THE SAILPLANE & GLIDER

(*Founded in September, 1930, by* THURSTAN JAMES).

The only Journal in the World devoted solely to Motorless Flight.

OFFICIAL ORGAN OF THE BRITISH GLIDING ASSOCIATION.

Editor: ALAN E. SLATER

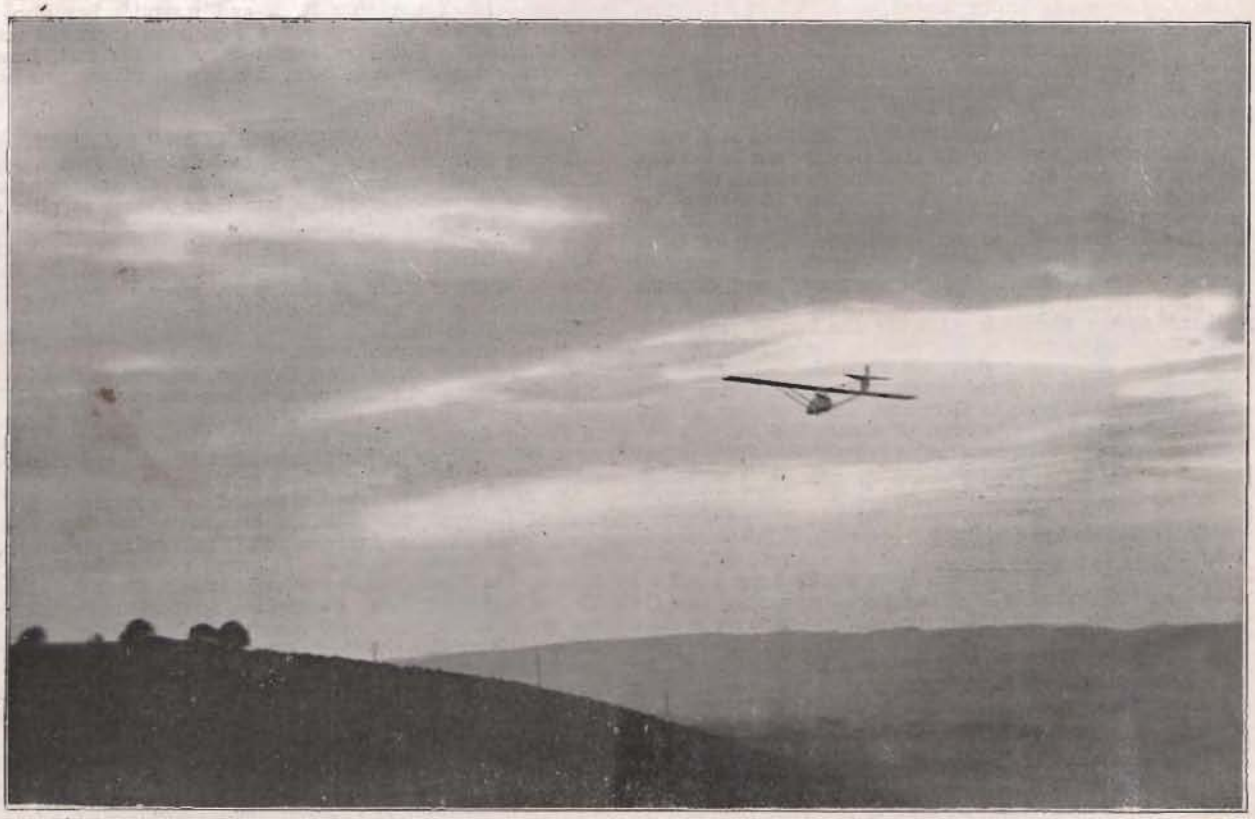
Editorial Offices: 43, CHANCERY LANE, W.C. 2. *Telephone:* HOLBORN 0309.

Subscription Rates [Post Free]: Annual 10s. 0d.; Half-Yearly, 5s. 6d., Single Copies 1s.

Vol. 5. No. 3. March 1934. **Published on the 2nd Tuesday of Each Month**

PRINCIPAL CONTENTS

OFF TO THE ZOO.



D. G. O. Hiscox in his "Hols der Teufel" and (far off) J. P. Dewsbery in the "Crested Wren." The Whipsnade Zoo is just round the corner of the foremost hill.

THE SAILPLANE AND GLIDER

43, CHANCERY LANE, W.C.2. MARCH, 1934

The Coming Year.

Those who attended the Annual General Meeting of the British Gliding Association last month will remember the opinion expressed by Mr. C. E. Hardwick, on taking up the duties of Chairman for the ensuing year, that the B.G.A. exists for the benefit of the flying, and not the other way round. The determination of all concerned to give practical expression to this view is shown by the appointment of a Special Committee to reconsider the rules and constitution of the Association. It is to be hoped that the Chairman's appeal for constructive suggestions from Clubs *and* their individual members, which we print in the Correspondence Columns, will meet with a good response. We all want to get on with the flying, but those who are giving all their attention in their various ways to the promotion of more and better flying can only do so to best advantage if there is full mutual confidence between themselves and those responsible for the organisation of the movement.

The Purpose of this Journal.

It is just over a year since the present Editor took office, and, if the opportunity is taken to say a few words on the subject, it is not to be assumed that we have changed our oft-expressed opinion that the actual flying of gliders and sailplanes is of more importance than all the rest of the gliding movement's activities put together. But the fact that the British Gliding Association is still willing to shoulder the financial loss consequent on producing this paper, shows that it is considered that we have a valuable function to fulfil. What is that function? On looking up the editorial remarks in the first issue for which we were responsible, we find the opinion expressed, in effect, that the purpose of THE SAILPLANE is confined to the spread of news and knowledge.

But a year's experience of the work has taught us that there is something more. It may be recalled that in 1922 a valiant attempt was made to get people in this country to take up the art of soaring flight. After a splendid start at Itford, the whole thing fizzled out. Why? Because, although it was proved that large numbers of people were capable of soaring, none of them thought it worth while doing so. They were content to walk about on the ground telling each other how interesting it would be if somebody *else* carried on with the good work.

We regard it as the function of THE SAILPLANE to prevent such a fizzle-out happening again (and we need not be too sure even now that such a thing is impossible), and this can only be done by engendering a conviction among us all that we are engaged in something that is worth doing for its own sake. It is to keep this conviction alive and to give it practical expression that most people require the external stimulus of the existence of a "movement," and of some kind of periodical publication to "hold the movement together," as the phrase is. During the barren years 1923 to 1929 there were quite a few soaring enthusiasts isolated about the country; yet what did they do? Even if the building of a glider was too much of an undertaking, they could at least have gone to Germany, where gliding schools existed, and there learnt to soar. But none did so.

It all goes to show the necessity of combined effort; unless we work for others as well as ourselves, we shall never get anywhere—not because we can't, but because we won't want to.

How Contributions are Obtained

Now as to THE SAILPLANE. Though we welcome criticisms, those few that we have received have mostly been based on the assumption that this is a commercial magazine, run for profit and able to get anything its readers want by merely offering to pay for it. There is no fund from which such payments can be made. If there were, we have no doubt that people would come tumbling over each other with offers to fill our pages "at the usual rates." As it is, the last issue had to be written entirely by the Editor, apart from some Correspondence and Club News. It is necessary to point out that this journal is intended to be a co-operative enterprise, and if any section of the movement wishes to see its own subject adequately treated, it is up to that section to provide the necessary manuscripts for our printers to work from. To take a few examples: Capt. Latimer Needham thinks THE SAILPLANE ought to publish articles on Bird Flight. He therefore writes a series of articles on the subject and sends them along. "Die-Hard" would like to see more descriptions of actual flying experiences in different types of machines, and he remedies this defect by sending us his impressions of such flights as he himself has made. Mr. Brame, Mr. Bell and Herr Frischknecht, who are interested in meteorology, have sent along descriptions of "cold front" clouds they have seen; while Mr. Wills, who wanted "politics," set the ball rolling himself and got quite as much as he bargained for. Similarly, many of those who like to read of the doings of others have not been backward in supplying us with such information as they have themselves collected.

Those Constructional Articles.

But when it comes to constructional work, we are sorry to have to record that, in this sphere, quite a different spirit has so far prevailed. All that has been received is an occasional demand that the Editor, who has never constructed a glider and doesn't know how to, should "give us" articles on glider construction. One complainant could, on his own admission, quite well build himself a glider if somebody would give him the drawings. We, and many of our readers, would like to know how to do likewise, but he did not offer to tell us. Instead, he complained bitterly because nobody else had done what he was able but unwilling to do himself.

The trouble is, probably, that so many people who can build or repair gliders are too busy doing so to find time to write about it. At any rate, we have up to the present found it impossible to induce any of them to put pen to paper.

Horse-Towed Flight.

Every method of mechanical flight has its non-mechanical counterpart. The legendary stories of aviators travelling upon chariots pulled by birds are anticipations of the present-day practice of towing gliders behind aeroplanes. Auto-towing is merely the modern substitute for a method which was occasionally used in the past, and the report that the Harrogate Club have been employing a horse to pull their ZEPHYR into the air is of considerable interest to those familiar with the early history of aviation. As far as we know, it is 35 years since such a method was last used. In 1899 the English gliding pioneer Percy Pilcher was being towed in his glider HAWK by a line passing over a tackle drawn by two horses, when a wire supporting the tail broke, and he sustained fatal injuries in the resulting crash. Another historic occasion was in 1854, when Capt. Le Bris, a French sailor, constructed a large glider after the pattern of an albatross and had himself launched in it from a cart. When the horse set off at a smart trot into wind, the artificial albatross lifted not only itself and its pilot but also the carter, who had somehow got a rope from it wound round his body. The horse galloped away with the cart, leaving its master dangling in mid-air. We hope the Harrogate horse was better behaved.

THE LYONS' "WESTPREUSSEN" REBUILT.

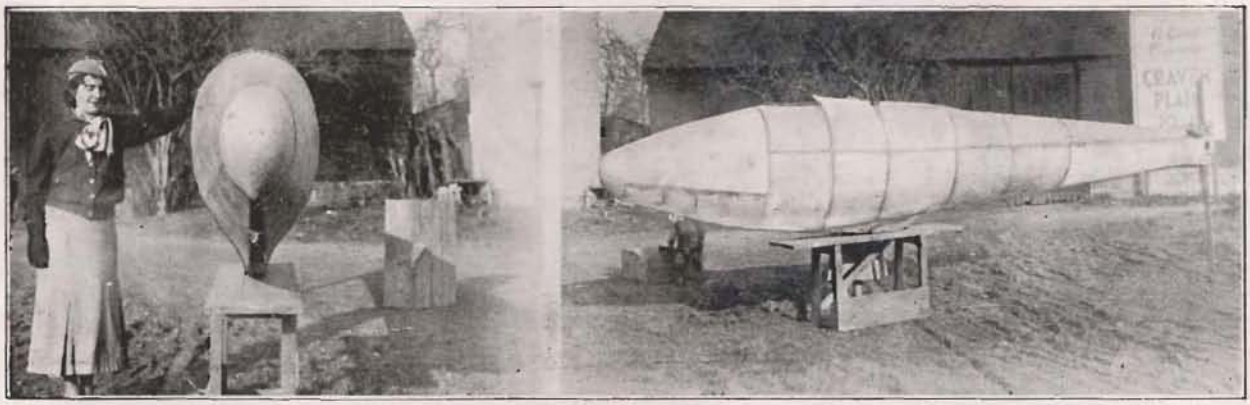
During 1931 Messrs J. Lyons and Co. organised a series of gliding and soaring demonstrations all over England, engaging the services of the late Herr Krause as pilot and securing two sailplanes of WESTPREUSSEN and FALKE type respectively. The former was named the CLOUD YACHT; many successful flights were made on it until, at the Ilkley site on Whit Monday of that year, while flying at 200 ft. above the top it somehow developed a spin and crashed half-way down the hill. It was then considered "written off" and was not used again.

Mr. F. G. Enser, of West Drayton, informs us that he has recently purchased the machine to help the growth of gliding, and it has now been thoroughly overhauled. Some photos of the fuselage are given herewith. There are unfortunately no soaring slopes in his district, but Heston and Hanworth aerodromes are each about three miles away.

The WESTPREUSSEN type has proved a very successful design. One of the type, the SCHLOSS MAINBERG, has done several years' good work in America and is still going strong there. The original WESTPREUSSEN belonged to the late Ferdinand Schulz, the East Prussian schoolmaster. (Both Schulz and Krause lost their lives in aeroplane accidents.) On it Schulz set up a world's duration record of 14hrs. 7mins. in May, 1927, at Rossitten in East Prussia. We saw him fly the same machine at the Rhön Competitions in 1928, when he performed several good distance flights. At that time it was believed that all turns in sailplanes should be as flat as possible, and Schulz was unorthodox in that he was the only pilot at the meeting who put on full and proper bank for his turns.

Mr. Enser's WESTPREUSSEN has a wing span of 52 ft. 6 ins., and a gliding angle of 1 in 23½. The cantilever wing is made in three sections.

THE "WESTPREUSSEN" READY TO FLY AGAIN.



The reconditioned fuselage of the "Westpreussen" which was last flown in 1931 at Messrs. Lyons' demonstrations. The work has been done by Mr. F. G. Enser.

THE SUTTON BANK NEGOTIATIONS

[*As a result of much hard and difficult work which has been put in during the past few weeks, the prospects of setting up a National soaring centre at the Sutton Bank site are now distinctly brighter than heretofore. The following article has been written by one of those responsible for the negotiations. It must be emphasised, however, that we are by no means yet out of the wood, and too optimistic a view of the outcome should not be taken.*]

It is pleasant to be able to report that the negotiations towards the establishment of a National School for Soaring Flight on Sutton Bank have now reached a more favourable stage. It appears possible that the British Gliding Association may be granted a lease of the site by the Ecclesiastical Commissioners, on condition that no flying is to take place on Good Fridays or Christmas Days, and no gliding on Sunday mornings for purely sporting purposes. Will all pilots please note therefore that it is of the utmost importance that no flying takes place on Sutton Bank next Good Friday, otherwise they will severely prejudice the present negotiations.

Three gentlemen must be mentioned without whose sympathy and help the present stage could not have been reached. Messrs. Bolckow, Bolton and Kirk owned the shooting rights of the Bank, and it is most sporting of them to have agreed with the Ecclesiastical Commissioners to allow the use of this site. Also Mr. Weighill, of Hood Grange Farm, has agreed to allow machines to land in his field, for a fee, at the foot of the Bank. It cannot be too strongly emphasised that our gratitude must take the concrete form of doing everything to maintain the goodwill of these and all other neighbours in the district. The future of the movement is wrapped up to an important extent with the success of the Sutton Bank scheme, and this success depends entirely on our retaining the goodwill of our neighbours. Messrs. Sharpe, Slingsby and Wills, who have conducted the bulk of these negotiations, feel personally responsible to these friends that they shall not regret their generosity We are the most harmless, and the most commendable body of enthusiasts, but our very enthusiasm has in the past on occasion blinded us to the grievances of others. Those responsible for the hoped-for success of this scheme are determined to put the goodwill of our neighbours above every other consideration.

There is further the question of accommodation to be considered. Any structures erected on the site must first be approved by the Thirsk Rural District Council, and then by the Ecclesiastical Commissioners, although it is perhaps not likely that the latter would veto any structure passed by the local body. We are up against a formidable proposition here, because the R.D.C. have, we fear, been somewhat naturally prejudiced by the thoughtless and grandiose press propaganda which has been published over their heads by entirely unauthorised parties. Until the Ecclesiastical Commissioners and the tenants had been definitely approached we were obviously not in a position to approach the Thirsk R.D.C., and it is more than annoying that our position should have been made so difficult in this way.

THE "KESTREL"

[*Some photographs of the "Kestrel" under construction were reproduced in our issue of last December, p. 223. The machine is an example of amateur design and construction, and the following description of it has been sent by one of its constructors.*—ED.]

This machine has been designed by Mr. W. E. Hick, a member of the Newcastle Gliding Club, and is intended to be a machine of high performance and low weight, with good manœuvrability, and easily portable when on the ground; in short, a private owner's ideal.

The original specification of the KESTREL, which has been called "The Hiccough" by a certain rude man, included a hexagonal fuselage of 12ft. 6 ins. length, the rudder bringing the total length up to 15 feet, which was strut-braced to a wing, of Göttingen 535 section, 85 sq. ft. area, 30 ft. span and aspect ratio 10.6. Max L/D was 17.3:1, and sinking speed (minimum) 2.6 ft. per sec.

Since then, however, nearly everything has been changed in an effort to get the best performance possible. The fuselage has become oval, its length remaining the same as before. The wing section is now Göttingen 652, and the arrangement of the wing struts has been changed. The span has increased to 35 ft., and the area has gone down to 83 sq. ft., giving an aspect ratio of about 14.8 :1. Max L/D is now in the region of 20:1, and sinking speed roughly 2 ft. per sec. The wing is to be in three parts, the two outer parts being 12 ft. 6 ins. span, with chord tapering from 3 ft. 3 ins. to 9 ins. near the tips, and the centre section will be 10 ft. span and 3 ft. 3 ins. chord.

The pilot sits under the wing, as in SCUD and Scud type machines. The rudder is mounted on a stern-post, the upper part of which forms part of a small fixed fin. Elevators are of pendulum type, being fixed by metal fittings to a spar in the fuselage, which is hinged to the penultimate former, thus keeping all the elevator control wires inside the fuselage.

The fuselage is built up on four longerons, one above, one below, and one on each side, and formers of spruce walled in with plywood and suitably strengthened with struts arranged radially. Those in front of the pilot's seat have, of course, no such bracing. The head rest and fairing is small, and is so shaped as to minimise interference between it and the wing, by having its outline parallel to the shape of the under surface of the wing. The plywood had to be put on in very small sections on account of the great curvature this involved.

The cockpit will be covered in by a detachable plywood cover, and may later have a celluloid "conservatory" fitted.

The skid is of ash, and will have interposed between it and the fuselage bottom either a series of tennis balls or a few lumps of sorbo rubber, and the whole thing will probably be faired in with fabric of some description. A quick-release hook will be built into the tail skid, and there will probably be another quick-release hook in front for auto-towing.

The total weight has been calculated at 85 lbs., but performance calculations have been based on an empty weight of about 100 lbs. so as not to be too optimistic.

More detailed description cannot be given yet, as parts which have not already been made are constantly being redesigned. THE KESTREL is not expected to be finished before 1935.

THE DARMSTADT "WINDSPIEL"

The "Windspiel" at the 1933 Rhön Competitions.

[*The* WINDSPIEL, *which was designed and built by members of the Darmstadt Academic Flying Group, has aroused much interest on account of its low weight and easy manœvrability, both features being designed to facilitate the utilisation of thermal currents. The machine performed very well at last year's Rhön meeting until it damaged its nose in a bad landing. The following article describing it has been written by Dipl.-Ing Kosin and Dipl.-Ing Schomerus, and is translated from "Flugsport." We regret one or two obscure passages, but they are equally obscure to German gliding men whom we have consulted.*]

In 1931 Kurt Starck, in order to make soaring flight independent of hilly country, introduced for high-performance sailplanes (the DARMSTADT II) the method of towed launching, which up till then had only been used for special machines and for carrying out certain tests. By this means the possibility was opened up of carrying out thermic soaring flight over flat country to an extensive degree, a possibility which had been clearly foreseen by Botsch in 1924 and shown by Nehring to be capable of achievement. The most noteworthy performances of this kind are the well-known flights of Fuchs, Hirth, Kronfeld and Riedel. By increasing the span (of sailplanes) it was sought to succeed in approaching perfection in this art. It was sought to preserve the necessary manœuvrability by every possible means, for it soon became evident that circling, in the manner of the birds, was the proper evolution for flying in thermic up-currents. A fundamental improvement in the manœuvrability of sailplanes could, however, not be achieved while the large spans were retained. Similar problems arose in slope soaring, where the machines with more manœuvrability had already been found equal and even superior to the so-called "better" machines. The demand for greater manœuvrability over a slope was, in fact, the original cause of the discussions over the design of a small, nimble machine of good performance, which had been going on for many years in the Darmstadt Academic Flying Group. Kirschner's design (LA PRUVO) of the year 1927-8 did not come up to expectations either in its flying qualities or its performance. [LA PRUVO weighed only 35 kg. (77.2 lbs.) and had a span of 29.5 feet and a wing-loading of 2.6 lbs. per sq. ft. The wings had a pronounced sweep *forward*, except for the tips, which had slight sweep-back and rotated in their entirety for use as ailerons.—Ed.]

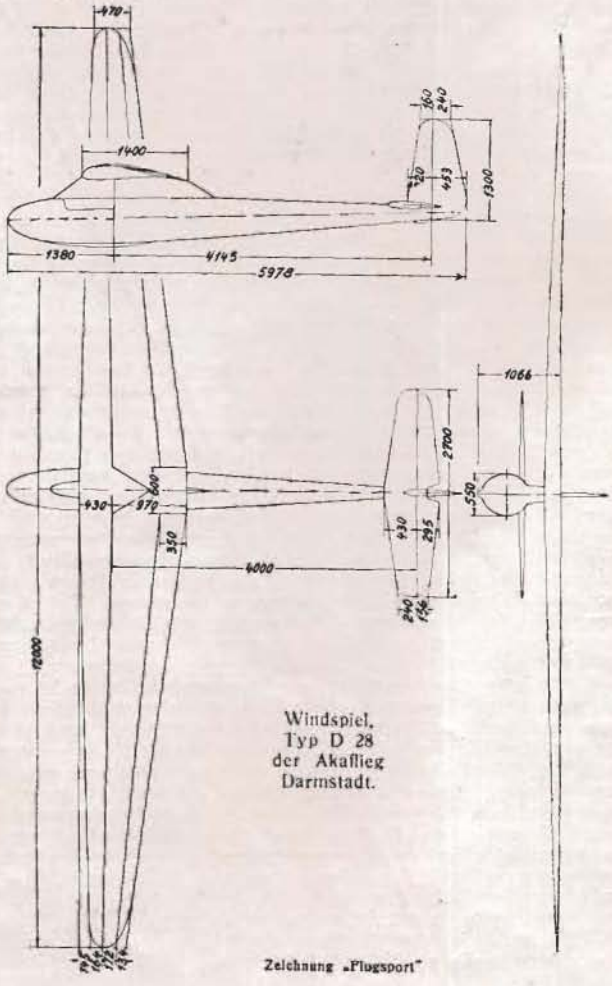
There were difficulties in undertaking the development of such an urgently necessary design; above all, the fact that the group was not a Research Institute with facilities for the investigation of soaring flight. It was clear to us that the desired goal could only be reached if no kind of compromise for merely financial reasons was permitted, and that the carrying through of the design went beyond what the economic resources of a group can afford, when it has not only to build the machine but to fly it well and often.

The D28 (WINDSPIEL) is a cantilever high-wing machine; span 12 m. (39.4 ft.), surface area 11.4 sq. m. (122.7 sq. ft.), tail lever-arm (distance from c.g.) 4 m. (13.1 ft.), weight empty 54 kg. (119.05 lbs.)—with Rhön equipment, such as sprung skid, etc., 55.5 kg. (122.36 lbs.). Maximum permissible flying weight for $nA = (nG = 4) = 136$kg. (300 lbs.).

The Wing.

In choosing the dimensions of the wing, regard was had to the least possible sinking rate, since a small span works out principally in favour of the sinking rate, but less markedly of the gliding angle. In the procedure adopted by Hoppe-Spiess, the parasitic resistances and profile values appear in calculating the size of the wing. The former comparatively favourable measurement results were deliberately taken as a basis, since in this way there is least risk to the flying efficiency, for with worse parasitic drag the wing would have to be even bigger, and the actual dimensions adopted would then lie between the size of wing for best sinking rate and that for best gliding angle. The wing area of 11.4 sq. m. thus arrived at, with a flying weight of 136 kg., gives a wing loading of 11.9 kg. per sq. m. (2.44 lbs. per sq. ft.). A reduction in the flying weight by employing a lighter pilot is of benefit chiefly to the rigidity, and not so much to the flying performance.

The wing section is built up throughout on the skeleton of Göttingen 535, which, of all wing sections coming into question which have yet been measured, has by far the most favourable polar values for most of the purposes of sailplane design. The wing section at the root was made 10 per cent. thinner than the original; from there outwards the thickness is reduced linearly to 1/8.1 at about 5/6 of the semi-span; then even more strongly to the tip. Measurements upon other wing sections show that in this way it is possible to obtain a reduction of the "cw" to an extent not to be despised,



which far outweighs the loss in rigidity and lightness. We had no money for strength tests. The geometrical angle of incidence of the wing-chord is constant along the wing, whereby an insignificant reduction [of incidence?] of the skeleton (of the wing section) results. Any greater reduction had to be avoided, in order that the efficiency of the wing, which was already of markedly trapeziform shape, should not be further reduced. The control movements about the longtitudinal axis and the reduction of undesirable spinning tendencies were attained by other means.

The construction of the wing is single-spar with torsion-resisting leading edge, which is covered throughout its length with 1 mm. diagonal plywood. The spar has an "I" section, a straight upper border, and is bent forwards to reduce unnecessary weight in the leading edge. The wing is calculated to have a twofold safety factor against twisting up to a speed of 180 km. (112 miles) per hour, and to be free from flutter. The oscillation figure is about 250 per minute. The horizontal air forces and loads can only to a small extent be taken up by the leading edge, owing to the lack of tensile strength and stiffness in the diagonal plywood. For this reason the covering of the aileron slit was brought into use as a substitute.

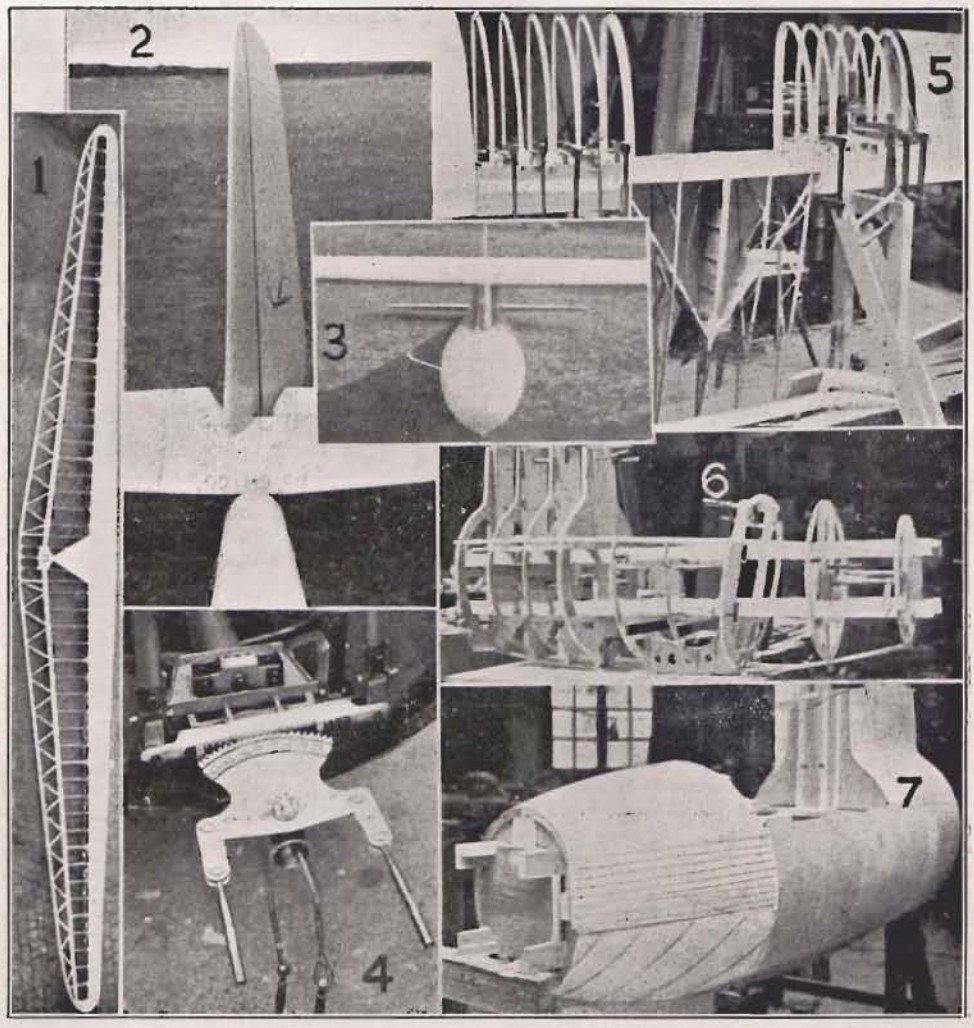
The ailerons, which stretch along the entire wing, are attached at six points to specially strengthened ribs; an assisting spar is not used. The covering of the slit has a cross-section of the shape of the sector of a circle, and consists of 0.5 mm. plywood. The ailerons themselves are built up on a conical light metal tube, which is carried right through and on which the ribs rest. The aileron is actuated at its middle. The ailerons have a calculated turning angle of about 3 deg. at 180 km. per hour. The size of the ailerons was determined by the nature of the alteration in the wing-section desired. As far as the effort of working the controls is concerned, it would have been more desirable to fit only half the span with ailerons.

The wing is undivided and attached to the fuselage at three points. The attachments are of light metal and are bound to the wood filling with light metal hollow rivets.

The Fuselage.

The machine's fuselage was made unusually long with a view to manœuvrability, longtitudinal stability and reduction of the control surfaces. The distance from the centre of gravity of the empennage to the spar (of the wing) is 4 m. The greatest cross-section is 0.3 sq. m. (3.23 sq. ft.), including the skid and the cabane (or "neck"); the smallest is 0.01 sq. m. (0.11 sq. ft.). The cockpit will accommodate any normal person; actually it is designed for people up to 1.84 m. (6 ft. ¼ in.) in height.

The rear part of the fuselage is constructed without spars, and is covered with 1 mm. plywood as far as the final diminutive cross-section; the forward part is also covered with 1 mm. plywood. The distance between cross-frames is 150 mm. (5.9 inches). The fore part has two spars plus the skid; both parts were built up separately in order to facilitate the inclusion of the controls, and were afterwards joined together in a simple manner. The forward closure consists of a plated cap which incorporates the pulley for the rudder cable. The cockpit is enclosed with a transparent cover, which gives adequate ventilation by means of numerous slits and an opening above. It can be easily pushed forwards in the event of escape by parachute being necessary, and this action releases the door-like flaps which are normally closed after the



Details of the "Windspiel" under construction. 1. The wing. 2. The tail, showing how the fin takes part in the rudder movement. 3. Front view. 4. Differential control and mechanism for altering the wing section. 5. Middle portion of wing under construction. 6. Front portion of fuselage. 7. Covering of the same.

Reproduced from "Flugsport."

pilot's entry. The safety-belts are of hemp with light metal fastenings; the abdominal straps are fastened to the skid and the shoulder straps rivetted to the fuselage skin.

The Tail.

The great length of the fuselage allowed of a small empennage; this was provided with stabilising surfaces. The elevator action was, in comparison with previous sailplanes, much reduced, owing to the reduced size of the tail; the rudder action was, on the contrary, increased owing to the fin taking part in the rudder movement to the extent of 50 per cent., and this again contributed to a reduction in size of the empennage and therewith especially a lowering of the moment of inertia in turning. The tail is suspended on a base of 120 mm. (4.7 ins.) for its vertical portion and 100 mm. (3.9 ins.) for its horizontal portion.

The efficacy of the rudder mechanism has already been discussed a year ago. In this machine there was again incorporated the differential control which had proved itself so successful in the KONSUL. When the rudder is actuated, the proportionate movement of the ailerons is altered according to the strength of the rudder movement. The differential effect arising in this way is always correct for the turn, whether in going into the turn or in preserving the correct bank by giving opposite aileron. In addition to this the ailerons are adjustable both upwards and downwards, by means of a spindle worked separately from the cockpit through a chain and sprocket. The control movements are transmitted to the tail by cables; to the ailerons by push-rods. In the cockpit is a normal control-stick, which requires much less room than a wheel control.

The following are built in: Altimeter, air-speed indicator, variometer, compass. A gyroscopic instrument we could unfortunately not afford. As a substitute, the machine was longtitudinally stable when flown "hands off."

How Weight Was Reduced.

The low weight was, in spite of a complication of devices which amazed everyone, achieved in the following ways:

1. By the use of nothing but first-class materials (e.g., only Nautic plywood even in the least important places).
2. For the ribs a specially slow-growing trunk of spruce (15 to 20 annual rings per cm.) was used.
3. All connections apart from two or three were manufactured from light metal. The entire control mechanism is of light metal, all bolts are of light metal, most of the connections are rivetted with rivets of light metal tube.
4. All superfluous glue was scraped away.
5. For the fabric covering unbasted meal-worm silk was used, weighing 40 grm. per sq. m. (0.13 oz. per sq. ft.).
6. All measurements, including those of wooden parts, were checked with an accuracy of 1/10 mm.
7. The sections were as far as possible hollowed out, all cross-frames and all ribs have a "U" section (to the evenly loaded upright member).
8. In the designing and workmanship no compromise was made on grounds of expense, transport facilities, etc. (undivided wing, special trailer, etc.).

The weights of the separate parts are: Wing, 29 kg. (63.9 lbs.); fuselage, 20.5 kg. (45.2 lbs.); rudder and fin, 1.9 kg. (4.2 lbs.); elevator and fin, 3.6 kg. (7.9 lbs.).

The aircraft carries the workshop number 25; cost of construction, about 4,000 to 5,000 RM. (£200 to £250 at par); time for construction, about 7,000 working hours. Work on the machine had to be interrupted in various ways, both for lack of money and because of the necessity of work on the aeroplane D22 for the Circuit of Europe, so that it was only recently that the machine was completed.

The machine was tried out by Hans Fischer, who made about 30 flights in about 15 flying hours. Its flying properties realised expectations to the full.

Minimum sinking rate, 0.55 m. (1 ft. 9.6 in.) per second; best gliding angle, 1 in 23. These were measured on an absolutely calm day between 4 and 6.30 a.m., there being a temperature inversion from the ground upwards (12.5 deg. C. at ground level, 21.5 deg. C. at 800 metres). At a later date we will give the exact data of these measurements: curves for 5 different control-surface positions and further calculations from them.

Turning time for 25 degree curves, 9 to 11 secs. at a speed of 47 km. per hour, corresponding to about 40 metres. [This apparently means: the machine turns a complete circle in 9 to 11 seconds with a bank of 25 degrees at a speed of 29.2 m.p.h., giving a diameter of about 131 feet for the circle.—Ed.]

BIRD FLIGHT XII.

THE SOARING FLIGHT OF BIRDS

By C. H. LATIMER-NEEDHAM, M.Sc. (Eng.), F.R.Ae.S., F.Z.S.

Static Soaring Flight.

(Continued.)

Cloud and Storm Soaring.

The up-currents of air associated with clouds are known to birds, to certain species at least, and are utilized far more commonly than is generally known. Certain diary extracts from "Animal Flight" may be quoted here in support of this statement; for instance, "Sunshine. Isolated small cumulus clouds. Four vultures seen circling in and out of the base of a small cumulus cloud at a height of 1,100 metres," and "Five cheels at about 300 metres, circling in front of underside of cloud."

Cumulus clouds are, of course, formed by the condensation of moisture contained in warm air that has been carried to colder altitudes where it is no longer able to retain the whole of the moisture in the evaporated state, or in other words, saturation point at the lower temperature is passed. The initial upward trend may be caused by wind deflection or thermal currents, but the process of condensation liberates the latent heat absorbed during evaporation, and thus causes a continuation of the ascending currents.

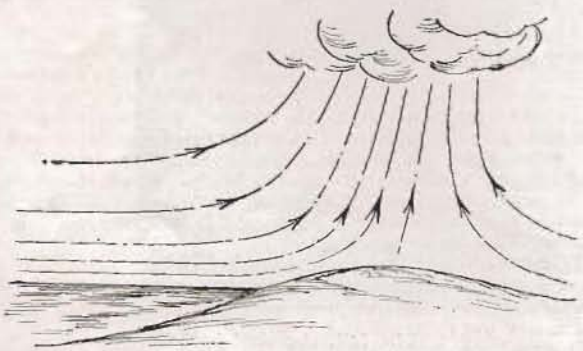


Fig 1.—Sun's action on land and water, showing formation of cloud.
(Reproduced from "Sailplanes, Their Design, Construction and Pilotage," by the writer.)

Distance flights, in which the bird flies from cloud to cloud along its route, do not appear to have been recorded, probably on account of the difficulty of continuous observation, but one such flight was described by the writer in THE SAILPLANE & GLIDER for September 23rd, 1932. The flight was clearly observed from the hills to the north of Lucerne, which command a wonderful panorama of the town, lake and surrounding hills, in the summer of 1932, the time being about 4 o'clock on a very hot afternoon.

The bird, a buzzard or eagle, was first noticed in circling flight just over the town, where undoubtedly there existed a strong thermal current. After gaining about 600 ft. in height, it glided rapidly in a straight line towards the N.E., with little apparent loss of height, and recommenced circling half a mile or more away. A small thermo-cumulus cloud was then noticed directly above the bird. After a further gain in height, during which the bird soared to near the base of the cloud, a second but longer glide was made in the same direction until the circling was repeated once more just below another cloud. A final long glide took the bird to a group of clouds, at least 1,000 ft. above the ground, where it disappeared from view within, or behind, the clouds. Careful observation disclosed several birds in circling, soaring flight amongst the clouds, and it is pretty certain that the presence of the others would not have been detected if the eye had not been directed and focused there by the flight described. The total distance as observed was probably about three to five miles, after which it became difficult to determine the course further.

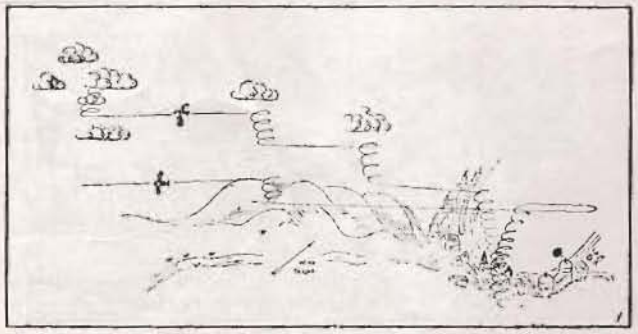


Fig. 2.—Cloud-soaring flights of birds near Lucerne.

A second bird that had started at the same time glided away from Lucerne in the opposite direction, but lost considerable height before doubling on its track and following the other at a lower altitude. One gain of height, by circling below the second cloud, was witnessed after which the bird disappeared from view.

On occasions soaring pilots have discovered that the strongest up-winds are to be found at the front of clouds, and particularly is this so when the clouds form the van of a line squall or thunderstorm.

A cold front is caused by the movement, generally in a south-easterly direction, of a large mass of air from the polar regions, brought about by differences in atmospheric pressure. As the front proceeds it meets with relatively warm air, which, being lighter, is forced upwards and carries with it the moisture that has been evaporated from the ground. Condensation then takes place which gives rise to the formation of a line, or roll, of cloud, from which the laden moisture falls in the form of rain, or hail, or both. The front may extend for hundreds of miles and moves forward with an average speed of perhaps thirty to fifty miles per hour.

Somewhat similar conditions of instability are brought about in the absence of appreciable wind in hot weather and are due to strong convection currents. In this case the large thunder cloud is the result of a vigorous thermal column. An "attraction" wind travels towards the thunderstorm from the front, that is in the opposite direction to the path taken by the storm.

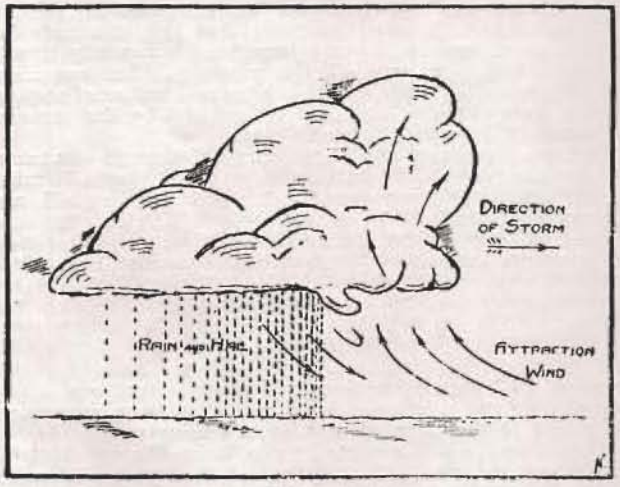


Fig. 3.—Heat thunderstorm.

Up-currents of over 1,000 feet per minute have been experienced in the region of cold fronts, whilst upward velocities of over 7,000 feet per minute have been both estimated and measured during intense heat thunderstorms.

Obviously such conditions provide excellent facilities for soaring flight, for, provided the bird (or aircraft) remains within the vicinity just forward of either type of storm and travels with it, there should be continuous "lift" until stable atmospheric conditions set in again. By such means several of the longest sailplane flights, of one hundred miles and more, have been achieved during the past few years, but for how many centuries have the birds been making good use of the same source of free transport?

Hankin recorded "Recently (July, 1912) I saw an adjutant flex-gliding in the direction of Jharna Nullah at a height of 1,100 metres. While so doing it travelled in an apparently straight line. *It was just under the level of an advancing rain cloud.*" (Italics added.) And again "A few (vultures) glided back down the valley and *circled in front of an advancing rain cloud.* This cloud was coming near, two vultures were watched circling *in* the cloud for about three minutes. This was wet cloud that deposited drops of water."

A thunderstorm of March 27th, 1912, was recorded very fully, from which the following entries have been extracted:

"2.0 p.m.—A heavy thunderstorm near, extending along the horizon from north to south-west. A vulture slow flex-gliding.

"2.46.—Vultures seen overhead *retreating* before the storm.

"2.54.—Dust-*raising* wind had reached river.

"2.57.—A black vulture . . . overhead *retreating.*

"3.0.—A cheel at 600 metres height travelling towards the storm. Dust-raising wind now . . . lifting dust in dense smoke-pattern masses.

"3.2.—Several cheels near in the dusty air. . . . Strong flexing of the wings (to decrease wing area) seemed to produce only a small amount of descent.

"3.5.—Hail and rain.

"3.23.—Rain nearly stopped here. Only two cheels up, both *in flapping flight.*"

The above is a clear description of the events accompanying a heavy storm and shows the effects on the soarability of the air, for whereas soaring was easily achieved prior to the arrival of the storm, flapping flight had to be resorted to after its passage. Dr. Hankin's use of the word "retreating" is obviously ill-chosen: The entry of 3.0 p.m. shows that the birds deliberately fly towards the storm, which is well borne out by many other entries in the book, whilst, of course, the birds could land and take cover well before the storm arrived if they had wished to.

It is also of interest to note that "Cassells' Natural History,"* in describing the turkey vulture, of America, states that "They are often seen in companies, soaring at an immense height, particularly previously to a thunder-storm."

* Cassell's Popular Natural History, Vol. III, Birds.

CLOUD FLYING AREAS.

An Air Ministry Notice (No. 92 of 1933, Series A) has been issued defining the areas in which practice blind flying may be carried out, in order to minimise the risk of collisions.

There are three kinds of cloud-flying areas listed; a large area in the south-east of England used by the airways to the Continent; civil cloud-flying areas; and Royal Air Force areas. These last are further subdivided into those used on week-days only and those used also at week-ends, while on Mondays, Wednesdays and Fridays, R.A.F. machines may be flying in clouds anywhere in Great Britain outside the civil cloud-flying areas.

It so happens that Sutton Bank is well clear of any of these districts, the nearest being an R.A.F. week-day area stretching westwards from Thirsk, which is itself some distance up-wind (in soaring winds) from Sutton Bank and therefore not likely to be reached by cloud-flying sailplanes. But, in view of this Monday-Wednesday-Friday business, it might be as well, if the Sutton Bank scheme really gets going, to apply to the Air Ministry for a "civil cloud-flying area" of our own, bounded perhaps by lines 30 degrees to either side of the down-wind direction and stretching—shall we say 50 miles?—down wind

Dunstable is, however, less fortunately situated, for it lies right in the middle of the De Havilland Company's Stag Lane and Hatfield area. The eastern boundary of this is a line joining Ashwell, Benington and Chipping Barnet, which places are all about 20 miles from Dunstable Downs, in a direction N.E., E. and S.E. respectively. Having got so far without colliding with anything, our London Gliding Club pilot will then have a clear run ("clear" is figurative and does not refer to conditions inside the presumed cloud) for another 25 miles until, on reaching Chelmsford, he finds himself poaching on the Manston squadron's area, which, by the way, is in continuous use inclusive of week-ends. But by then the sea will have come in sight, and it will be high time for him to think about landing.

Pilots wishing to make cloud contact from the South Downs should remember that the Continental airways' cloud-flying preserves extend as far west as a line drawn from Bexhill north-westwards to Kingston-on-Thames.

It should be mentioned that the Air Ministry directs that cloud-flying for practice or instruction should not in any circumstances be carried out below a height of 2,000 feet above ground level. This is, however, about the minimum height for cumulus bases in this country.

A WORLD'S HEIGHT RECORD

The "Condor."

A new height record for sailplanes has been set up by Heinrich Dittmar at Rio de Janeiro. Flying the CONDOR, he reached a height of 4,200 metres (13,780 ft.) above the ground, or 3,850 metres (12,630 ft.) above the point at which he cast off from the aeroplane which gave him a towed start. (The latter figure counts for record purposes.) By doing so he has far exceeded the previous height record of 2,589 metres (8,494 ft.) which was set up by Robert Kronfeld on July 30th, 1929, in the course of a soaring flight from the Wasserkuppe to Lienlas, near Bayreuth.

This new record is the first great achievement of the German expedition to Brazil which, as we have already announced, left Europe on January 5th last. The expedition is under the leadership of Professor Georgii, and includes the sailplane pilots Wolf Hirth, Peter Riedel, Heinrich Dittmar, and Hanna Reitsch, with their sailplanes MOAZAGOTL, FAFNIR, CONDOR, and GRUNAU BABY respectively, with an aeroplane for towing purposes.

On arrival in Brazil, there were protracted difficulties with the Customs authorities, and it was not till February 7th that the first flights could be made. On that day all four pilots went up. Each had an aeroplane-towed launch, but the weather was unfavourable for soaring, and all they could do was to glide back to earth. On the way down, however, they all carried out a series of aerobatics, and the populace gave vent to terriffic enthusiasm.

The next day brought good soaring conditions, and every one of the pilots climbed more than 2,000 metres above the starting point. Long distance flights could easily have been carried out, but were not deemed advisable owing to the large areas of virgin forest with no prepared landing places, and the danger of coming down in some inaccessible spot. Later, it was intended to carry out soaring flights over the town of Rio, and afterwards investigate routes for distance flights, following which the expedition will move to Sao Paulo.

Dittmar's Own Account.

Dittmar started at 11 a.m. (the date is not stated) and cast off from behind the aeroplane at a height of 350m. (1,150 ft.). He immediately rose at 2m. per second, in a smooth-flowing up-current, till at 800m. (2,625 ft.) he entered the cloud base. He gives the following account of his experiences in the Berlin newspaper *B.Z.* (quoted in *Flugsport*) :—

"As I knew, from many previous flights, of the turbulence inside clouds, I drew my safety straps somewhat tighter, so as not to be lifted out of the seat by powerful gusts. One quick look at the 'carbine-hook' of the parachute, and then into the cloud. By continuous circling, with a careful watch on the instruments, I gained height slowly and steadily, till I had climbed through the cloud up to 1,500m. (4,920 ft.). The up-current in this cloud slowly faded out, and so I flew some way away from it in order to get a view over the new, lift-providing cumulus clouds. I chose one of the biggest towering masses and so began the second instalment of cloud flying, which was destined to be not so comfortable as the first.

"I flew by compass into the middle of the cloud, and at once found strong uplift, in which I was thoroughly shaken up by gusts, so that I could only with difficulty keep the machine in its correct attitude and then only by watching the instruments. Slowly the variometer indicated 'climbing,' until finally it reached 4 metres per second. Thus I had soon climbed through this cloud mass also, which brought me to a height of 2,500m. (8,200 ft.). The German height record had already been broken.

"But there is further to go. If conditions have been good so far, they will be good even further. The CONDOR is certainly strong enough; that I knew, because I had built it myself.

"Again I flew a little away from the clouds, in order to push into the biggest cloud mass on a compass course. Hardly was I inside the cloud when I was greeted by the first violent gusts, and the further I flew into it, the more the machine became the plaything of the up and downward-moving air currents. The variometer, which shows the rising or falling speed, hit the end of the scale; the speed indicator went up to 150km (93 miles) an hour, only to return to zero at the next moment; a frightful jolt, and I am hanging in the safety straps, but I cannot make out what attitude the machine has got into. To avoid its breaking up, I try to keep the speed as low as possible, but I succeed only with great difficulty. The compass is continually turning round, the turn indicator sticks to the right, and the inclinometer also does what it likes. In addition, dirt from the skid flies up into my eyes. But the altimeter climbs and climbs; that is the chief thing. Within three or four minutes I mount from 2,500 metres to the maximum height of 4,200 metres (13,780 ft.); that is, 3,850 metres (12,630 ft.) above the start. The climbing speed amounted to an estimated value at times of 10 to 20m. (33 to 66 ft.) per second.

"A new international record, a new world's record for soaring flight had been created. The only soaring record yet lacking to Germany had been brought to our Fatherland. That was the finest thing about this flight."

Previous Height Records.

The remarkable thing about this new record is the immense margin by which it exceeds the previous one, thus showing what great possibilities tropical countries have to offer as compared with more temperate regions.

It is only in the last few years that height records for gliders have come to assume importance; formerly it was duration which received all the publicity. But nowadays it is realised that, while duration is more a matter of staying power, great heights can only be attained by the exercise of much skill backed by experience.

In the early history of gliding, not much account was taken of heights reached, though it is recorded that Lilienthal would sometimes hover over the top of his gliding hill in a strong wind and talk with those below. Pilcher once rose 12 feet and kept up for a third of a minute, while Chanute's gliders were sometimes lifted 20 feet by gusts. In our last issue it was mentioned that Mr. Gordon England rose 100 feet in a glider in 1909. Greater heights than this were not recorded until the Germans began their series of meetings in the Rhön. There, in August, 1922, Martens rose 330 feet in the VAMPYR in the course of the first soaring flight of over an hour ever performed. Shortly afterwards, Hentzen in the same machine climbed over 1,000 feet while setting up a new duration record of 3 hours 6 minutes.

Max Kegel, while soaring at the Rhön meeting of 1926, got drawn up into a thunderstorm and travelled 34 miles before he could get down again. He reached over 3,000 feet above his starting point, but, as he carried no barograph, the record was an unofficial one.

An official height record of 570m. (1,870 ft.) was established on April 5th, 1928, by F. Schultz in his WESTPRUESSEN at the Hirschberg in Silesia. This was stated to have beaten a previous French record by 23 metres.

On August 8th of the same year, Edgar Dittmar, elder brother of the present record holder, reached 775m. (2,543 ft.) in the ALBERT. (We were there and have a photo of him doing it.) Heinrich has therefore restored the record not only to his Fatherland but to his family too.

The next holder was Nehring (since killed in an aeroplane accident). On April 25th, 1929, he soared along the Bergstrasse—a range of hills bordering the Rhine valley—creating a new distance record of 45 miles and rising to 1,209m. (3,958 ft.) under a cumulus cloud. Kronfeld had slightly exceeded this on April 14th, but his barograph did not record the flight properly. Not till July 30th did he

beat Nehring's record officially.

Flying in Clouds.

It is worth recording that two flights which approached Kronfeld's former record in height were both made in cumulo-nimbus clouds, the clouds which are responsible for isolated showers and for thunderstorms. Martin Schemp, in America, got up to 8,000 feet in a thunderstorm, flying blind, on July 4th, 1932. He had not intended to do it, but merely to give a demonstration flight at an air display, when the thunderstorm came along. Mayer also made use of a cumulo-nimbus cloud when he got up to about 10,000 ft. above sea level (7,200 ft. above start) during the 1932 Rhön Competitions.

R. Kronfeld, who is an Austrian, held the record which has just been beaten. He achieved his height of 8,494 feet above the start by rising through an enormous cumulus cloud. The flight was referred to in the article "Weather and Gliding" in the last issue

It would seem that anyone wishing to achieve glory by surpassing Dittmar's performance will have to do most of his climbing inside clouds. As Sir Gilbert Walker said at the end of the article referred to, it should be possible for a sailplane to climb in a thunderstorm to 26,000 feet. Whether this refers to conditions in England he did not say. A. W. Clayden, who made a series of measurements of cloud heights at Exeter, by means of two cameras some distance apart, says that, out of fifteen examples of cumulo-nimbus measured, the highest recorded was 6,409 metres (21,026 feet). So there is still a chance for the setting up of a new record even in England

MORE MOTORLESS FLYING ON THE STAGE.

A play dealing with the life of the historic "Flying Tailor of Ulm" has had a successful first performance at the Mannheim National Theatre.

The Flying Tailor's feat is no legend, but historic fact. He took off with a pair of home-made wings from a tall bastion overlooking the Danube on May 30th, 1811, and fell into the river. Large crowds had come from all parts of Württemberg to see him do it, for the tailor had announced that on that day he would launch himself from the top of the Cathedral tower of Ulm and fly over the town. When the fateful day came, however, he seems to have had less confidence in his tailor-made wings, and obtained the permission of King Frederick, who was among the spectators, to change his launching site to a bastion of the walls overlooking the river. But, in spite of popular ridicule, he was courageous enough to repeat the performance the next day, with, of course, the same result.

The tailor, whose name was Ludwig Albrecht Berblinger, had stretched the fabric of his wings over a metal frame, and this feature is faithfully reproduced in the play. To judge by a photograph in *Die Woche*, which shows the actor Hans Simshäuser wearing them, they have been given a span of about 6 ft. each, and this is about the size shown in a contemporary engraving depicting the aeronaut being rescued by a boat after his forced landing in the Danube.

The play is called "Der Münstersprung" (The Cathedral Leap), and is by Otto Rombach.

The inventor's memory is preserved by a tablet in Ulm Cathedral, and a book about him has been written by Max von Eyth.

THE B.G.A.: PRESIDENT'S REPORT FOR 1933

Before proceeding with my report I should like to record the deep grief felt by all concerned with the Gliding Movement at the death in May last of Mr. Lowe Wylde, one of the few founder members of the Association, who served with such distinction and efficiency on the Council and Technical Committee. Mr. Lowe Wylde was one of the pioneers of motorless flying in this country, and his enthusiasm and readiness to assist all those engaged with him in solving gliding problems must not soon be forgotten. The success of his work should inspire to greater efforts all those who have the future of our Movement at heart.

During the past year, as indeed was ever the case, those responsible for the administration of the Association have had to face serious financial difficulties, but I feel you will agree, when you have perused the Report and Accounts that are now placed before you, that your Council have fulfilled their difficult duties in a very satisfactory way.

To those who have the privilege of knowing Lord Wakefield of Hythe and who are aware of the wonderfully generous way in which he has helped every aspect of aviation in the Empire, it will not come as a surprise to learn that we have to thank him once again. His munificent gift will be of the greatest assistance in carrying on the work of the B.G.A. during the present financial stringency, and we cannot be too grateful to him.

It was the original intention that the Association should be financed by annual contributions from its affiliated clubs and individual membership, but in the difficult times through which we are all passing it has not been possible for them to give adequate support. Serious as the situation may be, I am sure there will be general agreement that there can be no question of abandoning the activities of the central body of the Gliding and Soaring Movement, and we must co-operate in a determination to place the Association on a firm financial foundation.

Consequent on the loss sustained in connection with the Huish Meeting due to bad weather conditions, it became clear that it was necessary to review the administration of the Association. In accordance with the decision made by the Council at its monthly meeting on June 29th last, I, in conjunction with the Chairman of the General Purposes Committee (Mr. Whidborne) looked into the financial position with a view to making recommendations necessary to meet the situation.

From an analysis of the Income and Expenditure accounts 1930-1932, it was clear that the normal expenditure over income (excluding donations, etc.) was far too high, and it became obvious that some reorganisation must be made in order to reduce expenditure to the level of the normal income. As was to be expected our examination revealed that, in the circumstances, the only substantial economy which could be made was the drastic cutting down of expenditure at Headquarters. It was realised that the Secretary had carried out his duties in a very commendable manner, and that he had had a very difficult task in assisting the Council to keep the Gliding Movement together in the first few years of its existence, which coincided with a period of abnormal financial depression. It was therefore with the greatest reluctance that we were forced to the conclusion from our study of the accounts, that the Association could not afford a paid Secretary or staff. The existing arrangements were, therefore, terminated, and an additional economy effected through the generosity of the Air League of the British Empire, who placed office accommodation at our disposal at a nominal rental. I cannot pass on without drawing attention to the fact that we owe a debt of gratitude to one of our Vice-Presidents, Air Commodore Chamier, and the Council of the Air League, not only for the facilities they have afforded us, but for their ready assistance in many directions during the past six months

I would now like to deal with the position of your official Journal, the SAILPLANE & GLIDER. Since the B.G.A. took over the paper in 1931, it has been produced at 6d. fortnightly, and in 1931 it just cleared expenses. You will remember that the accounts for 1932 showed that it was run at a loss of £100, and the deficit for the year under review is £148 17s. 5½d. This may be attributed chiefly to the lack of regular subscribers and advertisers. In order to cut the loss for this year as much as possible, the Council agreed to the following proposals :—

(a) Increase the price to 1/-;
(b) Issue the paper monthly;
(c) The annual subscription to be 10/-; 5/6 half year;
(d) Issue it free to members of the B.G.A.;
(e) Existing subscribers to be given the opportunity of having the unexpired portion of their subscription returned to them.

I am glad to say that no unexpired portion of subscriptions were claimed. The paper is now published and issued on this basis, and if there are any members who feel disposed to help defray the cost of producing the copy now issued to them free, I should welcome donations accordingly.

I have already referred to the difficulties with which your Council have been faced during the past year, and in this connection you will readily realise that Mr. Grahame-White and Mr. Whidborne have had a very onerous time. Mr. Grahame-White asks me to say that it is with regret that, owing to his having to be away from England so much during the year, he has been prevented from giving his full attention to his duties as Honorary Treasurer; and I would take this opportunity of thanking Mr. Whidborne very warmly on behalf of the Council for all he has done during a very difficult period, and particularly in the en-

forced absence of other members of the Executive, including myself.

Mr. Grahame-White has intimated that in consequence of his absence abroad during the coming year, he feels it necessary to resign from the post of Honorary Treasurer. You will, I am sure, join in expressing to Mr. Grahame-White our grateful thanks for the valuable services which he has rendered to this Association. To fill the vacancy so occasioned, your Council have nominated Mr. P. A. Wills, and we feel very fortunate in obtaining the benefit of his able assistance.

The Sutton Bank Competition held on October 7th and 8th was, I am happy to say, very successful, not only from the flying point of view, but also from the interest displayed by the public. You will, I am sure, be gratified at the evidence of the progress we have made in this country when I tell you that at one time during this competition there were as many as nine machines in the air. I take the opportunity, through the medium of this report, of offering our congratulations to the following pilots who have made excellent flights during the past year :—Messrs. Baster, Buxton, Collins, Dewsbury, Laver, Mole, Slingsby, and Wills. Mr. Laver, of the Dorset Club, is to be heartily congratulated on his magnificent performance over White Horse Hill, Sutton Bank, on October 9th, when he set up a new British duration record by remaining air-borne 7 hours 20 minutes, thus breaking F/O Mole's record of 6 hours 55 minutes. Mr. Collins is to be particularly congratulated on his flight of 19½ miles from Dunstable to South Mimms, by which he won the Wakefield Trophy.

From the developments which are now taking place in the North of England, it would seem that there is a possibility that a National Soaring Centre will be established during the next few months, and a long cherished ideal will thus be realised.

During the year under review, 29 " A " glider pilot's certificates have been issued; 20 " B "; and 14 " C "; making a total of 351 " A "; 152 " B "; and 78 " C " Certificates issued since 1930. There is one machine which I must refer to—this is the WILLOW WREN, designed and built by Corporal Manuel. This machine is a development of the CRESTED WREN, also designed and built by Corporal Manuel. The WILLOW WREN has put up some very fine performances at Dunstable, and it was on this machine that F/O Mole made his record flight of 6 hours 55 minutes, a glowing tribute, I think you will agree, to the capabilities of its designer and constructor.

In spite of the difficulties with which we are faced, difficulties inherent in any young organisation, I feel we may be assured that the Soaring and Gliding Movement in this country is now permanently established, and that its influence on British aviation has expanded as a result of the work of the B.G.A., and I have pleasure in again referring to the cordial relationship which exists between the Association, the Air Ministry, kindred bodies, and the Movement throughout the world.

I also wish to refer to the valuable work of your Council and the various Committees, making special reference to the invaluable services rendered by Capt. C. H. Latimer-Needham, whose help as Chairman of the Technical and Contest Committees has been of great benefit. Naturally, the work of the Committees increase every year, and the past year was no exception. Your Council have had much pleasure in recording their appreciation of the services rendered by the members of the Committees.

We have entered upon our fifth year. Whatever happens, it is my earnest hope that all associated with the Movement will stand firm by the B.G.A. because of the representative role it fills and the position it occupies. The Association can only be established upon a firm basis if all those who have the interest of British gliding at heart co-operate wholeheartedly to ensure the success of a strong national body competent to uphold the prestige of this country. Those associated with the B.G.A. serve the cause with the conviction that a great Movement can be built up; but they cannot do it alone. There is a great need for a closer and more intimate touch between the Association and the Movement generally. Is it too much to hope that those concerned will do all they can to bring about this desirable end?

CORRESPONDENCE

THE RECONSTRUCTION OF THE BRITISH GLIDING ASSOCIATION.

Sir,

At the General Meeting of the British Gliding Association which took place on the evening of February 23rd, it was decided, after a prolonged debate, to alter the constitution and rules of this body to bring it into line with the requirements of the Movement as shown to be necessary by the experience of the last three years.

The key-note of this alteration was to bring the Association into close and intimate touch with existing clubs; and a resolution was passed requesting all active clubs to furnish any constructive suggestion they may have to offer.

If the work of the Special Committee set up to formulate these alterations is to succeed, it must be obvious to all that it should have the co-operation, help, and good will of the whole of the active Gliding Movement.

I appeal, therefore, most earnestly to all Clubs and individual Members of Clubs to co-operate with the Special Committee of the B.G.A. to make this reconstruction effective and in harmony with the wishes of the majority of gliding men.

I feel that the present is the moment when all well-wishers of the Movement should become Members of this Association, and lend a hand with the good work in progress with their ideas as well as their subscription. Both are urgently needed in view of the Sutton Bank scheme which is imminent.

Suggestions and subscriptions should be sent to :

J. L. R. Waplington, Hon. Sec.,
19, Berkeley Street, London, W.1.

C. ESPIN HARDWICK,
Chairman, British Gliding Association.

THE "SCUD II."

Sir,

In my haste to be as rude as possible to " Diehard " in a letter which appeared from me in the January issue, I quite unintentionally made a reflection on the pilot who made the original tests of SCUD II.

In fairness to this excellent pilot I would like to point out that his humorous suggestion about tri-plane rudders was not an unnecessary recommendation for a non-existent fault, as it was found that the rudder had a too limited angular movement, and it was not until this had been rectified, by altering the gear ratio between pedals and rudder, that we were able to replace the original small rudder.

L. E. BAYNES,
Designer of SCUD Sailplanes.

MOVING THE CLOSURE.

Sir,

I consider it about time the Editor put " this correspondence must now cease " on the dispute between the B.G.A. and the L.G.C. Being a Yorkshireman and having paid a good lot for THE SAILPLANE I read every word of the *two pages* (out of fourteen) devoted to the quarrel and feel it is a waste of time and space. Cannot the disputants assemble over a glass (or more) of beer and settle the disagreement verbally, and leave THE SAILPLANE to get on with its job of encouraging us to fly? What we want is more " incidents " and less " wash out." Put the paper on a more " elevated plane " above the bickering of a few.

From your correspondence I judge the paper to be read in a good number of places abroad, and this continual " crashing the glider in public " must do harm to this country as well as throw ridicule on the gliding movement here.

I suggest we have more articles from those who fly, giving experiences and *why* things happen, and also, if possible, the general steps in designing a standard form of sailplane.

Some of your correspondents seem to think more about " soreness " than " soaring." Let's get on with the flying and good luck to THE SAILPLANE.

NEARLY A " B."
Bradford and County Gliding Club.

[Our correspondent doesn't know when he is well-off, for all his Yorkshire shrewdness. This year THE SAILPLANE is being printed in slightly smaller type than formerly, giving the equivalent of more than two extra pages compared with last year's monthly issues. In addition the January number carried one less advertisement page than usual, so that, in effect, he got nearly four extra pages for his money. True, two of them were filled with some measure of " frictional turbulance," but we understand that the atmosphere has now become more " stable," and cold fronts are giving place to warm. In other words, the correspondence has already closed, and the dispute is well on the way to being settled.—ED.]

NEWS FROM THE CLUBS.

"That comfy Kassel smile;" Liddell before a flight at the Ulster Club's site at Magilligan.

AIRCRAFT CLUB, HARROGATE.
Annual Report.

The annual meeting was held at the headquarters, Starbeck, on Friday evening, February 9th.

The Hon. Secretary (E. T. W. Addyman), in his report, said that the club this year was in a stronger position than it was at the same time last year. All accounts had been paid, the new training glider is ready for covering, and this year's subscriptions had not yet been called for. The activities of the club would have been greater if some members had paid their subscriptions more promptly, and turned up more regularly at the meetings. Membership of the club had increased from 30 to 43. There had been less activity in the model section, but greater activity in the constructional, gliding and aeroplane sections.

Constructional Section.—Early in the year, a little work was done on the club training machine, but it was suspended during the summer months. Since October, constructional meetings have been held twice a week, and were well attended, with the result that the work is now complete and the glider ready for covering. The ZEPHYR sailplane was completed by the Hon. Secretary just after Easter. F. H. Slingsby built a second FALCON, and is now reported busy on two SCUD II. machines. G. Jefferson has made progress with his sailplane, in spite of a serious motor-cycling accident. W. E. Hick and J. C. Neilan have also made considerable progress with their new high efficiency sailplane.

No further news has been heard of J. P. Watson's SCUD II. but his PRÜFLING has been rebuilt.

Gliding Section.—The gliding season opened with an Easter meet at Ingleby Greenhow, when eight or nine members put in an appearance, as well as Mr. Buxton and Mr. Dewsbury with a SCUD II. Later on, Mr. Slingsby turned up with his FALCON.

The hut at the top of the old incline was made shipshape; a roaring fire was kept going, around which members slept and ate. The York contingent used a tent, but, now and then, had to desert it for the warmth of the hut.

During this meet, Mr. Buxton reached an altitude of 2,350 feet above his starting point, or 3,600 feet above sea-level, in SCUD II. Mr. Dewsbury reached 1,750 feet, and Mr. Buxton, later on, 1,850 feet. The longest duration was 2 hrs. 40 mins., by Mr. Buxton. Mr. Slingsby flew his FALCON for 20 minutes just before dark. Six hours 21 minutes flying was done in one day.

The Whitsuntide meet was also held at Ingleby Greenhow, and this time the cabin at the foot of the incline was used as club headquarters, meals being supplied at Mrs. Hodgson's cottage adjoining. The ZEPHYR, which had previously made a few short flips near Harrogate and at Mr. Bainbridge's farm, was taken to Kildale, where a number of flights were made. Later, it was hauled by lorry up Turkey Nab, and, after waiting many hours for a suitable wind, was launched from the top, and landed close to Hodgson's cottage for tea.

In July and August, the ZEPHYR was taken on a tour of exploration in the Pennines and the Lake District. Mr. and Mrs. Kirkby very kindly towed the machine to Scotch Corner, after which casual traction by cars, lorries and horses had to be depended upon. First flights were made near Brough, where Messrs. Brook and Hick turned up. Then operations were transferred to Tailbrigg, near Kirby Stephen, where a very pleasant time was spent in camp—the party then consisting of Hick, Neilan, and Addyman. Members of the Dumphries Club also turned up for a day. On one occasion the ZEPHYR was hauled two miles along a road fully rigged, mounted on a hay sledge, behind a car. A horse was successfully used for launching for the first time, near Wharton Hall. Many flights were made by all members of the party.

Next the ZEPHYR was taken to the top of Hartside, but whilst being taken across the moor to a launching place on Fiendsfell, it was lifted out of the hands of the crew by a gust of wind, and inverted in a peat bog, slight damage being done to the rudder and an aileron. The machine was afterwards taken to Penrith, where it was on exhibition whilst being repaired. During this interval, the opportunity was taken thoroughly to explore the northern end of the Pennines on foot for soaring and gliding sites. After completion of repairs at Penrith, the ZEPHYR was taken to Keswick, and was again put on exhibition at the miniature golf course, whilst the locality was explored on foot. Eventually, through the kindness of General Spedding in having the hedges cut to allow the machine to pass, it was taken some distance up Skiddaw, and two flights were made from a plateau just below the half-way hut. The following day, a large number of flights were made in General Spedding's grounds at "Windybrowe."

The ZEPHYR was taken to Sutton Bank to the B.G.A. meeting, but was held up in traffic, and was not flown until the following week-end, when seven flights were made. The club was represented at the meeting, however, by Mr. Slingsby's FALCON and Mr. Watson's PRÜFLING. Since then there have only been two week-ends flying near Harrogate.

Election of Officers.—President, The Rt. Hon. Major J. W. Hills, M.P.; vice-president, F. H. Slingsby; hon. vice-president, R. F. L. Gosling; chairman, J. C. Neilan; hon. secretary and hon. treasurer, (pro tem.) E. T. W. Addyman; committee, J. N. Gladish, R. F. L. Gosling, T. A. S. Turner, H. L. Brook, A. R. Bell, J. K. Elam, A. and H. Cryer, B. Harman, and G. Jefferson.

An interesting discussion followed the general meeting, and important resolutions were passed, chiefly with the object of having the regulations removed which prevent low-power flying in this country, and the hon secretary was instructed to read these resolutions to Lord Gorell's Committee in London, when he accepted the invitation.

The club wishes to thank those landowners, agents, and tenants who have so kindly allowed flying over their estates, also those who have so kindly used their cars for towing.

E. T. W. ADDYMAN, *Hon. Secretary.*
The White House, Starbeck.

Tailbrigg: a soaring site found by the Harrogate Club during a tour of the Pennines.

[We have omitted the reports of the model and the aeroplane sections. The model section held one meet during the year. The aeroplane section includes 3 holders of "A" (power flying) Certificates. Mr. H. L. Brook the present owner of the Mollisons' famous PUSS MOTH, has offered £10 to start a fund for a club aeroplane.—ED.]

SOARING AT SUTTON BANK.

Sunday, Feb. 11th.—Thanks to the generosity of J. P. Watson, of York, Smith (G. O.), Robertson (R. G.), and Slater (A. L.), of the London Club, had a most enjoyable day with Watson's PRÜFLING.

Wind W.N.W., Strong. Measured surface speed at edge, 24 m.p.h. 50 yards back, 12 m.p.h.. Visibility wonderful, York Minster standing out plainly on the skyline 20 odd miles away.

Slater was first away, and once over the lip went up vertically to 400 ft. in two minutes, eventually reaching 600 ft. and landing after half-an-hour.

Robertson was launched a few minutes later when the sky was becoming overcast with low scudding ragged wisps of cloud which must have affected the lift as the most he could register was 350 ft. After the pre-arranged half-hour he made a perfect landing within a yard of his launching point, and Smith was immediately sent off.

The low clouds were still in evidence and limited his ceiling to 350 ft., and both he and Robertson complained of turbulence. Several long rolls of cloud like long cigars were observed rather high and practically stationary away to the west, between us and the Pennines which were just visible about 25 miles away. Were these lenticular clouds to leeward of the Pennines?

It was disappointing to find a PROFESSOR in its trailor at the Hambleton Hotel and such wonderful conditions only half-a-mile away. A.L.S.

LONDON GLIDING CLUB.

Saturday, Feb. 10th.—Only a light wind blowing up the hill. The PROFESSOR, with Collins aboard, was the only machine to soar. Noble flew down 3 times in the open DAGLING, once landing it with its nose directly over the central blob of our spot-landing square. The PRÜFLING and KASSEL 20 also made about 3 flights each.

Sunday, Feb. 11th.—Westerly wind, barely enough for soaring. Murray was first off in the KASSEL 20, and soared for the last time before departing for India. Sad to relate, he is not taking a sailplane out with him, nor does he see any immediate prospect of finding time to build one when he gets there. When he does, there will be some fun watching the people sit up and take notice!

Noble and Yates took their "B" Certificates in the open DAGLING. KASSEL 20 was also flown by J. C. Dent and Dr. Slater, and PRÜFLING by Richardson, Dent and others, but neither machine could soar again. Wills in the SCUD II visited the Zoo, but just failed to get home again, after an obstacle race over and under the power cables. Later he flew the PROFESSOR, handing over his SCUD to be soared by Briscoe and Bergel. Dewsbery did some soaring in the CRESTED WREN. The KASSEL two-seater took one or two passengers, including the future B.G.A. Chairman, who said he would have brought his FALCON if he had known it was soaring weather. He, however, was lent the HOL'S DER TEUFEL to fly down in.

Sunday, Feb. 18th.—Very light westerly winds, insufficient in strength for soaring.

Part of the morning was spent in fixing up the new rope on the hill winch. Five members were given numerous ground hops in the DICKSON, and later in the day repeated descents were made from the hilltop in the open DAGLING, PRÜFLING and KASSEL 20.

Somerset took his "A" with a flight of 55 seconds, and made a qualifying flight of 65 seconds for his "B." Smith made a qualifying flight of 50 seconds for his "B." Cornell made a masterly descent in KASSEL 20 and landed with the starting hook practically on the marked out landing spot.

Sunday, Feb. 25th.—There is no call to be explicit about yesterday's flying. Apart from sober descents in a trifling wind, the only other item was the thorough smashing of the DICKSON in a stall from 20 feet. One of our German members is doing a careful goose-step to-day.

To-day a north-westerly breeze, gusty, with rain, in the morning. After lunch the weather cleared, and the old original R.F.D., now entirely open, gave Somerset a beautiful "B" flight of well over a minute. She held her height remarkably well until clear of the Bastion. Then the SCUD fought a stout losing battle for about four minutes, the pilot reporting horrid turbulence for which the projecting Bowl to windward was obviously responsible.

By tea-time the wind had entirely dropped. Meanwhile the SCUD, R.F.D., HOL'S, PRÜFLING, KASSEL 20, and CRESTED WREN went on and on, few people being too high-brow to take a nice ride. Nothing was broken, nor were reputations impaired

All this time a solitary Imperial College member was painfully tackling the repairs of a superannuated primary machine. His brother members were presumably at the unemployed demonstration in Hyde Park.

Note:—The dark-faced gentleman was our Chairman, just back from gliding down Swiss precipices on skis. Our lighter-faced Vice-Chairman was in Hyde Park and the Aero Club bar; we finally battered on his infinite hospitality—no, not in Hyde Park.

ULSTER GLIDING AND AVIATION CLUB.

The Club's SCUD II had the misfortune to be lifted off the ground by a gust of wind and deposited on its nose, one Sunday in January at Magilligan, and is now back at its makers' for repair.

The Club reports that a KASSEL 25 is on the way from Fieseler's works in Cassel.

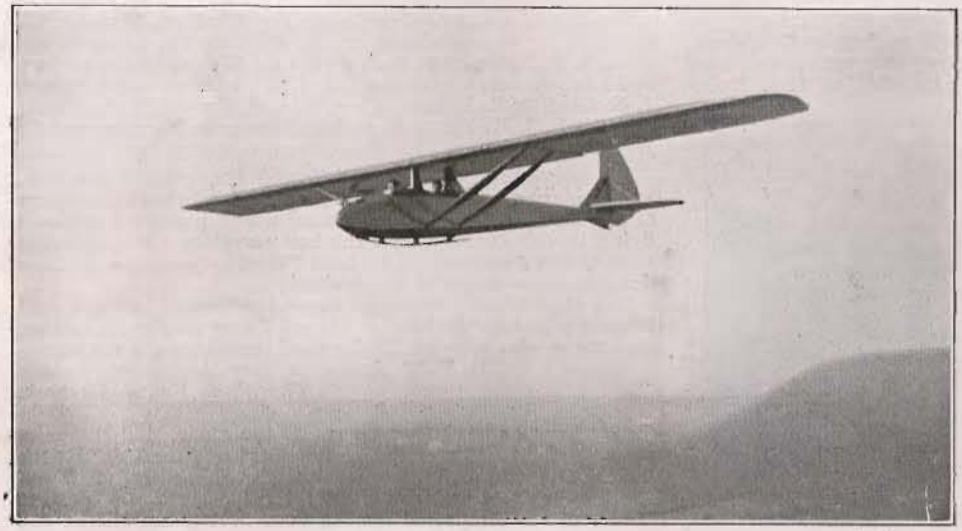
GUERNSEY GLIDING CLUB.

This club has, according to the local press, now commenced operations, the site being Luck's All, L'Ancresse. On **Feb. 5th**, the club's glider, after a preliminary flight by C. W. Noel, was stalled from 5 or 6 feet and damaged its nose and that of its pilot. The pilot, R. S. Mallett, is to be commended for writing to the press to correct a reporter's statement that at one time he "was obviously in great jeopardy" and that the glider "hurtled to the ground" from 20 feet.

The club has taken over the lease of Messrs. Hubert's office and workshops at Doyle Road as its headquarters, and all business, constructive work, lectures, etc., will be conducted there. It is anticipated that the construction of a new glider will shortly be undertaken.

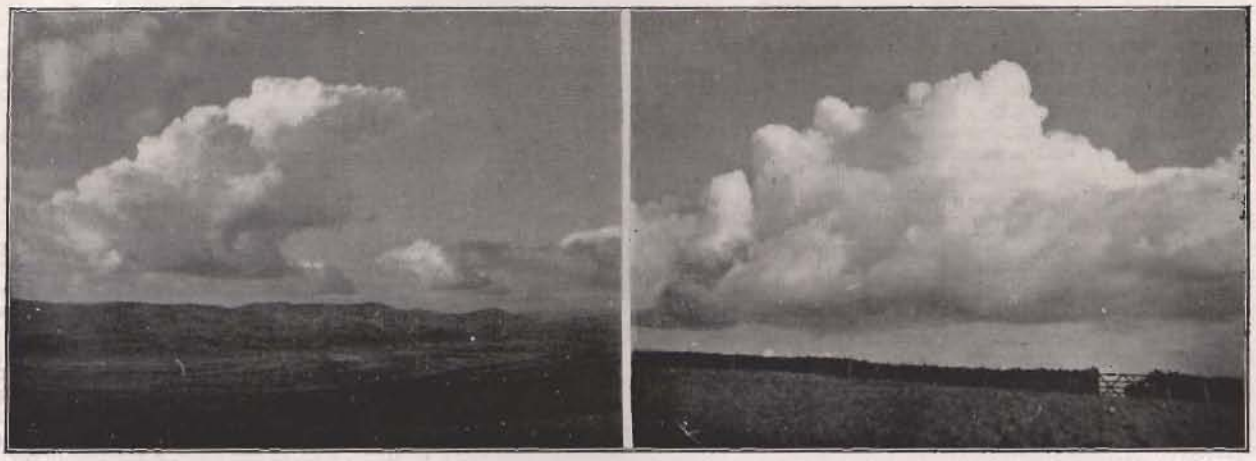
A CLUB FOR READING?

An endeavour is on foot to start a gliding and sailplaning club at Reading. It is hoped to secure a very promising site near Streatly for soaring and secondary training.



J. E. Collins and C. E. Hardwick in the "Kassel" 2-seater at Dunstable.

SOARING CLOUDS AT FURNESS



Some fine cumulus clouds seen from the Furness Club's site at Ireleth on February 25th. Left: looking N.W. at 3.30 p.m. towards the Black Coombe range, over which the cloud has probably formed. (Note backing of wind with increasing height.) A soaring expedition carried out some flights there just a year ago, but in cloudless weather. Right: looking in the opposite direction at 3.35 p.m. *Photos by Vernon Foster.*

FURNESS GLIDING CLUB.

Believe it or not! During long periods of adverse weather, clubs may suffer from over-enthusiasm. Furness has been no exception to that rule.

For several months the weather at week-ends has been all against either training or soaring. Consequently members have suffered many disappointments; the "Hot Numbers" have boiled over with indignation, whilst the "Luke Warms" have grown stone cold.

Fortunately such long spells of poor weather are rare indeed on our Askam site. They provide the acid test of a club's strength and tenacity of purpose; a good antidote is a programme of construction in the workshop. Undoubtedly the finest tonic is a spot of soaring such as we witnessed on Saturday, March 3rd, on which day Messrs. Stevens and Redshaw, using the B.A.C. IV., put up as fine exhibitions of soaring as one could wish to see.

Sunday, Feb. 25th.—A good muster of members made the journey to Askam site; a stiff breeze blowing from the N.W. encouraged us to assemble the B.A.C. IV. Isolated cumulus clouds and brilliant sunshine spurred us on, as we struggled with fouled control wires, etc.

Then the vexed question "lunch," not "launch." Most members decided to adjourn to Barrow and therefore lost all prospect of a flight. Mr. Vernon Foster obtained some fine photographs of cumulus whilst we awaited a breeze, which never arrived. Conditions should have been O.K. for primary work but there was little enthusiasm for the bungy. It was truly a disappointed crowd that dismantled the machine.

[The notes for March 3rd will appear in the next issue.—ED.]

BRADFORD AND COUNTY GLIDING CLUB.

January.—The past month has again been nearly a blank for gliding activities, but it has given us plenty of opportunity for working on the PHANTOM sailplane and the STEDMAN 2-seater, both of which promise to be in the air by Easter, if not sooner.

Much loving care has been spent on the PHANTOM and it may be said that she will be almost a new machine when she turns out; a large amount of new framework, new fine linen fabric covering and entire re-varnishing,—and she never complained at being scraped all over with pieces of broken glass.

When Stedman started building his 2-seater he found he could make ribs, control surfaces and small fittings in a portion of a bedroom and nobody minded much about that. But the machine would also require a fuselage, so he decided that a drawing room, as such, could be dispensed with for a week or two. The furniture was re-distributed in other rooms of the house and the drawing room was left beautifully bare to be used as a workshop; and Stedman and his cronies exclaimed, "Ah!" ecstatically and in unison. Even so, the fuselage had to be constructed in two portions, side by side. When they were finished they remained on the stocks and the bedroom was again commissioned for strut building and cutting of 3-ply sheets. Then Holdsworth, who was now helping in earnest with the construction, decided that Stedman's two cellars, with the communicating passage in line with them, was ideal for building longish spars, 25 feet or so. The result is, that when one arrives at the Stedman household and opens the door, the usual greeting is, "Hey, you clumsy lont, take your feet off that glider," while Mrs. Stedman is constrained to sit on the kitchen doorstep and fry eggs over an oilstove.

Towards the end of December, we had a machine out to give Rayton, a new member, his initiation. By the end of January he was able to show two more new members, Marshall and Martin Palmer, how they ought to progress by a month's training. Marshall, being quite a lightweight, showed a tendency to go burrowing the REYNARD's nose into the clouds, but, possessing good air sense, he has overcome this tendency and can now look ahead in line with the horizon. Martin Palmer received such a long training on his first day out, and the very light breeze was so much in his favour, that he was actually just lifted into the air on several occasions.

Early in January we were all, with wives and/or other appurtenances, graciously entertained to dinner and revelries by Mr. and Mrs. Norman Kershaw, our host and hostess at Dobrudden Farm. We had just had a day at Sutton Bank, with Slingsby and Watson. The wind had been too, too boisterous to do any flying, except that "R.F." had managed a second or two on nothing but his outstretched overcoat, so we returned to Baildon and did full justice to the banquet. And oh, how glider chaps love "Postman's Knock."

February opened well with a display of perseverance, resource, sagacity, integrity, determination—and—well, everything else which shows that a man's got guts. Pardon the plain English, but we are in Yorkshire which is truly an English-speaking county. Anyhow, what I want to tell you is that Roy Watson got his "A" certificate with a splendid flight of 36 seconds. Believe it or not, that was the achievment of three years' training. Roy was one of the first members of the Bradford Club, but business interfered shamefully with his gliding training, so much so that he had to give it up for more than a year—gliding, I mean—with the result, that when he was able to resume training, he had to start all over again, but he stuck to it manfully, whenever he could, and now joins the band of happy smiling faces with one wing up.

So long! I'm going to Sutton Bank to see Sharpe's "C" flight.

SOUTH SHIELDS GLIDING CLUB.

We hear that little flying has been done by this Club during the winter, but they are busy with constructional work instead. A light nacelle is being added to the Club glider, and one of the members in addition is about three-quarters of the way towards finishing a modified DICKSON of 38 feet span.

A search is now being made for a suitable field for more advanced flying, the Club's present field not having sufficient slope, and only allowing of flights up to about 15 seconds.

A dance was recently held to help the funds.

LAST MONTH'S WEATHER

The month began with the British Isles on the edge of an anticyclone to the west, but not near enough to it to avoid coming under the influence of depressions moving down the North Sea. This was followed by a week of "normal" British weather, with depression centres passing from Iceland to Scandinavia and a succession of "fronts" crossing the British Isles from west to east. Then followed a week of calm anticyclonic conditions, succeeded by westerly winds once more.

The first three week-ends fell almost at the transition points between these various periods.

Week-end Feb. 3rd and 4th.—Winds were still northerly, of force 3 over England. We have not heard if any soaring was done over the South Downs, but elsewhere it was impossible. No lapse rate records were made in England on Sunday, but on Saturday there was an inversion up to three or four thousand feeet, so no great soaring heights could have been achieved anyway. England was in the "warm sector" of the last of the North Sea depressions.

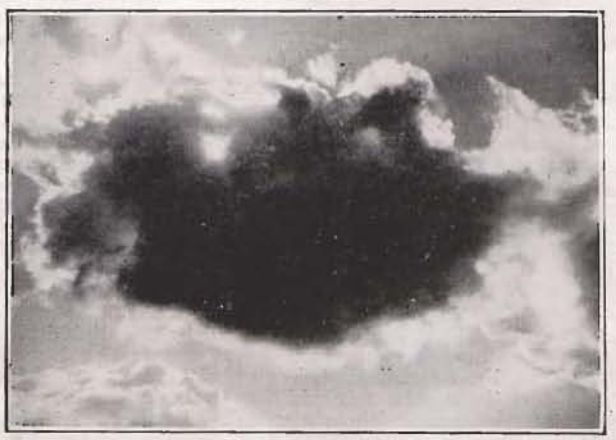
Week-end Feb. 10th and 11th.—An anti-cyclone began to spread over England from the south, so that, although there were still west winds everywhere, they were stronger at Sutton Bank, which was nearer the low pressure, than at Dunstable. Consequently, though at Dunstable only the more efficient machines could maintain height, at Sutton Bank a PRÜFLING got well up into the sky.

Week-end Feb. 17th and 18th.—An anti-cyclone had squatted over England and winds were light everywhere. Earlier in the week the high pressure embraced all western Europe, and had such an effect on the northern Adriatic that on the 14th, in Venice, most of the gondolas were left stranded in empty canals.

Week-end Feb. 24th and 25th.—After a week of westerly winds, with no particular "fronts," and so weak in the south as to produce several foggy days, the week-end got let in for a real depression from the Atlantic. This budded off a secondary which crossed southern England on Saturday night, so that at Dunstable the wind swung right round from south on Saturday to N.N.W. on Sunday, and neither wind was soarable.

Lapse Rate.—Sunday the 25th was exceptional in that a meteorological ascent was made. Several Continental stations take upper air observations on Sundays, but Duxford does not. This is unfortunate, as it is on Sundays that most soaring is done, and nothing can usually be discovered about the lapse rate on such days, either before or after the flying. As it happened, on the 25th an ascent was made at Filton, near Bristol, and disclosed a lapse rate about equal to the adiabatic rate (the "dry" rate up to the cloud base and the "saturated" rate beyond). A good lapse rate is to be expected in the north-westerly winds following a depression, but this was unusually good, and the report stated that some cumulus tops there reached up to 9,500 feet. At Dunstable, however, the change of wind had only taken place at low levels, as some high strato-cumulus was seen still moving from the south. "Up North," at Furness, conditions must have been as at Filton, as will be seen from the fine photographs of cumulus which the club have sent us.

Not till the 26th did cumulus reach London district; these were the first real cumulus clouds we have seen this year.



The first cumulus of the year at Dartford, February 26th. Although its top cannot be seen, a diagnosis of cumulus can be made from its dark under surface (which has been exaggerated in the print); this is also the sailplane pilot's method of judging the thickness of a cloud overhead.

WHEN HAY GOES SOARING.

In the January issue (p. 10) we described a case of bundles of hay being taken up by a whirlwind and, later in the day, falling from beneath a cumulus cloud near Hitchin—at least, it was presumably the same hay. This happened on June 22nd, 1932. Since then we have come across records of similar occurrences in 1933; they are mentioned in various issues of the *Meteorological Magazine* for that year.

It is reported that on June 21st, 1933, in sunny calm weather, large quantities of new-cut hay were seen floating about in the sky in Garstang, Lancs., "probably as the result of a whirlwind in the neighbourhood." This happened during a period of thundery weather, and, at the time, a shallow depression was centred over England.

On July 7th a severe thunderstorm visited many places in the Derby district. At Chesterfield, where it began just before 3 p.m., it was "accompanied by a small whirlwind 20 or 30 feet high, which uprooted small trees and carried newly-mown hay hundreds of yards; it also carried large quantities of grit and sand. Tiles and slates were dislodged from roofs and part of a building in course of erection was blown down."

Another whirlwind is described which occurred on May 13th on the edge of Ashridge Park, not far from the London Gliding Club's site. The observer had his car parked on Berkhampstead Common, and the whirlwind came out from the border of the woods and not only rotated on its axis, but described a revolution around the car, in a radius of 35 or 40 feet, before returning to the trees; both the rotation and the revolution were anti-clockwise. This time there was no hay within reach, but he stated that "a paper bag drawn up rotated in corkscrew motion, and the higher it rose the wider the turning circle appeared. Thus starting at, say, 10 feet in diameter, at a height of 50 feet it might have been 40 or more feet across the turning circle; but the pitch of the corkscrew motion was also varying, thus at the ground it was small, but higher up greater."

It will be noticed that, though none of these whirlwinds went up very high, there is a strong presumption that they may have continued upwards in the form of a more diffuse and less violent up-current: and, though no sailplane pilot would fly near a whirlwind for choice, it might be worth his while, if he sees one down below and is himself sufficiently far up, to wait around overhead in the hope of a patch of first-class lift reaching him.

The possibility of encountering whirlwinds at a greater height, however, is suggested by a report in the *Daily Herald* of January 12th, 1932, wherein it is stated that: "Instead of descending, Mr. John A. Milne, the Australian parachutist, who jumped from an aeroplane flying at a height of 2,000 feet, was caught in a whirlwind which took him up to a height of 4,000 feet at Sydney. He landed safely."

DISPOSAL OF "KASSEL" PARTS.

We hear that the firm of Fiesler, of Cassel-Bettenhausen, is giving up the building of gliders and sailplanes for the present, and is disposing of various parts and partly-built machines in consequence. The firm's designs are named according to their calculated gliding angle, and range from the primary KASSEL 12 to the high-performance KASSEL 25. Two KASSEL 20's are in use in the British Isles, and a KASSEL 25 is now on its way from Hamburg to Belfast. Some KASSEL 25's were entered for the 1932 Rhön Competitions, and put up good performnces in the way of height and distance.

GLIDER'S PORTRAIT ON A STAMP.

A new series of air mail stamps has been brought out in Germany, ranging in value from 5 Pfgs. to 3 RM. The two-mark stamp is printed in green and black, and portrays the German gliding pioneer Otto Lilienthal, while one of his gliders, a biplane, is seen soaring in the background.

OFFICIAL NOTICES

COUNCIL MEETING.

The 55th Meeting of Council of the British Gliding Association was held on Monday, 15th January, 1934, at 6-30 p.m.

Present: Sir Gilbert Walker, Air-Commodore Chamier, Capt. C. H. Latimer-Needham, Dr. Slater, Mr. E. C. Gordon England, Mr. P. A. Wills, Mr. S. Whidborne, Mr. H. C. Bergel, Mr. G. H. Lee, Mr. D. Morland, Mr. R. E. Ellingham, Mr. Houlberg, Mr. Howard-Flanders, and the Hon. Secretary.

In the absence of the Chairman, Mr. Whidborne was elected Chairman for the meeting.

The Secretary was requested to send a message to the Master of Sempill congratulating him on his recovery and welcoming him home.

Among the business transacted was the following:—

Devolution of the B.G.A.—In the discussion which ensured on consideration of this item, the Hon. Secretary read a letter from the Chairman of the Bradford and County Gliding Club regarding the proposed foundation of a Motorless Flying Organisation in the North of England with permanent facilities for soaring flight on a site from which the best performances are possible. Mr. Wills reported that since the matter was first discussed those responsible for the project felt it to be desirable that a National Gliding School should be established at Sutton Bank. The Council decided to welcome the proposed scheme, and empowered the Assistant Hon. Treasurer (Mr. P. A. Wills) to consult with the promoters with a view to formulating a scheme of co-operation.

Quarterly Meetings of Council.—The recommendation of the Finance and General Purposes Committee, that Council meetings should be held quarterly, was approved and adopted after amendment by the addition of the words "Extra meetings to be held as and when required."

New Members.—The following were duly elected to membership: Capt. F. Adams, Capt. A. J. Quirke and Mr. Walter F. Jennings.

North Kent Gliding Club.—The Council very much regretted a notification from Mr. Ellingham that the North Kent Gliding Club had dissolved.

ANNUAL GENERAL MEETING.

The 4th Annual General Meeting of the Members of the British Gliding Association was held on Friday, February 23rd, in the Library of the Royal Aeronautical Society.

Mr. S. Whidborne, on taking the chair, informed the meeting with much regret that the President and Chairman, Colonel the Master of Sempill, was unable to be present in consequence of the serious illness of his father.

The Chairman's Report for 1933 and the Financial Report were approved and adopted. (The Chairman's Report is printed elsewhere in this issne.)

Mr. C. E. Hardwick, of the London Gliding Club, was elected Chairman for the ensuing year, and thereupon took the chair for the remainder of the meeting.

Mr. P. A. Wills was elected Hon. Treasurer. Mr. Claud Bloor, of Messrs. Wm. Smart, Son and Bloor, was appointed Hon. Auditor and Mr. A. I. Logette, of Messrs. Logette and Bonnet, Hon. Solicitor.

Capt. C. H. Latimer-Needham, F.R.Ae.S., was elected a Vice-President as an appreciation of the valuable services he has rendered the B.G.A. as Chairman of the Technical Committee for the past four years.

The meeting appointed a sub-committee to reconsider the rules of the Association and to report later to a specially convened General Meeting of Members as to the changes considered necessary.

The meeting concluded with a vote of thanks to the Chairman, and to Dr. A. E. Slater and Mr. J. L. R. Waplington for their work as Editor of THE SAILPLANE & GLIDER and Hon. Secretary respectively.

Letters to "The Sailplane and Glider" should be written or typed on one side of the paper only. Anonymous letters cannot be published unless the writer's indentity is known to the Editor.

Questions upon matters which are the concern of the British Gliding Association should not be addressed to the Editor, but to the Hon. Secretary of the British Gliding Association, 19, Berkeley St., W.1. A stamped addressed envelope must be enclosed.

Subscriptions, and enquiries concerning subscriptions, should be sent to the Publishers of "The Sailplane and Glider," 43, Chancery Lane, W.C.2.