceedingly satisfactory, although the wind was gusty. The machine is very easy to launch with only two a side and no hold back. Four ground-hops were made, but the skid cracked on a bad landing. When a stronger skid has been fitted, and one or two minor adjustments made, more advanced test flights will be undertaken.

Further misfortune befell the machine, for we discovered on arrival at the workshop on Saturday, February 15th, that it had been broken into by some youths. Nothing had been stolen, but the MERLIN had apparently attracted the reprobates, and one of them had put his foot through the side. The police are expected to make an arrest.

A Lecture.—On Saturday, February 8th, there was a large attendance at the workshop for the first lecture of a series on glider construction, by Mr. Alex. H. Bell.

After the lecture Mr. Barker, the inventor of a special propeller which he claims will make the pedal aeroplane a feasible proposition, gave us an outline of his invention, which he has now patented. We were offered the opportunity of co-operating with him by building and testing this machine, so Bell and Hogarth were appointed to go further into the matter with him.

In the evening a farewell booze-up was given to Mr. G. S. Bennett at the Grand Hotel prior to his departure for London. We have lost a most enthusiastic and energetic member who was always prepared to help the club in any and every respect. He has now very generously presented the club with his car, either for sale to raise funds or for general club use. It has been decided to make him a life member of the club.

Norfolk Gliding Club

Sunday, February 2nd.—A northerly wind making Skeyton quite unsuitable, the flat field at North Walsham was used, 23 alleged flights being made in the DICKSON by car launch. There were a few minor stalls, and a landing wire was broken, but quickly repaired.

Sunday, February 9th.—The morning was spent in construction work on the sailplane, and in the afternoon the DICKSON was again used at North Walsham. Several members also practised launching with a pulley in the tow-rope and the car running at right angles to the line of launch; this was to make us familiar with the method of launch to be used at the coast shortly (we hope).

On the following two Sundays the ground was too boggy for the car wheels to grip, so progress was made with construction work on the sailplane. (There would be even more progress if all members turned up on non-flying days.)

The search for a really good site is still actively proceeding, and negotiations are on foot for one at Cley. The great intellects of the club have also been at work and have produced an idea for a motor capstan for retrieving. It is proposed to convert an ancient motor bike by stripping the back wheel to the hub and mounting the machine on some kind of base, while a sort of pram arrangement will serve as a trolley for the glider.

Furness Gliding Club



F. Charles goes into action with his "Kirby Kite" at the Furness Club's site.

This being Leap Year, the weather in the Furness district during February has alternated between Arctic blizzards and mild spring days. The gulls have demonstrated how circling in thermals should and can be done in winter, and the smaller birds invariably out-manœuvre the larger herring-gull variety; this has been very noticeable during the month.

Whenever there has been any west in the wind, our only owner-pilot has made the most of his opportunities.

February 20th.—Wind S.W., 15 m.p.h. At 1.30 p.m. Frank Charles was launched in CUTTY SARK by two friends. He soon tired of beating up and down our Western Front and proceeded to explore the range of hills four miles to the north. This point was reached with ease, but not so the return journey, which necessitated frequent tacking. He did, however, succeed in landing his ship in a small field at the base of the site, and thus completed an out-and-home flight of 40 minutes by slope-soaring alone.

Friday, February 21st.—Charles will long remember this day. About noon the atmosphere was extremely unstable, with large cumuli overhead and a healthy west wind blowing, which, unfortunately, backed rapidly later.

Charles was launched by car as before, and immediately began to climb. A few beats, a few circles, and the ground below had vanished from view—he was in the maelstrom of a cloud. An uncanny loneliness, coupled with mighty heaves and a shivering tail, did not add to his comfort; but when the hum increased to a howl, with the air speed indicator registering somewhere above 45 m.p.h., he admits being anxious—nay, alarmed! A few more anxious moments, which seemed like years, and he was clear. Never before had he been so high.

And here was the chance he had dreamed of. At Roose, six miles away to the south, lay his home, a large field behind his garage and a range of hills where oft-times he had experimented with models. So steep was his line of sight that he was convinced he would make it and reach home in one long glide. But he had reckoned without the rapidly backing wind.

With the trailer following below, he steered a somewhat zig-zag course, keeping an eye on possible landing places to windward of smaller hills. The country was uninviting, and included the "Valley of the Deadly Nightshade," wherein stands Furness Abbey. This he reached with little height to spare, and a hurried glance at the hotel chimneys told him nothing. At last he reached his home ridge a little below the crest, yet feeling quite safe he decided to try a beat or two; a quarter of a mile away were three good landing fields.

But now he met his "Waterloo"! Below lay a quarry, pit head gear, power wires, and telephone wires criss-crossing in all directions. Suddenly and without warning he was swept in towards the quarry face. A hurried glance at the A.S.I. confounded his hopes of a recovery. The finish was ignominous, but the damage to man and machine was comparatively small and will soon be repaired. He had been in the air 1 hour and 40 minutes.

A reverse eddy can be a frightful thing and may overtake the best of pilots. Having viewed this spot, one feels that "Hell's Hole" would be an appropriate name for it.

Sunday, February 23rd.—A cold N.W. wind made things uncomfortable. Nevertheless, Stevens took out the B.A.C. IV. for an airing for 20 minutes, landing back at the top.

The hangar is now completed and we hope to have all equipment ready for the Easter camp, if members will rally to make the necessary preparations.

Yorkshire Gliding Club

January 26th.—Wind S., 0-5 m.p.h. Melting snow had rendered the moor one vast bog, and attempts to take the winch-car across the mud were early frustrated. So rather than sit round the fire and grumble, the DAGLING was hopped by all the "C" pilots present. One gentleman flew in a flying helmet surmounted by a bowler, and another in his shirt sleeves as otherwise the safety belt would not meet. The chairman demonstrated for the benefit of the less hoary members, who, never having seen him fly, doubted his ability to do so.

February 2nd.—A light N.N.W. wind made soaring just possible. The club took delivery of a GRUNAU BABY II. from Slingsby, which will relieve the considerable congestion on FALCON. Slingsby also brought up from Kirbymoorside a new FALCON III. in the hope of being able to test it in a soaring flight. Among those present were Mr. and Mrs. Price.

Holdsworth started the ball rolling with a flight of 10 minutes in FALCON. He reported that conditions were very bumpy. Mrs. Price was then invited to try the new GRUNAU BABY, which she did for a short flight followed by an aerobatic landing. After Sproule had followed on this machine for 10 minutes, the FALCON III had been rigged and Slingsby, accompanied by Mr. Price, took her up for a 15-minute flight. Mrs. Price flattered our local patriotism by remarking on the similarity existing between our site and the Hornberg.

Future expansion was indicated by pegs in the ground forecasting the position of the proposed new hangar.

February 9th.—Wind N.E., 15-20 m.p.h. The general groanings engendered by the wind direction were partly abated when the freshly overhauled winch was examined and approved. FALCON was circuited by some and hopped by others. Stedman tried a left-hand circuit and found that the down-draught over the edge of the bank was rather more than he anticipated. The others went right-handed and kept their height for the length of the gully.

During the evening our Shakespearian scholar produced a quotation from "All's Well That Ends Well," Act III., Scene 2, with a special bearing on those who suddenly retire into the long grass: "I will begone, but pitiful rumour may report my flight."

February 16th.—Wind, S.W., 0-5 m.p.h. FALCON and HOLS II. performed circuits. Hastwell then departed to the bottom in HOLS and the subsequent labour of retrieving lasted until dusk.

February 23rd.—A soaring S.W. wind at 7.30 a.m. had disappeared by 10 o'clock. Low cloud prevented any circuits. At about 4.30 p.m. the wind strengthened and at the same time the clouds came down even lower, effectively drowning any hopes of soaring.

Derbyshire and Lancashire Gliding Club

Sunday, January 26th.—Again a very gratifying attendance, considering the depth of snow on the training ground and the difficulty of getting to Camphill at all. Two training groups worked all day; "B" and "pre-B" pilots on the winch with the NACELLE, and beginners hand launching with the PRIMARY, the latter group being large enough to be independent and form their own launching crew. The wind direction allowed about 1,500 ft. of wire for the winch, which enabled Davies and Saunders to do circuits from 300 to 350 ft. in the NACELLE. Smith was winched over the edge in the GOLDEN WREN in about a 15 m.p.h. wind with a very bad Lapse Rate. He hung precariously at anything from 50 to 200 ft. for three-quarters of an hour and had the unusual experience of seeing the NACELLE miles above him on the winch cable. Griffis also had several flights on the winch in his newly acquired ALBATROSS. He found out, fortunately without serious cost, that even the ALBATROSS will not fly quite as slowly in a steep turn as it will in straight flight.

Sunday, February 2nd.—Wind due north, 10 to 15 m.p.h. Our worst wind direction for any purpose. Nevertheless the PRIMARY was rigged and quite a number of members had rides.

Sunday, February 9th.—Wind east, 20 to 25 m.p.h.; cold. On this, a fairly obvious non-flying day, no fewer than 25 members turned up at Camphill. The wind was too strong for training and in the wrong direction for anything else, and the Mam Tor launching ground was unapproachable on account of snow. So one party had a practice rig of the B.A.C. VII., which had been fetched yesterday from Manchester, to see how everything fitted after its overhaul. Another party made a determined onslaught upon the walls, and the result was that we now have a gap in each wall making a winch run of over half a mile running north and south. The West Slope winch run is a mere 500 yards, this being ample to get over the edge with, while the longer run will be useful for certificate flights and circuits.

The First Annual General Meeting of the club was held at the Marquis of Granby Hotel on Saturday, February 15th. Messrs. Dobson and Chadwick, chairman and vice-chairman of the Royal Aeronautical Society, Manchester branch, very kindly attended the meeting and assured us of the co-operation and support of the society at all times. Officers and committee for 1936 were elected, new and slightly amended rules passed, and all the usual business transacted without any great excitement.

Sunday, February 16th.—Wind S.S.E., about 2 m.p.h., just strong enough to prevent us winching in the direction from which we could have got "A" Certificates with straight flights. However, a ground hopping crew worked most of the day, and Meads test-flew the B.A.C., making some very nice circuits from about 400 ft., while several of the "B" pilots did straight "winch hops" in the NACELLE.

Sunday, February 23rd.—Just when we thought spring had arrived a further four inches of snow fell on Saturday. Sunday morning found it still snowing at Camphill and the top of the hill inside the snow cloud. Later in the day it cleared a bit, but too late to start flying. A "walling" party was organised and another 50 yards disposed of. Alterations to the club house have been proceeding slowly and the bar is now in position but not yet stocked. This omission will doubtless be remedied before Easter. We have been unfortunate in losing one of our most useful members, Jack Saunders having been ordered to London by his firm. No doubt Dunstable will be seeing something of him.

Rand Gliding Club

First South African Thermal Flights.

The combined membership of this club and a German group with whom they combine flying activities is now well over 100. During November last flying was transferred from Mulder's Drift to Quaggapoort, near the S.A. Air Force Central Flying School at Pretoria. This was done mainly in order to impress the club's activities on the authorities, who have now granted the Gliding Movement £500 during 1936. It is not known what the club's share will amount to, but a GRUNAU BABY and a GRUNAU 9 with Nacelle have been ordered from Germany on the strength of it.

On **November 15th** the first meeting was held at Quaggapoort. Someone invited General Sir Pierre van Ryneveld, and everybody who is anybody in the Air Force, and the rest of the club prayed for a north wind. After a late start Pidsley took off in the AVIS sailplane in a very light wind, and great was the relief when he came back along the ridge some 100 ft. up. He continued cruising up and down for some time and everyone was duly impressed.

The wind was again light on the following Sunday, but Kunze managed to keep the sailplane up for 32½ minutes, failing to equal the Union duration record set up by Pidsley in August by 2½ minutes. On the Primary, Davy and Ward flew 45's towards their "B's."

On **Wednesday, December 4th,** in a fine north wind, Kunze broke his previous record with a flight of 1 hour 5 [illegible]. Captain S. Melville, of the S.A. Air Force, qualified for his "A" on **December 17th,** and Pidsley made the first cross country flight in the Union. From the west end of the ridge he flew out into the valley and gained some hundreds of feet by circling over a grass fire, which enabled him to connect with another ridge. He flew along this until he was about five miles from home and turned back. On the return journey he couldn't resist chasing a jackal along the side of the ridge and lost so much height that he had to land about half way back.

On **January 23rd** Captain Melville made the qualifying flights and finally got his "B" with a flight of 2½ minutes. Whilst circling over the valley to lose height he found himself rising rapidly in a thermal, so he circled elsewhere and came down.

A great north wind plus New Year's resolutions were responsible for a Red Letter Day on **January 6th.** Kunze flew the sailplane first, but came down after 45 minutes to allow Captain Melville to attempt his "C." This he did with a fine flight of 24 minutes, followed by a landing on top. Altogether a fitting show for the first Union trained "C" pilot. Kunze again took off and stayed up until nearly dark, thus putting the Union duration record up to 5 hours 10 minutes. It was noticeable that towards evening when the wind dropped, he gained considerable extra height, and the sight of a sailplane at some 1,200 ft. after being aloft for over five hours has convinced even the most doubtful that soaring is practicable on the high veld. On the Primary, Ward and Diemer finished their "B's," and Beresford and Tanner obtained "A.'s" Flying time for the day, some 6½ hours.

FOR SALE

SAILPLANE—Hols der Teufel type—in excellent condition with many novel features. Wings in new condition.

Trailer for above.

60 Yards of Turner Rope in good condition.

Complete set of parts, finished but not covered, for **Grunau Baby.**

Open to Inspection—What Offers?

JOHN NOLAN : 67, EAGLE STREET ACCRINGTON

SAILPLANE

60 ft. SPAN 2-SEATER DUAL

INSPECTION INVITED

Price £50

BOX No. 10, "SAILPLANE AND GLIDER,"
13, VICTORIA STREET, LONDON, S.W.1

G.Q.

GLIDER PARACHUTES

Low Weight

Small Pack

Comfortable

Easy Adjustable Harness

Especially Built for Gliders

THE G.Q. PARACHUTE CO., LTD.

STOKE ROAD, GUILDFORD
SURREY

Telephone—Guildford 1289

SUBSCRIPTION FORM

★ We beg to draw the attention of readers to the advantage of obtaining a regular monthly copy of THE SAILPLANE & GLIDER sent to their address each month on the date of publication.

The subscription for ONE YEAR is TEN SHILLINGS or FIVE SHILLINGS AND SIXPENCE for Six Months.

A cheque or postal order for the amount required should be sent with the form provided below.

TO YOUR NEWSAGENT, or direct to
"THE SAILPLANE & GLIDER,"
13, Victoria Street,
London, S.W.1.

Please enter the following name as a subscriber to THE SAILPLANE & GLIDER for which Cheque/P.O. value..... is enclosed.

Name.....

Address.....

.....

ZANDER & WEYL

LIGHT AIRCRAFT

LUTON ROAD, DUNSTABLE, BEDS.

Manufacturers of

GLIDERS AND SAILPLANES

"MALLITE" or "APPCO" WATERPROOF

SPECIAL GLIDER- **PLYWOOD**

Manufactured by the

AERONAUTICAL & PANEL PLYWOOD Co., Ltd.

218-226, KINGSLAND ROAD, LONDON, E.2

Telephone: BISHOPSGATE 3041



THE CARDEN-BAYNES AUXILIARY
(Engine Retracted)

Patents applied for

SCUD II

The most successful sailplane in the 1933 and 1934 B.G.A. annual contests, and holder of British altitude record of 8,323 ft. A light and efficient 40 ft. span sailplane designed for the private owner. Easy to erect and launch.

Price £125, at Works

SCUD III

A new highly efficient design of greater span and refinement. Even easier to erect and operate. Quickly detachable cantilever wings and tail planes. Wheel undercarriage to assist take off and ground handling. Ball-bearing controls. The most practical sailplane ever designed.

Price £175, at Works

CARDEN-BAYNES AUXILIARY

Identical with Scud III but fitted with a small retractable auxiliary motor to enable the machine to operate from aerodromes or flat fields and climb to sufficient altitude for thermal or cloud soaring. Engine or air-screw may then be retracted into the neck of the fuselage; restoring the gliding angle to that of Scud III.

Provisional Price £250

TRAILERS PARTS MATERIALS

ABBOTT-BAYNES SAILPLANES

(Branch of E. D. ABBOTT, LTD.) FARNHAM, SURREY Phone—Farnham, Surrey 682, 683

THE DUNSTABLE

KESTREL

£130 with C. of A. Drawings £6 : 6 : 0

DISTANCE—52 miles, R. G. Robertson, 11-6-35 (CELLON PRIZE)
HEIGHT—3,800 feet, J. P. Dewsbery, 5-8-34 (THUNDERSTORM)
DURATION—6 hr. 55 min., E. L. Mole, 30-6-33 (BRITISH RECORD)

THE DUNSTABLE SAILPLANE CO.

LUTON AERODROME, BARTON, BEDS.

ALL GLIDER MATERIALS SUPPLIED.

ELLIS'S HANGAR

(No. A7)

£99 17 6



As supplied to many Gliding Clubs for the efficient housing of Sailplanes, Gliders and Small Airplanes. Carriage paid within 100 miles of works. Easy terms arranged.

SPECIFICATION 50 ft. long, 30 ft. wide, 8 ft. to Eaves, 15 ft. 6 ins. to Ridge. In complete sections for easy erection. Walls 1 in. T.G. and moulded weatherboards on 3 × 2 framing. Iron-bound principals to roof, strengthened with iron tie rods and brackets. T. and G. boarding covered good quality roofing felt, finished with barge boards. Three windows each side. 21 oz. glass. Max. door opening fitted each end single hinged doors and removable shutters.

The 'RAINHAM'

Strong framing with 1 in. weatherboards to string course. Upper portion of asbestos sheets with broad wood overlays. Roof framed of principals and purlins with covering of Italian Pattern Galvanised Iron. Hall glass doors strongly framed and braced. Despatched in sections, all nuts and bolts supplied.

From £12/5/6



12'x 8'x6'x 8'	£12 5 6	16'x 9'x7'x 9'	£17 13 0
14'x 8'x6'x 8'	£13 13 6	20'x10'x7'x10'	£22 6 3

Available on Easy Terms
Carriage paid in England and Wales.



STANDARD GREENHOUSE M.110.C

Complete sections for erection on framework—double corner posts—wood base 1 in. "V" jointed boards—roof framed in complete sections—21 oz. glass cut to size.

7' x 5' x 7' x 4'	£6 17 6
9' x 6' x 7½' x 4'	£9 1 6
12' x 8' x 8' x 5'	£14 3 0

Send for FREE CATALOGUE **G. ELLIS & CO.** Combe Wharf, Gainsborough Road — London, E.9

"BRITISH BRIDGES"

A Beautifully Illustrated Account of over 400 BRITISH ROAD BRIDGES—both Ancient and Modern

EVERYONE INTERESTED IN THIS SUBJECT SHOULD NOT FAIL TO POSSESS A COPY

In full bound art cloth

REDUCED PRICE 7/6 (post free 7/10)

DAVIES PUBLICITY LIMITED
13 VICTORIA STREET
LONDON, S.W.1

Published by H. O. Davies, 13, Victoria Street, London, S.W.1, and Printed by Hicks, Wilkinson & Sears, 4, Dorset Buildings, Salisbury Square, E.C.4.