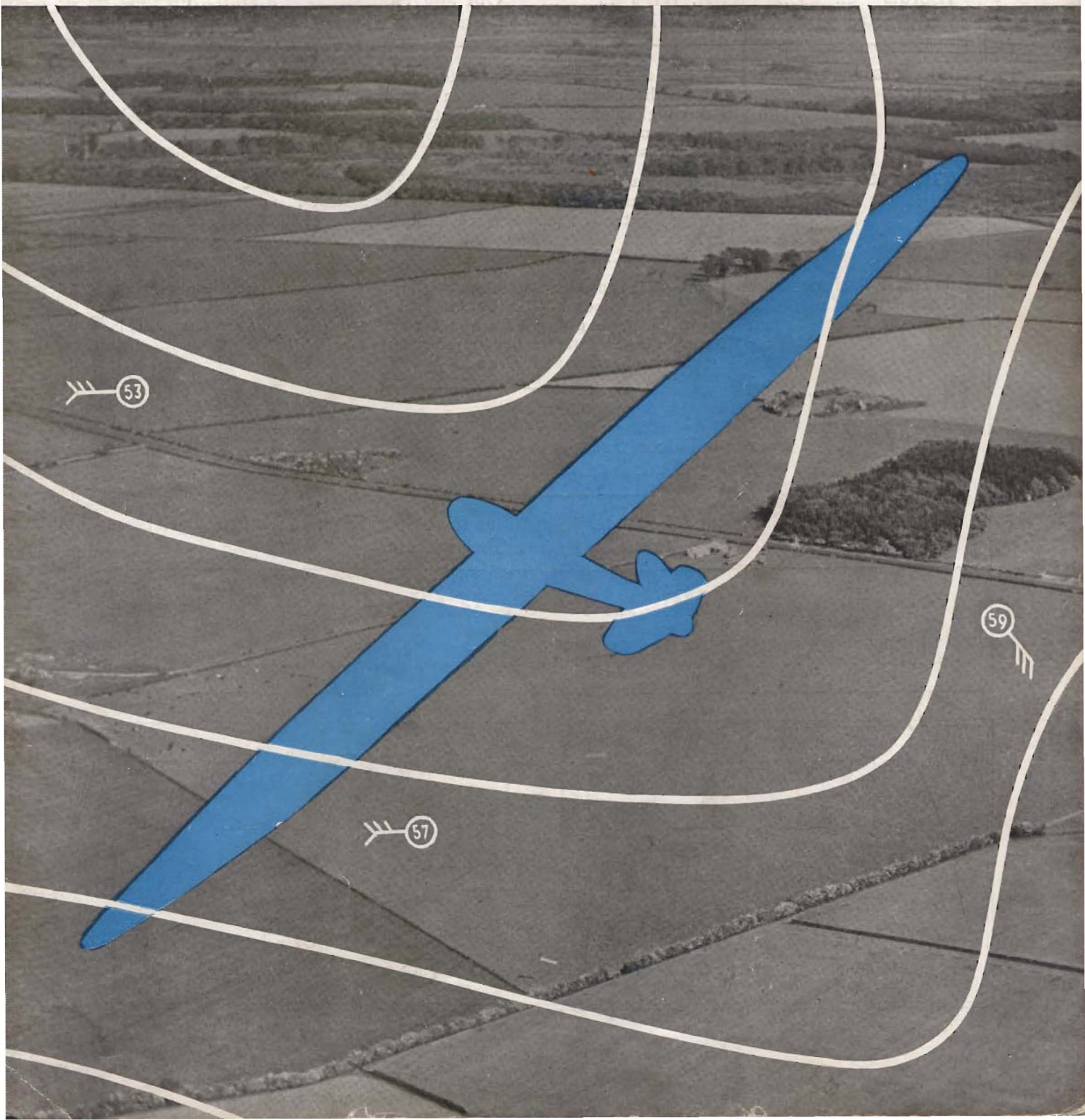
SAILPLANE AND GLIDER

OCTOBER
1935
Vol. 6 No. 10

PUBLISHED
MONTHLY
Editorial Offices:
13, Victoria St., S.W.1

Official Organ of the British Gliding Association

EDITED BY ALAN E. SLATER



SLINGSBY SAILPLANES

awarded all three trophies at the B.G.A. Annual Competitions, Sutton Bank, Thirsk

Machine.	*Pilot.*	*Event.*	*Award.*
Hjordis	P. A. Wills	Altitude	De Havilland Cup
Hjordis	P. A. Wills	Out and Home ...	Manio Cup
Kirby Kite ...	J. C. Neilan	Distance	Wakefield Trophy

Hjordis — The latest British Sailplane with an astounding performance, fulfils the demand for a machine with a useful speed range, easy to assemble, safe and reliable in the air, has a very high safety factor, with effective and well-balanced controls. The last word in sailplane design.
Price ex works **£190** with C. of A.

Kirby Kite — First British machine with gull type wings; an ideal machine for thermal and cross country soaring, very effective controls, remarkable manœuvrability. On its first soaring flight this machine reached a height of over 4,000 feet and a distance of 54 miles.
Price ex works **£145** with C. of A.

British Falcon Side-by-side Two-seater — Fitted with dual control, and ideal seating arrangement for instructional purposes. Designed on the lines of the FALCON solo type, retaining all this machine's excellent qualities, yet giving a much higher performance. A most useful machine for instruction in slope, thermal and cross country soaring.
Price ex works **£200** with C. of A.

Also in production:—

Grunau Baby II Sailplanes	**£135**	with C. of A.
British Falcon Sailplanes	**£140**	„ „
Primary Training Machines	**£52 10s.**	„ „

Secondhand Two-Seater and Secondary Machines for disposal; write for full particulars. Materials, Spares, Trailers, etc.

SLINGSBY SAILPLANES

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: Victoria 9153-4

Vol. 6 No. 10 OCTOBER, 1935 Published Monthly

Gliding at the Forum

THE dinner given on September 26th "in honour of celebrated gliding pilots," by the Forum Club's Aviation Section, was a memorable occasion both for the ladies who comprise the club's membership and for their "guests of honour."

The fun started when Mr. P. A. Wills, who was billed as principal speaker, proceeded to upset one preconceived notion after another. He started by telling everybody that gliding is of no practical use whatever, but that nevertheless the practice of soaring flight was perfectly justified. Turning to flying in general, he asserted that as a sport, as distinct from the pursuit of death or dividends (meaning military and commercial aviation), it was a thing comparatively few people really wanted to do, and he poured scorn on those who would "get the man-in-the-street interested in flying behind 1,000 odoriferous horses across the complaining sky." Nor had he any use for those who would get Youth into the air with a capital Y. Nor for "motor-gliders." He had much to say on the superiority of soaring over motor-flying and, in proof of it, drew attention to the way in which the amateur aeroplane pilot commonly fades out after getting his "A" licence, whereas the soaring pilot remains a devotee for life.

Robert Kronfeld was next to speak. He outlined briefly his own gliding career, and asserted that every young man could do what he did. When he started at a German gliding school in 1927 he was such a bad pupil, and had crashed so much, that his instructors told him he would never make a successful glider pilot. A year later he was the first soaring pilot ever to get lift out of a cumulus cloud.

Herr Kronfeld, in contrast to Mr. Wills, did his best to convince the assembled company that gliding has a number of practical uses. It had provided meteorological knowledge otherwise unobtainable, and explained aeroplane accidents otherwise inexplicable. It had led to the evolution of really light aeroplanes suitable for the man-in-the-street, and quite recently to the proved possibility of muscle-driven aircraft.

Mr. Gordon England, who followed, was described by the Chairwoman as a well-known "promoter" of gliding, a term to which he took exception, amid much laughter. His speech showed him also to be of the "practical use" school. He appealed for a helping hand for new developments such as the ultra-light aeroplane.

Mrs. Patrick Ness, in proposing the toast of "The Guests," described how, at Warsaw aerodrome, she had seen a glider make a spot-landing in front of the President, a feat which had filled her with wonder.

Mr. C. G. Grey received an ovation, together with a couple of hisses directed, not at him, but at his leading article on gliding published in *The Aeroplane* a few days before. He found himself in complete agreement with Mr. Wills that gliding has no use. Instead of a use, however, he would credit it with a function, which was to form a sort of aeronautical monastery, whose members go "soaring to misogynous heights" as a species of devotional exercise.

Lord Sempill, who wore his "C" badge, wound up with a vote of thanks to Mrs. Nigel Norman for taking the chair, inadvertently describing her as "the husband of the organiser of Heston Airport."

The debate (for such it was) brought out chiefly the clash of opinion between the advocates of quality and quantity: do we want to confine gliding to the real enthusiasts, working together as a happy band of equals, or to have the movement diluted with Youth in bulk, pushed in by external propaganda rather than drawn by internal urge, and carrying the inevitable top-hamper of limelit "leaders," taking all the credit for having got somebody else into the air?

And, secondly, it revealed the fatuity of classifying all human activities as either "practical" or "useless." As Mr. Wills said, every invention, flying included, is only important in so far as it "improves the texture of living," leading to a greater fulness and enrichment of life. Mr. Grey, for instance, would judge everything in terms of factory space: "The material for the whole output of gliders in England could be turned out in a week by the wood-mill of any of our big shops," he writes, as if in proof of the uselessness of gliding. Fortunately, for us his readers, he has not the consistency to apply the same standards to his own activities. For how long would it take a fair-sized paper mill to turn out the material for a year's issue of *The Aeroplane*?

From Here and There

The More We Are Together.—A glider with seating accommodation for 18 passengers is to make its first flight at Leningrad early this month.

* * *

Woman Record Holder.—Liesel Zangenmeister, the German medical student who set up a women's duration record last April by soaring for 12 hours 57 minutes, lost her life on October 10th when an aeroplane in which she was flying crashed into some high tension cables near Goerlitz in Silesia. The other occupant, Herr Endres (probably the sailplane pilot of that name) was also killed. They were on a propaganda flight for a Hamburg firm.

* * *

Lowe-Wylde Memorial Fund.—Donations to this fund reached a total of £540 at the end of August. The fund is to provide for the education and upbringing of the three children of the late C. H. Lowe-Wylde, who rendered great service to gliding between 1930 and 1933; an amount of £1,100 is required in all. Cheques should be made payable to the Lowe-Wylde Memorial Fund, and sent to Mr. E. C. Gordon England at London Air Park, Feltham, Middlesex.

* * *

The Silent Service.—The formation of a naval sailing association, consequent on a meeting of officers at which the idea was discussed, has been not only sanctioned but welcomed by the Admiralty. The object of the association will be to encourage sailing throughout the service, and it is proposed to form branches at the home ports and in the Fleet at home and abroad. The parallel formation of an Air Force gliding association has not even been discussed, let alone sanctioned.

* * *

Rule of the Road at Aerodromes.—Owing to a recent incident at Croydon when a collision was barely averted, the Air Ministry has again drawn attention to the following rules regarding flying near aerodromes:—

"Every flying machine and glider flying outside the landing area of an aerodrome at a distance of less than three miles from the nearest point of that area shall, unless it is flying at a greater height than 6,000 feet in the case of a land aerodrome, or 2,000 feet in the case of a water aerodrome, keep the landing area on its left."

Directional Control.—Karl Rippe, a gliding instructor, was flying near Hoya, in West Germany, when he suddenly swooped from 450 ft. to within a few feet above the River Weser. He then flew straight under a railway bridge spanning the stream, and landed on a meadow near by.

* * *

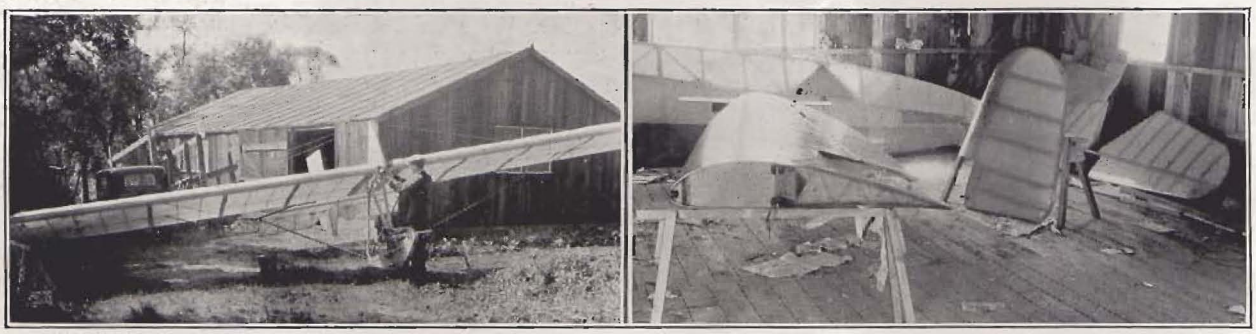
The Homing Instinct.—A newspaper report early in July described an astonishing glider flight by a German pilot named Thomas Guetersmann, who was launched from a mountain at Guntzenlaufen, in South Bavaria. He soon found himself enveloped in fog, but kept up as long as he could while he searched in vain for a landing. Suddenly a black shape loomed up in front of him, and he succeeded in coming to rest on top of it without hurting either himself or the machine. When he got out, he found (*a*) that he was on the roof of a house, and (*b*) that it was his own house.

* * *

Deck Chairs go Soaring.—Strange sights were witnessed when a sudden whirlwind, lasting only a few minutes, swept the parade at Worthing on August 14th. Deck chairs took off and performed a climb of 30 feet above the starting point, while hats, coats and newspapers soared even higher. Mr. Frank Cooper, borough entertainments manager, told the *Daily Herald* correspondent: "First, I saw a deck chair apparently suspended in mid-air, then several other chairs rose. Fortunately they came down again slowly. When, after a few minutes, the wind abated, hats and clothing were strewn about the beach."

* * *

Soaring Hay.—The Swindon *Evening Advertiser* gives an account of a remarkable whirlwind which struck the Marlborough Road district of Swindon one afternoon at the end of July. It is reported to have "caught up large bundles of newly-mown hay, and even rooks, in its whirling vortex, and carried them across country towards Coate Water. This freak commenced its antics in a field adjoining Park Farm, the property of Mr. Peploe. As if by magic, loose hay was caught in a fast-travelling air current, and carried upwards in ever-widening spirals until it reached a height of about 300 ft. For a moment it seemed as if it would subside, but instead, it swept across the field, and gaining fresh strength, went on in the direction of Coate, and finally spent its force after crossing the road. It had been in action for nearly 20 minutes. A considerable amount of hay in the field was blown away."



The roomy workshop of Mr. F. G. Enser, near West Drayton, which he built himself and where he carries out the design, construction and repair of light aircraft. Left: a primary just finished. Right: the "Westpreussen" in hospital.



Some photographs taken by J. Laver, of the Dorset Gliding Club, while soaring in a "Falcon" during the Sutton Bank Competitions. Top: Whitestone Cliff and the Bowl beyond, with two other sailplanes in the picture. Centre: a part of the ridge still further north. Bottom: a view of the camp, looking out over the plains beyond the south slope.

Sticklebacks soar.—A shower of small fishes, identified as sticklebacks, descended from the sky on the village of Ludford, Lincs., on September 26th, according to the *Daily Telegraph*. Rain was falling at the time.

* * *

A Quotation.—"They say a telegram is merely an invention for hearing more quickly something that you do not want to hear at all. As flying becomes universal, we shall be going more quickly to places we do not want to go to at all. Let those who want to put a girdle round about the earth in forty minutes, go to it. I'll have none on't. Give me the sky as a playground or as a haven of inexpressible peace."—John Scott-Taggart in "Aero."

Wings

and some other things.

Just to show that even modern poetry isn't past him

by CORUNUS blast him.

QUESTION.
Can it be the dial in the middle
which is most closely watched by Bill Liddell?
Or is it the one at the end
that is more constantly supervised by our friend?

ODE.
When we look at HJORDIS
we think Mungo good Ljordis
A Nut.
Shut
up.

RIDDLE.
If all the various SCUDS
should unfortunately descend with a series of dull thuds
then who will have a busy time removing all the bloodstains?
Baynes.

ARGUMENT.
You are sure to hear Stedman fiercely explain his 2-seater
is really very considerably neater
and sweeter
and fleeter
than the unstable
Dunstable
Kassel.
Tha'sall.

PUZZLE.
If you are looking at a GRUNAU BABY
Maybe
it is one built by Zander & Weyl
while
on the other hand it might be by Sling
or, a very different thing,
it may have been constructed in Germany.
It is difficult to distinguish one amongst sermany.

KALEIDOSCOPE.
When we come to the various & multicoloured WRENS,
these are inhabited by certain of our fwrens
of varying superlative ability.

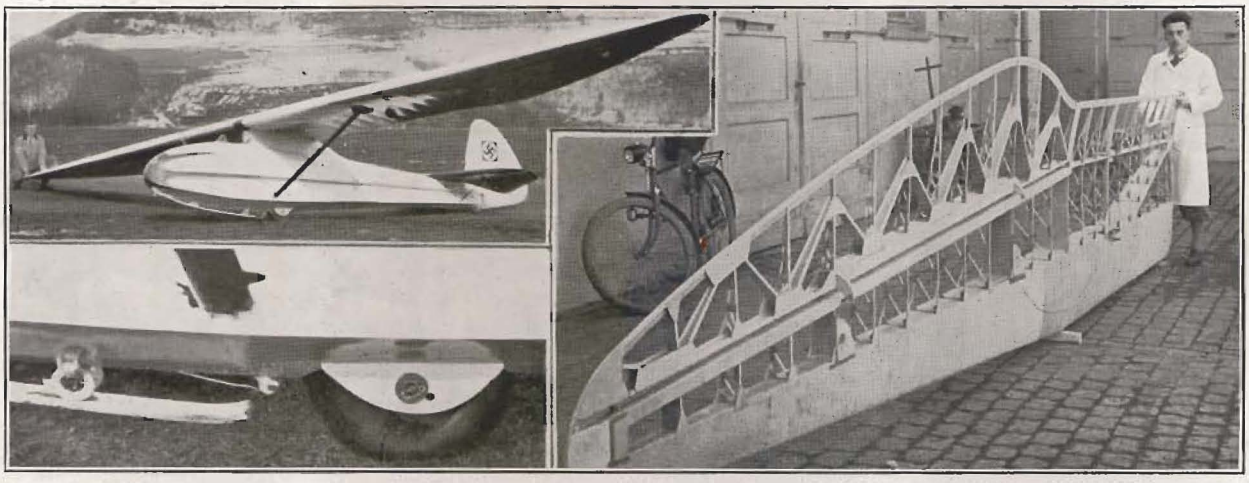
EPILOGUE.
Which brings us finally to stability.
Of course this means the good old FALCON
the machine which one & alcon
fly.
Good-bye.



A "Falcon" over Sutton Bank. Note the clouds: this was the day when five cross-country flights were made.

[Photo by G. L. Bell.

Göppingen Sailplanes



The "Wolf," the first product of the Göppingen factory, which has been demonstrating throughout Britain this year at Sir Alan Cobham's National Aviation Day Display.

MARTIN SCHEMPP was one of a small band of German gliding enthusiasts who emigrated to the United States some seven or eight years ago, and have ever since been in the forefront of soaring activities over there.

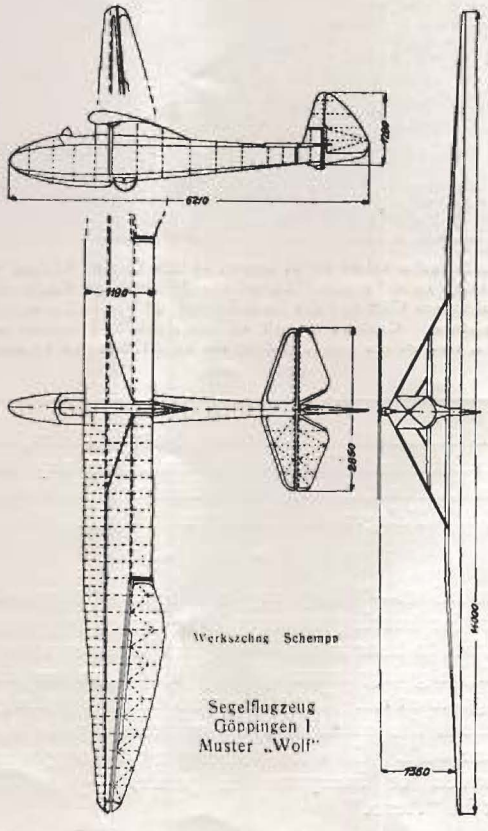
A year ago Martin Schempp returned to his native country and, in January this year, founded the Sport-Flugzeugbau Göppingen, Württemberg, Germany. (Göppingen is a small town near the Hornberg gliding school, and is not to be confused with Göttingen, where the wing-sections come from.) Wolf Hirth, who is not only a soaring pilot of international fame, but was largely responsible for the design of several Grunau productions, including the MOAZAGOTL and GRUNAU BABY, is acting in the capacity of designer, and the Göppingen factory has already turned out three new sailplane types—a general purpose machine, a two-seater, and a high performance sailplane.

Göppingen 1 : "Wolf"

The WOLF can be described as a "practice sailplane" for the "C" pilot; on it he can learn aerobatics, practise thermal soaring, indulge in towed flight by aeroplane, car or winch, and generally fit himself for transfer to a really high performance machine later. The construction throughout is very robust.

The wing section is Göttingen 535 in the inner portion, changing in the tapered part to a symmetrical section at the tip. The increase of wing chord where the ailerons begin helps to render the lift distribution as nearly "elliptical" as possible, and also increases the effectiveness of the aileron control which, with an efficient rudder, gives the machine specially good manœuvrability for aerobatics. The ailerons work differentially, and the aileron gap is covered in with "Resopal." There is a single strut to the wing each side, made of streamlined steel tube 2·5 mm. thick, with a cross-section of 77·6 × 38·8 mm. For occasions when the machine is put to severe strains, such as when an inexperienced pupil is learning aerobatics or unusual manœuvres are being tried, an auxiliary strut is provided. This goes from near the root of the main strut to a light rear spar, and is damped down with rubber, so that it only comes into action when the wing is subjected to severe twisting loads.

Behind the skid is a wheel with a low-pressure tyre, 32 cm. in diameter, fitted with a brake; this is useful not only for ground transport but in all forms of launch, and moreover takes rough landing shocks better than the skid. There is a steel spring tail skid.



Dimensions, etc., are :—Span, 14 m. (45 ft. 11 ins.); length, 6·2 m. (20 ft. 4 ins.); height of wing above ground, 3 ft. 11 ins.; wing area, 15 sq. m. (131 sq. ft.); weight empty, 145 kg. (320 lbs.). The gliding angle is 1 in 17, and sinking speed 0·95 m. (3 ft. 1 in.) per second, which makes the machine specially suitable for thermal soaring.

The first WOLF to be turned out by the factory, called "Youth," was aero-towed by stages from Göppingen to England, flown by Miss Joan Meakin (Mrs. Ronald Price), and has since been used regularly by her for aerobatic demonstrations at Sir Alan Cobham's Display. She had a special radio equipment built in, for use at the display.

The price to British customers is £110 nett at factory.

Göppingen 2 : Two-Seater

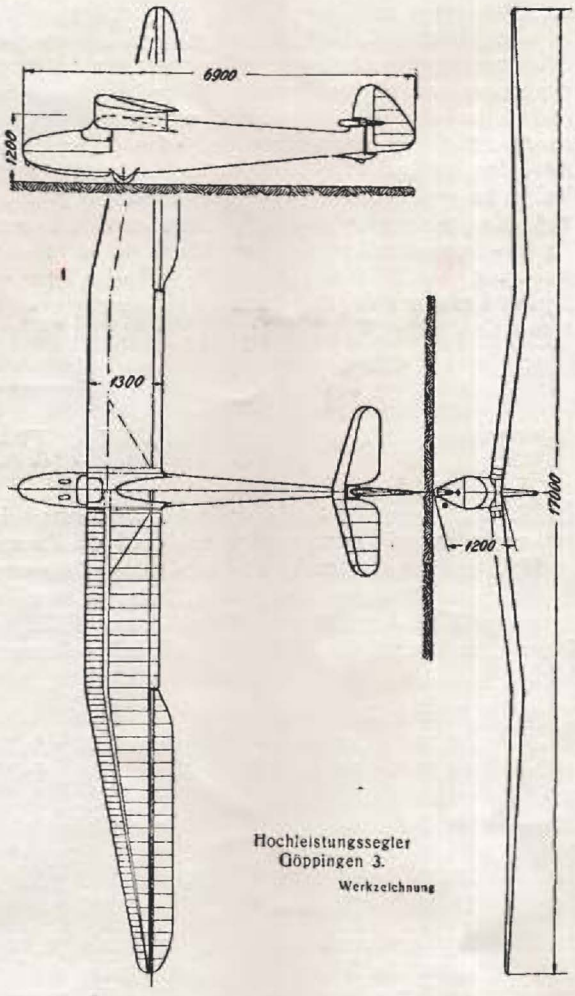
This is a further development of the GRUNAU 8 two-seater which Hirth designed some time ago to the order of the German Air Sport Association. It is a dual-control sailplane for instruction of pupils in towed flight, thermal flying, blind flying and ordinary soaring. Wolf Hirth has found that pupils who make slow progress, or lack confidence, are greatly benefited by a spell of "dual," and a preliminary soar over the course with an instructor has helped many a pilot to his "C" certificate. Aeroplane pilots also can be introduced to soaring flight without any tedious messing about in primaries. The extra controls are easily removed for passenger flights.



The "Göppingen 2" dual control sailplane.
[Photo by Wolf Hirth.

The chief features of the GÖPPINGEN 2 are a certain amount of sweep-back to the wings, a balloon-tyred wheel (in this case of 40 cm. diameter, and capable of being braked from either cockpit), a side door for entry to the rear seat, and a single transparent cover to both cockpits, which enables conversation to be carried on in normal tones. For blind flying instruction dark blinds can be fitted over the rear cockpit; they can be lowered and raised by the instructor from in front.

Span, 14·5 m. (47 ft. 7 ins.); length, 6·6 m. (21 ft. 8 ins.); area, 21·5 sq. m. (231 sq. ft.); aspect ratio, 10; weight empty, 198 kg. (437 lbs.); wing loading, 17 kg. per sq. m. (3·5 lbs. per sq. ft.); gliding angle, 1 in 15; sinking speed, 1 metre (3 ft. 3 in.) per second.



Göppingen 3 : "Minimoa"

This is designed as a high-performance sailplane of moderate price, suitable for the use of Germany's rapidly growing numbers of expert soaring pilots. The first MINIMOA was finished just in time for this year's Rhön Competitions, and on it Wolf Hirth did, among other achievements, a flight of 261 miles into Czecho-Slovakia on July 27th, a day of hardly any wind. (According to weather records, it was north-westerly, force 2, which means about 5 m.p.h. The flight took him over 7 hours, and the next best distance on that day was 205 miles.)

In the design, Hirth's experiences with the MOAZAGOTL of 1933 are taken into account, especially in the pronounced gull-wing and the sweep-back of the outer portion, which make for stability in flight (it has flown three closed circles "hands off"), and in the provision of water ballast tanks. These tanks are situated in the fuselage and the wing root, and can be emptied during flight; they enable the speed range to be increased without detriment to the gliding angle. A further speed range is obtainable by adjusting the trim of the ailerons while flying; this is so worked that their differential action is reduced as they are raised.

Other details are the landing wheel, the "fully clothed" main skid sprung with rubber blocks and tennis balls (as is also the tail skid), the excellent view in every direction but straight backwards, the absence of

a "neck" to save additional drag, air brakes on the under side (*Druckseite*) of the wing, and a turn-and-bank Venturi that can be pulled in out of the air stream.

Purchasers have the choice of a 16- or 18-metre wing instead of the normal 17-metre one, of either a damped elevator or the pendulum type, and of a cockpit roof of Plexiglas instead of celluloid. It is also proposed to design an optional two-seater fuselage, the passenger replacing the water-ballast for the purpose of stress and performance calculations. There is a normal control stick, but Hirth's own machine had a hanging stick placed to one side, thus making the roomy cockpit even roomier.

Dimensions: Span, 17 m. (55 ft. 9 ins.); length, 6·9 m. (22 ft. 8 ins.); wing area, 20 sq. m. (215 sq. ft.); aspect ratio, 16; weight empty, 200 kg. (441 lbs.); in flight, 275 kg.; with water ballast, 350 kg.; wing loading, normal, 14·5 kg. per sq. m. (3·0 lbs. per sq. ft.); with water ballast, 18·5 kg. per sq. m. (3·8 lbs. per sq. ft.). The "cruising" speed is 70 km. (43½ miles) an hour.

(*Photographs sent by Martin Schempp and Wolf Hirth; outline drawings reproduced from "Flugsport." A photograph of the "Göppingen 3" appeared in our issue of August, 1935, page 128.*)

Muscle-Power Flights

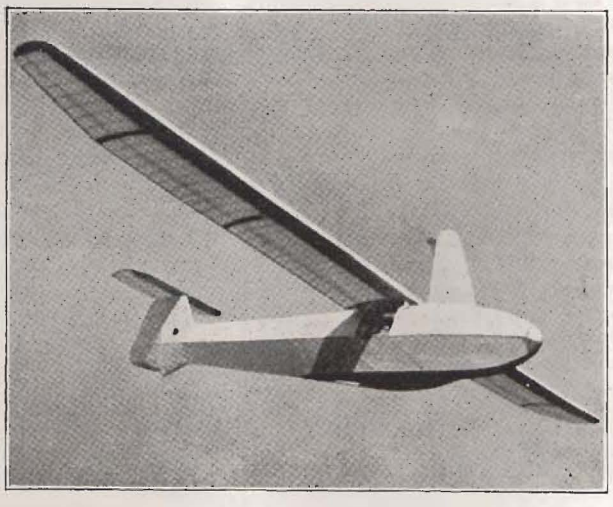
THE first successful flights ever performed by human muscle power were achieved on August 29th to 31st at Frankfurt Aerodrome, Germany, when the pilot Dünnebeil, of Erfurt, flying a machine designed by Dipl.-Ing. Haessler and Franz Villinger, of Dessau, achieved the following officially observed flights:—

Date	*Time*	*Duration*	*Distance*
29th	11.10	17 secs.	120 m. (131 yds.)
29th	18.22	20 secs.	195 m. (213 yds.)
29th	18.43	18½ secs.	177 m. (194 yds.)
30th	7.45	24 secs.	235 m. (257 yds.)
30th	8.14	14 secs.	150 m. (164 yds.)
31st	17.55	21 secs.	220 m. (241 yds.)
31st	18.44	20 secs.	204 m. (223 yds.)

The first landing resulted in a slight breakage, and the last flight on the 30th ended by the pilot stalling his machine and damaging its nose. The flights were carried out mostly at a height of about one metre. The machine is worked by pedals, which actuate a propeller situated at the top of a streamlined projection rising in front of the pilot. Otherwise the aircraft is like a monoplane glider, except that the wing is movable instead of the elevator.

Two years ago the Frankfurt Polytechnic Society offered a prize of 5,000 RM. for the first German to fly by his own muscular power to a point 500 metres away and back again, without touching the ground; further, he was to be allowed to store his energy for half an hour beforehand in an apparatus to be carried on the flight. The only advantage Dünnebeil took of this last condition was to stretch a rubber rope from the machine to a pin in the ground, to help him with the launch, afterwards winding it into the machine, though *Flugsport* says that on this occasion he did not wind it in, but took an equivalent amount of ballast instead. The offer of the prize, by the way, lapsed on September 2nd, having already been extended for an extra year.

Hitherto the balance of technical opinion has been against the possibility of flight by human muscular power alone. Theorists have suggested that a wind very near the ground can exercise lift on an aerofoil by means of gust energy, or even the velocity gradient; weather reports, however, show that the wind during the three days in question was only of force 1 or 2 (i.e., between 1 and 7 m.p.h.).



An historic occasion: the Haessler-Villinger human power flying machine on one of its first flights, piloted (and pedalled) by Herr Dünnebeil.
[Reproduced from "Flugsport."

An article by H. Haessler, published in *Flugsport* on January 10th, 1934, is of interest as showing the lines on which he has been working. He draws a graph whose co-ordinates are horse-power and minutes of time respectively, and plots three curves showing the maximum power that can be expended over a given period. The first is drawn on Dr. Brustmann's assumption that 80,000 metre-kilograms of energy are available; this gives a hyperbola stretching to infinity both ways (impossible, of course, in practice). The second is that of a trained professional runner, and shows that he can maintain 1·3 h.p. for a minute, or 0·8 h.p. for 10 minutes. For an untrained but muscular cyclist the corresponding figures are 0·7 and 0·4 h.p. As the trained man also weighs less, he is the obvious one to choose for a pilot.

For the first experiments, says Haessler, the machine must only weigh 20 kgs. (with a 60 kg. pilot); a safety factor of only two is needed, as it will be flown straight and low down, while it should be longitudinally and laterally stable (for the latter, the span should not exceed eight metres), so that the pilot need only worry about directional steering. He lies on his back, propped up, so as to ensure a small fuselage height. A propeller efficiency of 0·8 is assumed.

Sailplane Construction for the Amateur

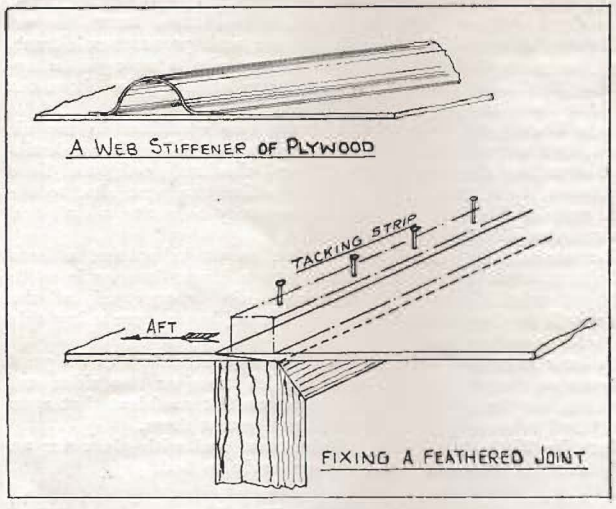
8—Built-Up Sections

By W. BUTTERFIELD

BRACED structures are economical in material yet extremely bad from an aerodynamic point of view, since every ounce of resistance saved means improved gliding angle for the finished aircraft. Therefore secondary and high performance machines must embody an enclosed form of construction in which fabric or plywood is used to fair in the skeleton structure. If plywood is used to box in the structure the members will be well supported against secondary failure, and can be made smaller in cross section. The diagonals are often dispensed with, the plywood panels are allowed to take shear stress, and the longerons the loads due to bending. This is known as a built-up section, and the plywood panels or webs will need stiffening against buckling at intermediate points between bulkheads. Strips of spruce about $\frac{3}{8}$" square are used as stiffeners, or alternatively a strip of thin plywood, bent to form a single corrugation or U section, is a most efficient web stiffener when glued in position across the width of the panel.

The monocoque fuselage is usually considered as a hollow section beam, and may be likened to the main spars of cantilever wings, where the stress in the material is deduced from the bending formula B.M. $= fZ$, where B.M. = Bending moment, f = stress, and Z = the modulus of the section as a whole.

In the case of hollow rectangular or I section spars, the flanges are assumed to take loads due to bending, and the webs the loads due to shear.



When plywood is designed to take stress, great care is needed when jointing, and this jointing can be done best by scarfing or feathering the edges to overlap, as shown in sketch. The jointing should overlap $\frac{3}{8}$ to $\frac{1}{2}$ inch, or six times the thickness of the sheet. A sharp iron plane set very fine should be used and the bevelling operation carried out on a hardwood "shooting board." The panel should be clamped to the board so that the stroke of the plane keeps the plywood in tension, thus preventing buckling in front of the plane.

Longerons may be spliced by scarfing, and when not supported by plywood the joint should be wrapped with strips of 2" wide linen tape wound spirally around the splice, and well glued during the operation. The length of the splice should be eight or nine times the depth of the member.

All joints in plywood should be made in way of a bulkhead, and any joint in a longeron at about $\frac{1}{4}$ span. Joints should be well fitted before glue is applied; squeezing with cramps cannot make a joint if badly fitted. Good glued joints are dependent upon a moderate yet evenly distributed pressure over the glued area. This can be achieved by the use of tacking—strips of spruce about $\frac{3}{8}$" square with panel pins at about $1\frac{1}{2}$" pitch along the feathered joints of straight panels, and, for curved surfaces, strips of plywood or cardboard are used; the brads should be driven flush, and the strips are easily removed by pincers when the glued joint is set. When laying plywood, a good tip is to keep the panel in tension and drive home the pins in the tacking strip consecutively from one end, or start by driving in the first pin in the centre and work outwards towards each end. If the ends are secured first, buckling invariably occurs along the joint. A narrow strip enables one to observe the closing of the joint as the brads are driven home; local buckling between brads must be avoided; the strips and brads are, of course, removed after about 24 hours.

A better result is obtained if the panels are feathered under and over in the manner of tiling a roof, in which case the tail end panels of a fuselage are laid first and the work proceeds towards the nose.

Panels which are curved in two planes resembling the surface of a sphere are difficult because they cannot be developed from a flat sheet; if the radius is fairly flat it is possible to contract the inner ply of the sheet by the use of a hot laundry iron, and a certain amount of curvature can be obtained, yet unless well protected from moisture the inner ply will swell and buckling will occur after fixing.

Correspondence

SIR,

As one of the rank-and-file pilots at Sutton Bank, I would like to thank very warmly all those people who helped to make our week's holiday so amazingly enjoyable.

I would particularly like to thank Captain Stratton, Miss Sinclair and Mr. Powell for their untiring devotion to duty, the winch drivers for the skill with which they carried out a very responsible and thankless job, and the other pilots and friends present for the extraordinary way in which they lent me their machines to fly, or helped to rig, de-rig, and carry about any machine at any hour of the day and night.

And for the hospitality of the Yorkshire Club—well, I have no words sufficiently thankful left in my vocabulary.

H. C. BERGEL.

News from the Clubs

A Visit to the Peak District

[*During September 28th and 29th a small party from the London Gliding Club, with two machines, visited the Derbyshire Gliding Club for a week-end's soaring. The following description of their adventures is written by Mr. P. A. Wills.*]

On Friday night, the 27th September, Dewsbery, Nicholson, my wife and I set off in two cars for Matlock to pay a long-planned visit to the Derby Club with RHÖNBUSSARD and HJORDIS. The latter had been taken by Slingsby to the Rising Sun Hotel near the site. Nicholson and Dewsbery set off for Dunstable at 6 p.m., and we had to wait for Nanny's return from her day out at 9.30 p.m. As we went up Watling Street the night got dirtier, until by 2 a.m. we were navigating in practically solid water—a good augury, we thought cheerfully, for a soaring wind behind the depression in the morning.

Half-past two found us in a deserted Matlock, our hotel locked up, the night-bell not working, ditto the telephone. At which point, up rolled the RHÖNBUSSARD. A late policeman then arrived and suggested we tried Smedley's Hydropathic Establishment, so off we went to a huge building at the top of a hill which boasted a night porter, who eventually produced very comfortable beds.

The next morning I found a sleepy party eating a none-the-less hearty breakfast and looking a trifle incongruous. Nicholson was eyeing his next door neighbour surreptitiously as he (the neighbour) consumed a dish compounded of milk, chopped toast and chopped prunes. The consumption took place, continuously, on turbine rather than reciprocating principles.

We found Slater and Smith could come with us, so set off. It was an overcast day, with a strong southerly wind, so we met at the Barrel Inn on the South Slope. We have almost grown to expect that the local pub to a gliding site should be kept by the nicest possible people, but the Barrel Inn seems high up in that order even as gliding pubs go.

Battling With the Wind

Outside, a 30 mile wind was whistling up the slope, and I decided the job of rigging HJORDIS in such conditions was too risky with so few people to hold her down, so we rigged the GOLDEN WREN in a field on the hillside about twice the size of a tennis court, sloping steeply down, and bounded by the prevailing stone walls. However, in those conditions a launch was practically instantaneous, and soon the WREN was at 500 feet. Unfortunately, during the rigging, I had had the brilliant idea of laying her fuselage on its side to prevent it being blown away. The idea was successful so far as it went, which wasn't to the extent of spotting the two liquid-type variometers with which she is equipped, and which immediately passed out. As it happened, it was an absolutely stable day, so little harm was done.

Next we started on the BUSSARD. A certain amount of amateur help had arrived, so we tackled the rather stupendous job of putting on her combined wing with eight people on it. A sudden gust came along just as we were lifting it on, and swept the lot of us back into the stone wall behind us. One amateur abandoned ship and tried to scramble under the wing; fortunately the rest held on, and with cracking sinews managed to turn the wing down again.

Soon the BUSSARD had joined the WREN, but I decided it wasn't worth the risk of rigging, so we went into the Inn for tea and talk. Like all gliding clubs, the Derby Club has consolidated its position on a series of miracles. In its case the miracle is a completely friendly neighbourhood. Landowners fall over themselves offering launching grounds, and farmers smile when they find gliders in their fields at the bottom. What a country for heroes to live in!

The present position is that the club have leased a whole series of fields running along the West Slope, and are engaged as funds permit in knocking them all into one huge field which will run quite half a mile along the top. And when I say knocking, I mean it. These loose stone walls only require a firm push to tumble them down, then all that has to be done is to remove the rocks. The two walls so far moved have produced over 300 tons of rocks, and there must be another 3,000 tons to go, so members needn't fear a slack winter.

Eventually these fields will stretch to the right angle at the corner of the South and West Slopes, and winch launches will be possible from one spot over either slope. The winch is now being made.



The "Hjordis" going up for a test flight.

[*Photo by G. M. Buxton.*

At this stage the GOLDEN WREN showed signs of landing, so we ran to a field behind the edge, and sloping up to it, quite the size of two football fields rolled into one. Here we saw a perfect example of an aerial evolution new to us, the Derby Glide, or Approach. It is quite simple. The idea is to land in a small field, up-hill, with a huge down-current rolling over the front edge, and the method is to glide to a spot directly over the point desired. When at about 80 ft., a giant invisible hand seizes the machine and drags it down with incredible velocity to a point two feet above the ground, where the pilot gets his breath, pulls the stick back, and is there.

A little later Dewsbery in the BUSSARD, not knowing the trick, came in with a normal approach. At 80 ft. he was naturally behind the desired field, so an instant later found himself breathless but happy the wrong side of its wall, over which we lifted the machine later. Here we must remark that in the matter of lifting machines over huge walls the Derby Club have no peers. They do it efficiently, with lightning swiftness, incredible enthusiasm. A marvellous crowd. If the wall proves recalcitrant, they just push it down, and if necessary pile it up again afterwards. For miles around the walls have large chunks bitten out of them here and there.

Soon Slater and Nicholson had the two machines in the air again, and we retired again to more tea and talk. The celestial landowner has also leased a small and absolutely delightful little farmhouse, in a clump of trees just behind the west site, to the club, and in this they have the opportunity to make a club and dormyhouse of unique attractiveness.

The surrounding outbuildings serve as workshop and a barn as hangar, and with subsidy assistance a larger hangar is to be built. I take it that when this west site is equipped, all the flying will be done from there, and the fields we were using this day will no longer be used.

An hour later we packed up and towed the trailers to the yard in front of the club house, where, with trees on two sides and the farm buildings on the other two, we felt confident that even a hundred mile an hour gale could not get at them.

Back in Matlock we found Robertson, and with plans for an early start in the morning we were early to bed.

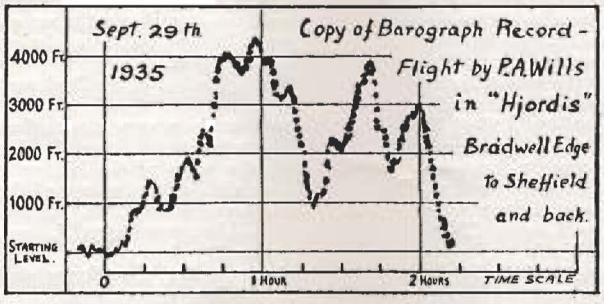
A Perfect Soaring Day

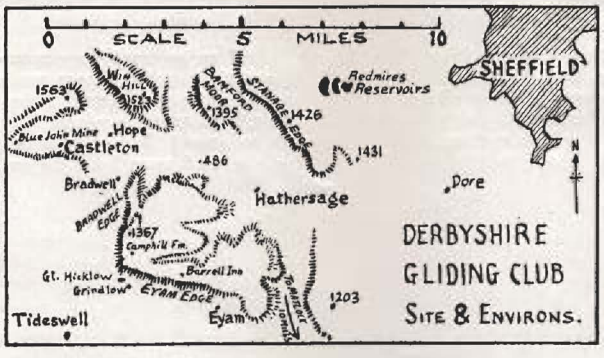
Half-past ten next morning found us, incredulous, on the West Slope: a beautiful westerly breeze blowing up it, blue sky studded with cumulus approaching from the west.

We rigged in a smallish field, running somewhat uphill to the edge, and this was the cause of an exceedingly sad bit of bad luck. The GOLDEN WREN, with Robertson piloting, took off with a double bungy and four a side. The tail holder was unable to hang on long enough, and this, coupled with the slowing up of the runners up the grade, gave the WREN insufficient speed to clear the wall on the edge. Robertson saw the risk, and did the only possible thing by putting a wing tip into the ground and doing a mild cartwheel, which put the machine, not seriously, we hope, out of commission.

After this it was decided to carry the other two machines to an adjoining peak, over three high walls and through a wood. The visiting pilots viewed the idea aghast, not knowing the capabilities of the Derby Club; but in an incredibly short space of time the two machines were there and ready to start, and the owner of this new field was arranging to let it to the club for a nominal sum.

At 1.15 HJORDIS was launched in as ideal conditions as I ever hope for, and was shortly up to 600 ft. Soon I saw a cloud street coming at me down a valley running at right angles to the slope, at the mouth of which a couple of factory chimneys were belching smoke. I watched this until, as the street came over, the smoke stopped running away level down-wind and was deflected towards the front of the street and upwards. Then I flew into the smoke and immediately started to climb. At 2,600 ft. I found a rather ragged cloud-base and switched on the Pullin turn and bank indicator, climbing partly in and partly out of the cloud to over 4,000 ft. From then on, the flight was as easy as a dream. There was lift, though not fierce, in patches all over the sky, and I flew where I wanted. It was obviously impossible to do a long cross-country, as the unstable area was bounded over Sheffield, 11 miles to the east, by a long line of stratus, under which it appeared to be drizzling and smoky. So I flew up and down and across my street, towards Sheffield. Halfway there I was over another stupendous line of cliffs running





north and south for miles, a safe port to retire to if I was let down by my street; then I was south of three large reservoirs, then over a large factory, then Sheffield outskirts. Here it was obviously politic to turn back, so back I went along my street.

It ended over the half-way cliffs, called, I believe, Stannage Edge. However, the sky was dotted with clouds, so at 3,500 ft. I set off to examine a particularly pure-looking little cumulus over a highish peak on Bamford Moor. This little chap seemed about 2,000 ft. high and only, say, a third of a mile across its flat little bottom, which I was above. Losing height slowly, I approached it from behind, i.e., its west edge. But when I got there I had a very chilly reception. I was rudely seized and shot downwards at some 7ft. per sec., and in no time saw it wasn't safe to plug through the down current area to the other side, so tucked my tail between my legs and scuttled away south-west across a valley, back to Bradwell Edge and home.

I found BUSSARD and Dewsbery high above me, wandering where they listed, south-west over the valley towards Tideswell or north to Win Hill. Down on the ground, the Derby Club were industriously ground-hopping. Conditions were so ideal that, in spite of growing hunger, I stayed up another hour, trying without success to put HJORDIS into a spin. It seems impossible to keep her stalled, except in level flight. The application of rudder then brings a wing and the nose down together and she goes into a tight circle in which, twice, I found myself climbing in a thermal!

At half-past three hunger prevailed and I came down, boobing a perfectly simple landing with minor damage to my skid, just to restore my sense of proportion I suppose. Dewsbery followed, and Nicholson took his place in BUSSARD.

And so to a late lunch and an early tea, almost rolled into one. Unlimited hospitality and kindness from everyone, who seemed positively glad to have to do the hard work; in fact, unalloyed bliss. Perhaps even the Derby members themselves will not realise what a great pleasure it is for a (comparatively) old-timer to find a new club, obviously progressing, and on the firm foundation of having their own soaring site, a nucleus of thoroughly experienced members at their head, and a huge population to tap within a 30 mile radius.

After the necessary spadework has been done, of clearing the site and equipping the club house and winch, and with the subsidy producing a few machines, nothing is going to stop them becoming one of the leading clubs in the country.

Yorkshire Gliding Club

Saturday, July 20th.—Wind N.W. to W., 30-45 m.p.h. After waiting impatiently for a slight abatement in the wind, Neilan, in the PROFESSOR, was launched, by winch, into the gale. On releasing the cable he remained stationary for a few moments, after which it was observed that he continued to rise vertically, with no apparent forward motion, and with his tail well up. It was obvious that he was struggling with numerous and frequent terrific bumps. Later he nosed about on quite a short beat until he reached 2,700 ft. under clouds. He spent a quarter of an hour in losing his last 1,000 ft. before landing.

At 9 p.m., with the wind still of gale force, Stedman took up Neilan with him in his two-seater. Five hundred feet was their maximum during 18 minutes, and it appears that it was necessary for both sets of controls to be in use most of the time.

Sunday, July 21st.—Wind W., 25-35 m.p.h. After calmer conditions during the night, the wind sprang up again with vigour. Wordsworth was launched on HOLS I., but lost height considerably by venturing too far round Whitestone Cliff. After this the wind conditions were too gusty for comfort, and it was not until after 5 o'clock that FALCON I., with Neilan up, was launched, the PROFESSOR being temporarily indisposed. During the evening, in slightly calmer conditions, the STEDMAN two-seater, with Stedman, and the FALCON two-seater, with Slingsby, carried passengers for periods varying between 20 minutes and an hour. FALCON I. made two further flights with Hastwell for half an hour and Sharpe for 50 minutes.

During the following week-end we were pleased to welcome several visitors from the London Gliding Club.

Friday, July 26th.—Ivanoff and Baker arrived with a new GRUNAU BABY II., and gave it its first soaring flights of 55 minutes and 30 minutes respectively. Sharpe, on FALCON I., accompanied Baker for 15 minutes.

Saturday, July 27th.—Buxton, who had arrived from Slingsby's works with a large box, opened it, unwrapped all the tissue paper, shook out the shavings and sawdust and lifted out HJORDIS, sleek and glistening in her coat of arctic grey. Her soaring baptism last 45 minutes, and Buxton beamed satisfaction up to a point—ailerons, I believe—so HJORDIS was re-wrapped and went back to Kirby Moorside for slight readjustments.

Sunday, July 28th.—Wind W.S.W., 30-40 m.p.h. The wind was strong to start with, but during early afternoon it became almost a gale. Hastwell flew FALCON I. for an hour and five minutes, and GRUNAU BABY II. was in the air repeatedly with Baker and Ivanoff (over two hours on one occasion), who treated us to a loop before landing. STEDMAN two-seater flew twice for over an hour with a passenger each time. One took cine-pictures, and the other took no overcoat. As this was his very first time in the air, he began to notice the aforementioned omission when Stedman took him into the clouds at 3,500 ft. Afterwards Stedman flew with Neilan as passenger for 35 minutes, and later Neilan flew STEDMAN two-seater with Holdsworth as passenger, and there was an exciting incident in which the cable had to be cut. Lesson for the day: since one must pull the right strings to get on in the world, so must one also pull the right string to get off in the air.

Several of the Kirby lads had a treat on FALCON III. two-seater, piloted by Slingsby. Buxton also flew her several times with passengers. In fact FALCON III. scored highest for launches, with seven during the day, the flights averaging 20 minutes each.

Early in the evening Wordsworth, on HOLS I., with a sticky A.S.I., covered eight miles in eight minutes over hill and down dale, cornering alarmingly 50 ft. above the top of the bank, eventually landing safely but most unconventionally.



The "Westpreussen" in flight at Sutton Bank.
[Photo by G. M. Buxton.

During August Bank Holiday week-end we were favoured with west winds of varying strength, and both we and our visitors put in many hours of thoroughly enjoyable soaring.

Sunday August 4th.—Buxton, astride SCUD II., attempted to find thermals soon after 10 a.m., and, having wandered away from the hill lift, was obliged to land below after five minutes. HOLS I. made several winch-launched circuits with Wordsworth, Blakeston, Hastwell, and Heath, who completed his 45's for his "B," which he obtained later in the afternoon with a fine circuit of 1 minute 30 seconds.

After lunch FALCON I. had no rest at all, spending altogether three hours in the air, piloted by Neilan, Nicholson, Hastwell, Sproule, Hiscox, and Bell, who made a low turn in landing, tearing off the skid. Our expectations of good performances from WESTPREUSSEN were not realised, for she spun after a downwind turn, crashing after only two minutes in the air. FALCON III. two-seater had three new pilots in Wills, Nicholson, and R. G. Robertson, carrying passengers each time, and Ivanoff and Baker flew their GRUNAU BABY II. alternately. Later, Nicholson had a 20 minutes' spell of nursing her.

The GOLDEN WREN went all æsthetic and insisted on a catapult, after which Lewis Slater held her up for an hour. STEDMAN two-seater went up after tea with a new member, Flt.-Lt. P. M. Watt, who flew her for 20 minutes with Stedman. Stedman carried passengers for shorter periods during the evening. The total flying time for the day amounted to over 10 hours.

Monday, August 5th.—The west wind remained very light, so flying was confined, chiefly, to training with DICKSON and HOLS I., on which Watt took his "A" and "B." About mid-day Wills managed to hold up SCUD II. for 14 minutes, but later Buxton was unable to keep up, landing after 2½ minutes. At 4 o'clock Wills held her up for another 15 minutes, but, immediately afterwards, the best Nicholson could do with her was 4 minutes 15 secs.

The wind freshened slightly in the evening and Nicholson did half an hour on SCUD II., while FALCON III. two-seater was flown by Wills and afterwards by Nicholson.

Both P. M. Watt and W. R. Watson took their "C's" on HOLS I.

Tuesday, August 6th.—This proved to be the best day of the August meeting, for, after a disappointing calm in the morning, the wind freshened during the afternoon, and thermals also were frequent. Flying time for the day amounted to over 18 hours, the participants being Neilan, Hastwell, Holdsworth, and Watt on FALCON I., Wordsworth on HOLS I., on which Alderson took his hard-earned "C," and Stedman and passengers, including Mrs. P. M. Watt, on the STEDMAN two-seater.

During the remainder of the week a further 6½ hours' soaring was done by three members who had decided to spend their holidays at the bank. Wordsworth graduated from HOLS to FALCON; Holdsworth put HOLS II., which he had rebuilt, through severe tests, and Neilan, who reached 1,800 ft. in thermals, amused himself with spins and stalled turns on FALCON I. On Friday evening, reaching 3,600 ft. in a thermal, he landed at Welburn aerodrome, where he and his retriever, Wordsworth, were hospitably entertained by Major J. E. D. Shaw.

Saturday, August 10th.—Wind S.W., 20-30 m.p.h. Stedman and Neilan went touring to-day, the former on his two-seater reached 1,600 ft. during a trip to the Reservoir (5 miles) and back, while the latter reached 1,820 ft. on an out-and-return flight to Boltby, entertaining the countryside to an exhibition of stunting. In the evening Stedman on the two-seater, with passenger, found a thermal and made tight circles up to 1,800 ft., landing in the dusk with his landing lights gleaming.

Sunday, August 11th.—Wind S.W., 15-20 m.p.h. The FALCON I., HOLS I., and STEDMAN, shared six hours' soaring today, and HOLS did several training hops and circuits as well. Hastwell took FALCON up to 1,000 ft., flying without A.S.I., and Holdsworth and Wordsworth did 48 minutes and 26 minutes respectively on the same machine.

Blakestone took his "C" on HOLS I., with the customary spectacular turnings of most prospective "C" pilots, but, since he flew without A.S.I. and landed safely on top all was forgiven. Stedman had one of his flights cut down to 10 minutes, owing to the indisposition of his passenger.

Sunday, August 18th.—Very warm and sunny, but absolutely no wind, so that, apart from one or two thermal flights in FALCON I., training was the order of the day.

In HOLS I., Miss M. Horsley had four winch launches, finishing up with a well-judged 62 seconds for her "B." Pick followed, and in six launches qualified for his "A" and "B."

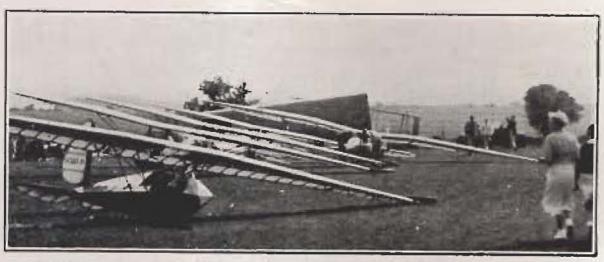
In the meantime Neilan, in FALCON, picked up a vigorous thermal off the winch, circled to over 3,000 ft. in absolutely clear sky, and departed in a southerly direction to meet what appeared to be a mild "cold front." It must have let him down badly, however, for he lost height rapidly and was unable to get back to Sutton Bank, landing a few miles south of Thirsk, about seven miles from the landing ground. Baster heroically set off to collect the machine which he eventually found after exploring an area of about 20 square miles round Thirsk.

At the end of the day Dr. J. A. Neilan (father of a gifted son) got his "A" with 39 seconds.

Monday, August 19th.—Roy Watson made a very stout effort in holding up in a very light west wind, flying HOLS II. He managed to keep himself just above the edge of the hill on a longish beat for five minutes, and just slid in by the end of the Dyke to make a perfect landing above Roulston Scar. L. Barker, of the London Club, arrived later with his green SCUD II., and after his first winch launch held aloft for 20 minutes.

August 24th to September 1st.—Quite a lot of ordinary club flying was accomplished, much of it passing unnoticed amongst the more exciting and spectacular events of competition flying. But we too, had our exciting moments which did not pass unnoticed.

Many visitors from distant clubs joined us as temporary members, and I think it is fairly safe to say that most of them made progress. Those who didn't will know better next time. A few outstanding flights were made. Rainey, who must be admired for his pluck in cycling from Portsmouth to attend the competitions, took HOLS to 800 ft., higher than she had ever been before.



Parallel wings: a "Scud," three "Falcons" and the "Kirby Kite" at Sutton Bank during the competitions.

Cox sneaked away from his duties on the "deck" and floated about for an hour in HOLS I., for which audacious liberty he was soundly rated when he landed, and for some time afterwards, by the instructor in charge. Hols bolls! We used to be told off for coming down too soon.

Heath took his "C" on HOLS II. with 16½ minutes, reaching about 550 ft. The Baron de Veauce took his "A" and "B" and attempted, unsuccessfully, his "C," and Holdsworth took a rest from his ground engineering and reached 1,400 ft. by circling on FALCON I.

Pwllheli and District Gliding Club

August 29th.—A good day, but we had to take off on a slightly rising slope. The CHRYSLER has plenty of power and we did three hops up to about 40-50 ft. Several members and visitors had hops and slides. We were also visited by Mr. Hardwick, the

chairman of the Midland Club, who gave us valuable tips. Another visitor was Mr. Turner, of the London and Cambridge Gliding Clubs.

September 5th.—Few members present and the wind still up the slope, but we reached about 100 ft. and commenced practising turns. Mr. Darbishire, our vice-president, Wilson and Davies had hops.

September 12th.—Several hops in the afternoon. After tea on the first flight Wilson had an argument with a wall. After a good climb he commenced a circuit to the left, found the trees too near to be healthy and turned back into wind, only to find himself landing towards a stone wall—running at an angle of 45 degrees to the wind, from left to right. He touched down a few yards from the wall and then endeavoured to pivot away on the starboard wing, the port wing skimmed over the wall and caught in the barbed wire carrying away the flying wire bracket and four ribs. Mercifully she stopped before the nose made contact with the wall.

September 17th.—The repairs are again completed ready for the 19th.

London Gliding Club

Week-ends, August 17th-18th, 24th-25th, and 31st-September 1st.—No news received. According to weather reports the only soarable wind was on August 31st.

Tuesday, September 3rd.—Bell arrived with the BLUE WREN, having spent the previous evening and half the night bringing it from Sutton Bank. A good soaring wind had been predicted by the Air Ministry, who had been 'phoned from Yorkshire the previous day, and so it turned out. However, there were few people about, so it was three o'clock before the WREN got into the air, barograph and all. With a S.W. wind of between 20 and 30 m.p.h., Bell found about 200 ft. of hill lift, and twice went up in thermals to 520 ft., but each time he got blown rapidly downwind and gave up circling to return to the hill. Soon a rain storm came up, with a rather early veer of wind to W., and there appeared to be a slight general ascent of air (four to five divisions on the Collins variometer) preceding the rain; but there was not enough localised lift anywhere for gaining height for a cross-country, and an attempt to do so happened to coincide with a gust and nearly resulted in a landing behind the Bowl. Then the rain came down and nearly blotted out the hill, and after battling through it for a bit Bell came down too. A dead calm followed.

This happened to be a rare case in which a cold front encountered by a sailplane pilot was actually entered on the Air Ministry's weather maps. Usually the only one to be marked is the main cold front which clears away the rain of a depression; the secondary "fronts" which sometimes follow it at intervals of an hour or two, and which consist of a long line of cumulo-nimbus cloud moving transversely, are usually ignored by the map maker. In this case, however, a single "warm front" which reached the south of England on Sunday morning was followed by no less than six cold ones at intervals of 300 to 500 miles, all marked on the weather map, and it was the fourth of these which caught Bell on the wing. The 2 p.m. map shows it to have been strung out on a line from the Wash to the Needles; the line was moving E.S.E. at 16 miles an hour, and brought a temperature drop of about five degrees Fahrenheit.

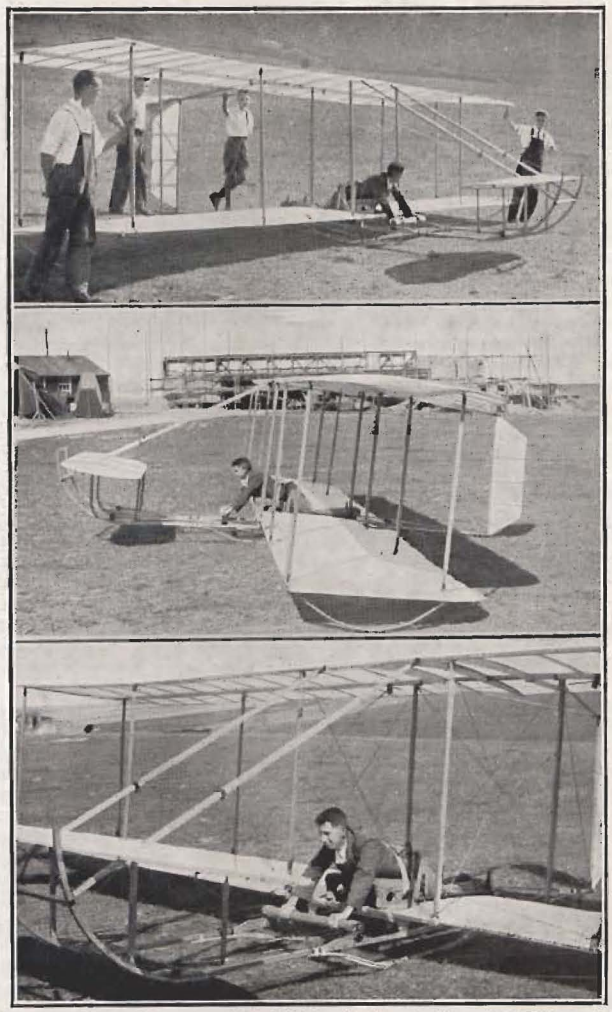
Thursday, September 5th.—The film company once again turned up in force, this time to take "shots" of a full-size replica of the Wright Brothers' glider of 1902, specially made by Zander & Weyl. Some close-ups were taken, but there was not enough sun for photographing it in flight.

Sunday, September 8th.—Lots of people. Wind from S.E., so ground-hopping was done all day.

The ALBATROSS, of Leicester, came and joined the ground-hopping machine, and its owner, A. E. Coltman, had also brought a parachute. Various club members amused themselves attempting ground-hops on both, with noticeably more success on the ALBATROSS, which is very steady and pleased those who tried it.

Saturday, September 14th.—Fierce wind up the hill; too strong for most people, but some soaring was reported in the evening.

Sunday, September 15th.—Wind at first S.S.E., about 35 m.p.h. At 1.30 came a squall, with rain, and a veer of wind to W.S.W., but blowing just as hard. Later it moderated a little and backed to S.W. The FALCON and KEEBLING were brought out. Sproule flew the FALCON for 20 minutes and appeared to find it very bumpy—in fact, it didn't look like Sproule. Dent flew it out to windward from a point just south of the Bowl, at 150 to 200 ft., and appeared to get lift from a cloud street passing overhead. Ray waited about on the top with the KEEBLING till advised that the wind had dropped enough for it to be flown down in safety.



A full-size reproduction of the Wright Brothers' glider of 1902, made for the forthcoming film, "The Conquest of the Air." Except for wing-tip skids and the use of ordinary turnbuckles, the plane is a true replica of the original, with a span of about 30 feet and a wing area of 300 square feet. Elevator control is by handle bar, while the wing warping is operated by yokes at either side of the pilot, and is connected to the rudder to counteract yawing. The glider was tested on Dunstable Downs by A. R. Weyl, of Zander & Weyl, and proved its controllability in flight. The original Wright machine made nearly 1,000 glides during the autumn of 1902 in North Carolina, and in the following year several part-soaring flights of over a minute. It was the direct precursor of the first aeroplane.

Tuesday, September 17th.—The gale. Yesterday the dimensions of the wooden hangar were: width, 30 ft.; length, 50 ft.; height, 15½ ft. This morning these dimensions were found to have altered to: width, 20 yards; length, half a mile; height, nil. Seen from the top of the Downs, a thin ribbon of planks and débris, of constant width throughout, stretched in an absolutely straight line across country, a remarkable witness to the steadiness of the wind's direction, if not of its velocity. As to the tin hangar, its cross-section underwent drastic changes, but its dimensions could still be multiplied up into a positive quantity.

The most that could be said for the buildings' contents is that at least they were prevented from blowing away. The roof trestles saw to that. The worst victims were the Desoutter GRUNAU, the POPPENHAUSEN, and Baker's new GRUNAU BABY II., which the unfortunate man has hardly yet had a chance to fly. The BLUE WREN lost the top of its rudder and cracked a wing tip, and there were slight damages to the KASSEL 20, two SCUTS, and the club FALCON, PRÜFLING, and a DAGLING. The Imperial College hangar shifted a few inches down-wind, but remained upright. The partly finished new building was luckily far enough advanced to be sheltering several machines, but, during the height of the gale, some plank did a glorified ground-hop right over it from one side to the other, making several intermediate landings on (and partly through) the roof.

Newcastle Gliding Club

Sunday, August 25th.—A party of 31 members attended the competitions at Sutton Bank, and were stung by their own fellow-men, in the form of Bell, Bennett, and Feeny, who had arrived early enough to enrol as "gate" attendants.

Sunday, September 1st.—Raining all day. Despite this dirty trick of the weather there was an exceptionally good turn out of members and visitors, who spent the day in quiet and restful manner. The non-flying activities of the day were very profitable. The Ground Committee and the Flight Committee each held meetings in the dormitory, the result being a hectic but friendly discussion on the old subject, "Hangars *v.* Machines." The ladies did many things, the most prominent of which was an official sewing class on DICKSON wing.

Three members spent the day on a final "spit and polish" on the CRAMCRAFT (P1), which is now standing in the glorious state of nudity awaiting the B.G.A. inspector. Allan concentrated all his energy on South Shields' modified DICKSON (P3), in which he has great faith—Stout Heart. The remainder put in some good work touching up parts of the DICKSON (P2).

The income from teas broke all records, and the secretary (Flying Field) wore a beautiful smile of satisfaction.

Sunday, September 8th.—Bitter cold. Wind, 10 m.p.h., N.E. We have hills in all directions excepting N.E. and S.E., therefore any really decent flying was out of the question, unless the wind changed—which it refused to do. DICKSON (P2) was rigged and ground-hopped all day on "Wood's Drop," a piece of the site which derives its name from the event of Ken Wood forgetting the instructor's instructions while hovering over the aforesaid plot.

The activities of the day were quite uneventful, with the exception that Allan made a straight glide, devoid of his usual entertaining aerobatics. He then put in some more valuable work on the modified DICKSON (P3). We are wondering what will happen to this machine, and his own sailplane, when he goes back to Cambridge. The ground engineer gave the CRAMCRAFT a last look round, and it is still waiting for the B.G.A. inspector.

Two new members and a 14 h.p. Morris for winch launching were enrolled—thanks to Mr. Holloway. It is with deep regret that we announce the passing of Bennett's Lancia (the "yellow peril"), which has succumbed to the fate of the "Mauretania." We raise our hats to this car, which has done so much useful work for the club. "It was a good car, but we done her wrong."

Friday, September 13th.—Three of our stalwarts, Bell, Bennett, and Feeny, went up to Moat Law and overhauled the trailer. Then they hit the trail for Cramlington Aerodrome and left the trailer there, returning next day to load it up with a new nacelled CRAMCRAFT machine, very kindly presented to the club by Cramlington Aircraft, Ltd.

Sunday, September 15th.—Rain and gale. Flying being out of the question, members set to work and cleaned up the machine until it had regained its schoolgirl complexion. When it was not pouring cloud fulls, it was howling a gale. We were lucky to make so much advancement and have the machine ready for flying next Sunday, considering that the moon is so near to the earth, that it was collected on a Friday, the 13th, and that there were 13 members present (plus three visitors—one from the Cambridge Club).

This makes the club flying equipment now four machines, and there are still the complete parts of another which we expect to purchase shortly.

FOR SALE——£45

This slow-flying ultra or super "Hols der Teufel" with A.S.I. and B.G.A. light wind sailplane C. of A.

Will soar when other secondary machines cannot stay up.

J. C. Neilan flying it at Dunstable out-climbed the Club G.B.

Apply—D. HISCOX, London Gliding Club (who has bought a faster "Kite").

New Gliding Clubs

Hereford.—*The Times* announces that Hereford is to have a gliding club, and a training site has been found within easy reach of the city, while an advanced flying site will be established with sheds and clubhouse. The report continues: "As only 25 members are necessary for the club to be formed and to become a group in connection with the Midland Gliding Club (upon which the machines and sheds would become available), everything points to the success of the project."

Blackburn.—At a meeting of the recently formed East Lancashire Gliding Club, held at the end of July, Mr. M. Bainbridge, formerly instructor to the Accrington Gliding Club, was elected president. The club glider has been completed, and flying was expected to commence in the middle of August. The annual subscription was fixed at two guineas for flying members, and 10s. 6d. non-flying, "in order to qualify for the subsidy scheme which provides for repairs, etc., to machines." [Does it?]

East Grinstead.—The gliding club has now been formed, and twelve members have already had flights, land at Boyles Farm having been placed at their disposal by Mr. C. Harrowell. "An effort is to be made to encourage women to take up this form of sport," says the *Sussex Daily News* report.

Walsall.—There has been talk of forming a gliding branch of the South Staffs Aero Club. During an official visit by the club president, the Rt. Hon. the Earl of Harrowby, on August 22nd, the Eagle Gliding Club of Birmingham gave a demonstration of gliding on the aerodrome in a primary machine.

Norfolk.—The Norfolk Gliding Club's first machine had its initial ground-hops on September 8th at North Walsham, on the private landing ground of Mr. A. J. Richardson, the 73-year-old airman. Mr. C. M. Hick, the chairman, who did a hop of 70 yards, is stated to have been associated with a gliding club at Bath before the war. The machine was constructed by members, except for the "Avro" wings, which were bought.

Devon.—After seven months' work the club's glider has been completed, and was tried out at Littlehampton, near Exmouth, in the middle of September. Mr. H. J. Penrose, test pilot at Westland Aircraft Works, made the first flight, and congratulated the club on the excellence of their workmanship.

Highbridge.—A gliding club is in course of formation here, near Weston-super-Mare, and a machine has already been secured.

FOR SALE——R.F.D. GLIDER

INDISTINGUISHABLE FROM NEW—£28

F. G. ENSER, Longford, near West Drayton, Middlesex.

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 5641


DE HAVILLAND
OFFICIALLY RECOMMEND
WAKEFIELD
PATENT
Castrol
XXL
FOR ALL GIPSY ENGINES



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

To further the development of Gliding and Soaring in this country, join

THE BRITISH GLIDING ASSOCIATION, LTD.

66, VICTORIA STREET, LONDON, S.W.1

□

Annual Subscription One Guinea — *Entrance Fee One Guinea*

ELLIS'S HANGAR

(No. A7)

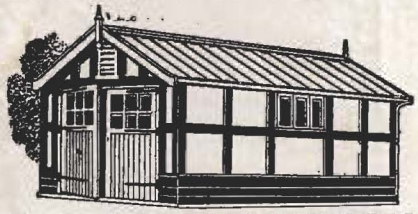
£99 17 6



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 ⅜ 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.

Ellis's GARAGES



Other models include:
"Marvel" from £3 1 0
"Super" from £4 5 0
"Hendon" from £6 10 0
"Reliance" from £8 10 0
"Italia" (all steel) from £8 10 0
"Villa" from £10 11 6

From £12/5/6 **The 'RAINHAM'**

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

Available on Easy Terms.

Carriage paid in England and Wales.

Strong framing with 1 in. weather-boards 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. Half glass doors strongly framed and braced. Despatched in sections, all nuts and bolts supplied.

Send for FREE CATALOGUE

G. ELLIS & CO. Combe Wharf, Gainsborough Road — London, E.9

THE DUNSTABLE KESTREL

IMPROVED WREN

£115 *with C. of A.* *Trailer £35*

Set of Blue Prints £6 6s. 0d.

THE DUNSTABLE SAILPLANE CO.

LUTON AERODROME, BARTON, BEDS.

ALL GLIDER MATERIALS SUPPLIED.

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.