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.

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

Vol. 4. No. 19 December 1933. **Published Monthly Price 1s**

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PETER RIEDEL SOARING IN THE "FAFNIR" OVER BERLIN.

ANNOUNCEMENTS

TO PROSPECTIVE MEMBERS OF THE B.G.A.

Subscriptions of members joining the British Gliding Association in December, 1933, will cover them for the year 1934. This announcement was made in our last issue, but somehow the last line of it got lost after the issue was out of our hands.

THE DE HAVILLAND CUP.

The list of prize winners and cup winners given in our last issue (p. 212) needs one more name to make it complete. The De Havilland Cup, as was stated, was not won at the Sutton Bank meeting, owing to the minimum height of 2,000 feet not having been attained. The Cup therefore goes to Mr. G. E. Collins, who made the highest officially recorded flight during the previous year (1,750 feet on August 19th at Dunstable, in the PROFESSOR).

Incidentally, we understand that Mr. Reffell, in the TERN, found his altimeter registering 1,400 feet during his flight at the Sutton Bank meeting. This was, we believe, the highest unofficially recorded flight of the meeting.

A WARNING TO WANDERING PILOTS.

From time to time we hear of new gliding or soaring sites being tried out by enterprising pilots. Occasionally they will send us accounts of such trials, but often with the proviso that we should publish the matter as inconspicuously as possible, and refrain from drawing too much attention to it. The reason is not necessarily modesty, but simply that they are afraid some fool or fools will be thereby led to gate-crash on to the same ground with their own glider, make a thorough nuisance of themselves, rub the local people up the wrong way, and so make it impossible for anyone ever to get permission to fly there again.

We would urge all those who, hearing that a glider has been flown at such and such a place, think of going along to fly there themselves, to communicate first with those who have flown there before, so as to learn precisely under what circumstances flying is permitted, and whether and what landlords or authorities have first to be delicately handled, and how.

SUMMER THUNDERSTORMS.

In our issue of April 14th, 1933, we published a letter from Mr. S. Morris Bower, on behalf of the Thunderstorm Census Organisation, asking readers to send him particulars of any summer thunderstorms observed by them. Since many of these storms are of the "cold front" variety, and some of them could be used for cross-country soaring, it is important from our point of view that the Census Organisation's records of them should be as detailed as possible.

We are informed that the Organisation's Second Annual Report, entitled "Summer Thunderstorms, 1932," has now been published, and can be obtained from The Thunderstorm Census Organisation, Langley Terrace, Huddersfield, price 2s. 6d. It contains an account of the work of the Organisation and a brief summary of the results of the Summer Thunderstorm Census in 1932, based on the records of 1063 Observers in the British Isles, with an analysis of the data. A chart indicates the changes in the hourly frequency of summer thunder over the British Isles, and other matters of interest are included in the Report, which contains 11 illustrations and maps.

THE HORNBERG GLIDING SCHOOL.

In the article on the Hornberg Gliding School, published in our last issue, it was stated that "the cost of a three-weeks' course in gliding is £10, exclusive of board and lodging." This is incorrect, and, at the author's request, we gave instructions that this paragraph should be deleted. Not the slightest notice was taken of these instructions. As we do not live in London, we cannot, in such a case, be on the spot to teach the craftsman his job.

The actual cost of a three-weeks' course is a little above that stated, but it cannot be given exactly, as it depends to some extent on the experience of the pilot (and therefore the risk to the company) and the certificate desired.

SOARING FLIGHTS AT BERLIN.

In our issue of August 11th, p. 177, we referred to a week's soaring trials held at Berlin during July. These were organised by the German Research Institute for Soaring Filght, with the object of investigating soaring possibilities over the city. We learn now that in the course of the week some cross-country flights were made in an easterly direction. Hirth flew a GRUNAU BABY to Frankfurt-on-the-Oder (about 50 miles); Kensche of Berlin flew 87 miles to Blesen (16 miles from the Polish frontier), and Riedel on the FAFNIR over 125 miles to Stieglitz, near Schneidermühl.

Lately we have received particulars from the German Railways Information Bureau of what was either the same or a later week's activities (no date is given), together with the fine photograph reproduced on the front page of this issue. It is stated that one purpose of the trials was to find out whether dangerous down-currents exist regularly at any particular points; no such currents were found.

The starts were all made from the Tempelhof aerodrome; the sailplanes were towed up by aeroplanes, a 330-foot cable being used, and they cast off at a height of between 1,500 and 2,000 feet. One day Riedel and Dittmar were soaring under the clouds when the lift vanished and both had to land unexpectedly. Dittmar just scraped over the fence into the Tempelhof, but Riedel could not make it, and had to land in a park.

Hanna Reitsch, in the glider ONKEL OTTO (a Grunau type), thrilled the onlookers by executing loops and other figures over the city.

THERMAL OR SLOPE SOARING?

Not long ago an Imperial Airways four-engined ATALANTA, according to *Flight*, was flying in the region of the Hex River Mountains, near Cape Town, at about 4,000 feet, when the pilot found himself climbing rapidly. In spite of the engines being throttled back and the nose put well down, the aeroplane continued to climb until in a very short time it had reached 14,800 feet. Not till then was the pilot able to get down again without going into a steep dive. The Hex River Mountains, as far as one can see from the map, rise about 3,000 feet above the adjacent plain.

Another ATALANTA recently had an adventure in India, when it was rammed head-on by a soaring vulture and had its wireless set put out of action. This happened a little way below a heavy bank of nimbus cloud, and *Flight*, describing the incident, remarks that "vultures seem to congregate at this particular position in the sky." Readers of THE SAILPLANE can guess why.

While on the subject of India, we might mention hailstorms. Even in Europe, sailplanes have been pretty severely battered by hail when soaring in thunderstorms; last year a KASSEL 20, in Germany, had holes made by hailstones all along the plywood leading-edge of the wing, and they even went through the nose of the fuselage. In India a sailplane would fare even worse, to judge by what happened this year to a PUSS MOTH aeroplane. Its pilot landed to allow a hailstorm to pass over. As a result, says *Flight*, "there are now holes over one-and-a-half inches in diameter through the plywood leading edge of the wing, holes of even greater size through the webs of the spars, the fabric looks as if it had been attacked with a pitchfork, the Triplex wind-screens are cracked as if by bullets, the engine cowling is dented all over, but the cellon cabin roof is *unharmed*." Sailplane pilots with covered-in cockpits will feel thankful for that last item.

SUBSIDISED GLIDING IN SOUTH AFRICA?

In the course of a speech on Government policy in civil aviation, Mr. Pirow, the Minister of Railways and Defence in South Africa, is reported to have said that, although there was little hope at present of any direct subsidy for light aeroplane clubs, the State might be prepared to consider helping gliding clubs.

A NEW DESIGN.



The fuselage of the "Kestrel" under construction. Left, the forward part; Right, the middle and rear; Centre, the inside, looking towards the tail (but part of a trestle has got in the way).

Photo by J. C. Neilan.

THE "KESTREL."

This machine, of which we give some illustrations of the fuselage under construction, is a "high-efficiency sailplane" being built by Mr. W. E. Hick, of the Newcastle Gliding Club, assisted by Mr. J. C. Neilan. It was formerly to have been called the "Merlin." Progress is slow, owing to all the work having to be done in spare time, but the upper half of the fuselage has been covered with plywood since the photographs were taken.

The approximate dimensions are: Maximum width of fuselage, 20 ins., length, 13 ft. without rudder; span, 35 ft., maximum chord (for 10 ft. centre section), 3 ft. 3 ins.; chord at tips, 9 ins. The weight, empty, will be 85 to 95 lbs., and the wing loading 3.1 to 3.2 lbs. per square foot, according to pilot. The wing-section is Göttingen 652. The machine will be fitted with quick releases fore and aft, the former for auto-towing, the latter for holding back in catapult launches.

ROY SCOTT'S GLIDER.

In our last issue (p. 214) there appeared a paragraph about this glider. Actually the paragraph was several months out of date, having been left over from the August issue; it was put in without our knowledge to fill a vacant space caused by the loss of a picture.

The glider was illustrated in our issue of September 8th (p. 189). It was a two-seater, and its designer and builder had taught himself to fly on it.

We now hear sad news of this machine. A few Sundays ago it was being flown in Euston Park, near Thetford, kindly lent by the Duke of Grafton. At the end of the day's flying, an *ex*-Test Pilot asked to be allowed to take it up. He landed on top of a car—not, unfortunately, his own car, but the Duke of Grafton's, which was standing sheltered behind some trees. The glider was reduced to matchwood. Mr. Roy Scott says that fortunately the *ex*-Test Pilot escaped unhurt. It isn't everyone who would be so magnanimous as to use the word "fortunately" in such circumstances. As for "escaped unhurt," the fellow seems to have done his escaping pretty thoroughly, for he hasn't been seen or heard of since.

It may be remembered that Mr. Roy Scott, who is an apprentice with 3s. a week pocket money, spent all his savings and his spare time for a year in building the machine. If any of our readers can identify the *ex*-Test Pilot, we think they might try and rouse the man to a sense of his obligations.

Mr. Scott is now putting the finishing touches to a single-seater glider for the Hon. J. Phillips, of Exning, Newmarket. Afterwards, he plans to build a machine with a small engine in it. And if any *ex*-Test Pilot wants to be told when it is ready to fly, he will get no information here.

ADVICE TO THE TOWED.

Sir Alliott Verdon-Roe has written to *Flight* after seeing a film in which a towed glider was shown to zoom up suddenly and throw out its pilot. This must have been a film we saw lately in which a collection of extracts from past news-reels, showing fatal accidents of all kinds, was combined into a single film, accompanied by the worst type of commentator at the top of his nauseous form. We believe the glider extract was originally shown about the middle of 1930. Sir Alliott describes his own experiences of towed gliding in the years 1907 and 1908, when he found a chief difficulty to be that, whenever his glider "banked," he was liable to get into difficulties because the towing party were too "hypnotised" to release the cable. He continues: "I am writing this letter in the hope that it will act as a warning to anyone attempting towed flights."

It is sad to think that Sir Alliott Verdon-Roe, the pioneer, who was first attracted to aviation by watching the soaring albatrosses in his seagoing days, should have so forgotten his first love as to show himself so out of touch with the development of motorless flying to-day. Yet his brother, H. V. Roe, used to turn up 3 years ago to meetings of the Surrey Gliding Club at Guildford.

HOW BIRDS DON'T FLY.

Switching on to the National wave-length on the afternoon of October 20th, we picked up the voice of Prof. Doris Mackinnon, D.Sc., discoursing to the Schools on the subject of "How Animals Move in Air?" The children were being told how to go through the motions of a bird folding its wings, and no doubt they managed the necessary contortions more comfortably than we did.

So far, so good. But when the time came to explain how the same wings are moved in flight, the learned Professor was, we regret to say, all at sea. She told her credulous listeners that the wings push downwards and backwards, whereas readers of THE SAILPLANE know, or should know, that the motion is downwards and *forwards*. Still, the great Leonardo da Vinci was under the same misapprehension. So were we, until we heard Sir Gilbert Walker lecture three years ago.

As far as it went (i.e., within the limits of the lecturer's knowledge), the rest of the lecture may be allowed to pass, except for a statement that seagulls in sailing flight need to flap their wings occasionally "to keep from sinking." All this goes to show that our activities are still quite unknown to well-educated people, who cannot even be got to believe that the birds can soar, much less that Man can do it too.

FAMOUS PILOT DISCARDS APPENDIX.

Flugsport reports that Wolf Hirth entered the Marien-hospital at Stuttgart last month to have his appendix "dismantled" *(abmontiert)*.

A DAY-EXCURSION WITH THE SCUD II

By Die-Hard.

At 8 a.m. on Saturday, Nov. 25th, owner-pilot A rang up pilot B. They met at 11.15 in Lewes. At 1 p.m. A was in the air over the western outskirts of Eastbourne, soaring in a S.E. sea-breeze, cold, damp, 15 m.p.h.; haze, low stratus cloud-sheet. The three spectators made up a launching-team of 2-a-side, assistance also being rendered by a pair of kind lay-friends brought along from London. The machine's average height on a 2½-mile beat northward was about 200 feet above the hill-top. Conditions were fairly stable, the sea-breeze being apparently overlaid by the stagnant warm air from inland. Hence the murk.

After 25 minutes the machine made a seamanlike landing on the beautifully level turf behind the launching-point. Pilot B, who had never sat in the machine previously, then lay down inside the fuselage, finding that he could thus just reach the pedals, the machine having been made to accommodate giants. The take-off was sketchy owing to a complete misconception of the neutral fore-and-aft position of the stick, but quick thought and the amiability of the Scud provided a happy issue, and, with the stick held at arm's length, the pilot had a quiet ride on the previous 2½-mile beat, landing (tactfully) after 24 minutes (see other duration), also just behind the launching-point.

Pilot A then shot off southward and had a glorious soar in the full strength of the breeze over the sea off Beachy Head. He eventually returned, having followed the cliffs to their termination near Eastbourne, but shot past the launching-point and he disappeared in the haze northward. Some time later he reappeared on foot.

He had suddenly passed out of the area of sea-breeze into the utter stagnant calm which covered all inland areas. The transition was miraculously abrupt, giving him no warning. His forced landing in a paddock at the foot of the Downs was therefore rendered hectic, and one wing mowed its way into a hedge, the damage being slight but sufficient to put a stop to flying.

Moral: Don't get gay!

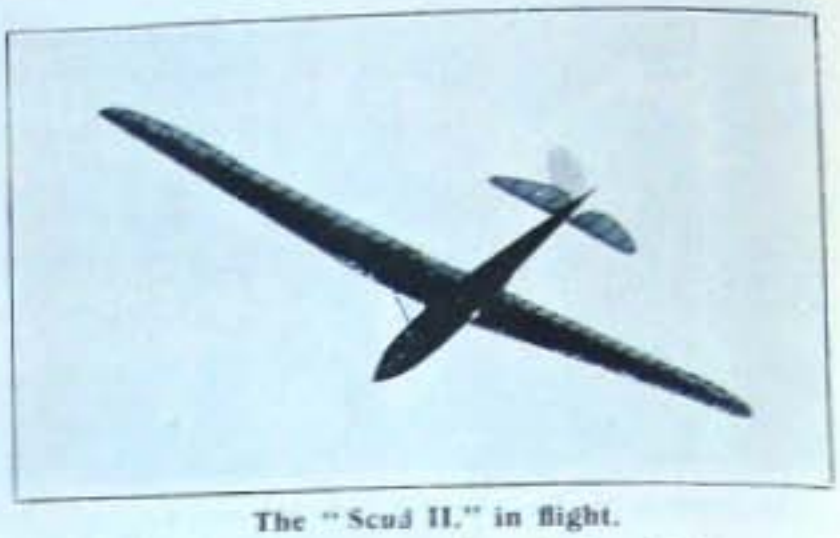
Pilot B, after his drastic introduction to the machine, on a strange site in a shaky wind, is left with the following impressions. It should be noted that some of them refer to this particular machine rather than to the whole genius of Scud II.

(1) The trailer is splendidly designed.

(2) Ease of erection and dismantling, and of moving the machine on the ground, is wizardly.

(3) The general rigidity of the machine is altogether inspiring.

(4) The position of a pilot less than 6 feet high is grim, and extra confusion is caused by the presence of so much wing over one's head, which awakens symptoms of claustrophobia.



The "Scud II." in flight.

(5) The arm's-length position of the stick is not too comfortable.

(6) In flight the silence is amazing. It may be caused, not only by the general efficiency of the machine, but also by the air flowing past the pilot's ears at less than the air-speed of the machine. Remember that one's head is immediately below a high-lift centre section.

(7) The ailerons are rather stiff and might be more "snappy." One missed the quick neatness of Wren ailerons when coming in to land immediately after a low about-turn into wind. Lateral recovery after tight turns in a narrow belt of lift was helped out by a swish of top-rudder.

(8) The rudder is altogether delightful.

(9) Operation of the elevator is rendered a little subtle by its perfect balance. No load comes on the stick in any position. This at first is rather alarming, and gives a *false* impression of too much "ticklishness."

(10) General stability is excellent. On no occasion did the air-speed indicator move alarmingly. She cruised nicely at 30 m.p.h., and only went up to a maximum of 38 m.p.h. when the machine was flown, unadjusted, from weak lift into strong. The surplus could then be flown off quietly in a fairly steep smooth climb.

On the whole one is left with the main idea that the machine would be as easy as winking to fly if only the psychology of the ordinary pilot had been more sympathetically studied. Liberate him from his prison under the wing, let him cuddle the stick comfortably, sit him up in an intelligent position like a man at a writing-desk, bring the pedals up to him so that his knees are comfortably bent, let the stick move with equal resistance in all directions, put more ginger into the ailerons, de-balance the elevator—and keep everything else unchanged—except, possibly, the eyelets on the trailer-cover, which tend to tear out—and any stout-hearted philosopher could happily face all normal aerial phenomena in her.

MOTORLESS FLIGHT OF SPIDERS

A note in *Nature* of October 28th draws attention to the phenomenon of "gossamer showers" which may be seen on calm autumn days, and is caused by the dispersal of spiderlings suspended from strands of silk floating in the air. In the realm of heavier-than-air motorless aviation, these spiders show a far lower sinking rate than anything a high-efficiency sailplane can achieve, and it is a pretty problem in aerodynamics to consider how it is done.

Young spiders instinctively climb to the top of any available support, and their take-off from this point is described as follows: "At the top the head is turned towards the prevailing breeze, the hinder end of the body elevated as much as possible and a minute drop of silk exuded from the spinnerets. The lightest air appears to be enough to extend this drop into a delicate thread or threads. Sufficient wind-pull on the waving streamer results in the spiderling releasing its grip of its support, and an aerial journey begins." Doubtless the spider, like the sailplane, needs a certain minimum of vertical movement in the atmosphere if it is to achieve anything much in the way of a cross-country flight, since it must have a sinking rate of sorts, however minute. But, given this condition, it can put up a pretty good show in the way of distance flying. Darwin records that, on a day just 101 years ago, he was 60 miles out at sea from the River Plate in H.M.S. "Beagle" when the ship's rigging became coated with gossamer and large numbers of spiderlings were observed.

The spider's thread of silk must surely be a unique example of a flying machine relying for its support on skin friction alone. One may speculate whether something much larger, working on the same principle, would be feasible. For this idea the credit must go to H. G. Wells, who, in inventiveness, has so often outshone Nature at her own game. One of the most gruesome of Mr. Wells's early output of short stories concerns a certain "Valley of Spiders," down which three men were riding on horseback when they became aware of a "sombre veil of haze" advancing upon them from the upper valley. As it approached, this began to resolve itself into "first one and then a second great white ball, a great shining white ball like a gigantic head of thistledown, that drove before the wind athwart the path. These balls soared high in the air, and dropped and rose again and caught for a moment, and hurried on and passed." As more of them came, and nearer, it was seen that each one was "not an even sphere at all, but a vast, soft, ragged, filmy thing, a sheet gathered by the corners, an aerial jelly-fish, as it were. . . ." The true nature of these objects was revealed when one of the men felt a clinging thread fall across his face, and "looked up to discover one of those grey masses anchored, as it were, above him by these things and flapping out ends as a sail flaps when a boat comes about—but noiselessly. He had an impression of many eyes, of a dense crew of squat bodies, of long, many-jointed limbs hauling at their mooring ropes to bring the thing down upon him."

Thus is given a complete account of the construction and pilotage of these strange motorless aircraft. Only their actual dimensions are wanting, though it is stated that one of the spiders measured a full foot from leg to leg. On this basis, could our aerodynamic experts work out the allowance of gossamer per spider in the completed structure? And what is the aerodynamic advantage of such a pooling of cobwebs over the single-seater arrangement?

It is worth noting that, according to the story, the only man to escape alive saved himself by a knowledge of the laws of air flow. He scuttled down into a deep ravine, where the wind could not penetrate, and from there he watched the sinister white "no-lift balloons" pass harmlessly across the slit of sky overhead. A. E. S.

ON KRONFELD'S TRAIL

We were rigging our sailplane. The instructor was annoyed about something and began to swear profusely. "Who is that?" asked one of the spectators of his friend. "I don't know" was the reply, "but he speaks English extremely well!"

At last the result of months of labour lay in position to take off. Everyone was asking who was to go. Those who had soared before were at the edge of the cliff. Was the wind too strong? I hung on to a wing tip and said nothing. It was good fun pretending to be a German if you had soared before, but I had not, and began to dread being asked to fly.

The crowd was getting restive. The machine rocked as if mocking their impatience. The wind blew steady and chill upon us all. Was it too strong? Who was to go? Those who had soared before were coming back from the edge. I was to be butchered to make a Roman holiday. The crowd registered immediate interest in the proceedings of strapping me in, but I was determined that it should be no ordinary execution.

They were all there one minute and the next they were a hundred feet below. The usual mechanics of a launch had placed me where I was, but every noise was drowned in the wind. It whistled over my head and shrieked in the wires as I turned down the ridge. I glanced at the speedometer. It said forty-five miles an hour, so the machine put her nose up and sniffed the air. Everything was going fine! Here we were at the end of the ridge. Down went the nose. Into a bank with full rudder. The machine came half way round and stopped turning. I swore, put the nose down still further and put on more bank. It was like stirring thick porridge. The seat creaked under the strain. We touched fifty. But it worked the trick.

It was very clumsy and lost me a great deal of height. I swept past the crowd without noticing them at a ground speed of a mile a minute and was in the next turn before I knew where I was. My turn was no better and I cleared a stone wall by a small margin. Over the wall was a precipice which gave very little lift and, in despair, I turned towards the great hill I had just left. I was far below the take-off and could just make out the crowd round the cairn at the summit.

I kept the machine straight at the hill and we swooped up and up. As I cleared the cairn by a hundred feet I heard a faint cheer. I waved to them and was promptly blown off my course, which rattled me a bit. The turn was even worse and I was well down. I passed over a gentleman, very intent on gathering bracken, who paid no attention to me, and missed the cliff side by a few feet. My stock fell several points and I did not see much to encourage me ahead. I heard my own voice call upon me by name saying that I was all right. It sounded hoarse and unconvinced so I repeated the message and felt better.

Gradually I lost interest in proceedings disassociated from the actual navigation of the craft. Flying sailplanes, I decided, like gathering bracken or mushrooms, was an art which demanded the concentration of every faculty. The jaunty waving of the hand, yodelling and other refinements came later, perhaps. But, for the moment, no embroidery by request.

The seat creaked as I hit the bumps, the wires sang an old, old song, very satisfying to the pilot. My feelings of exaltation bit by bit gave way to one of numbness. The wind was cold, I was flying fast and there was no hot water bottle in the nose of the machine. I lost height steadily, until, with a wild swoop, executed round the southern elevation of the gatherer of bracken, I turned away into the valley. Forty, Fifty, Sixty! Three hundred pounds of spruce sticks, calico and wire went howling down in the teeth of the wind. Every control was perfect. Would she stand the strain? She felt as solid as a rock. I dived towards a farm, passed it, crossed a gorge and turned over a farm beyond. Then I headed back to the hill again and came to rest at the foot of the cliff.

There did not seem to be anyone about, but people sprang up from behind blades of grass to assist me out of the machine. I was dumb with cold and they began to talk among themselves as though I was a lunatic at large. The male member of the party finally came over and, speaking very slowly, asked, "Do you understand English?"

J. K. W.

[On behalf of the public, it should be explained that this flight took place at Beamsley Beacon (the Ilkley Club's site), and that, some years ago, Robert Kronfeld gave a big gliding demonstration at the same spot.—Ed.]

AN INTERVAL FOR REFRESHMENT



Members of the South Shields Gliding Club, with their Renault glider.

A PERFECT DAY

By One of the Crowd.

On Saturday, October 7th, the date advertised for the opening of the B.G.A. competitions at Sutton Bank, the fog lay thick over our district in the North West. At 6 p.m. down came the rain and likewise our spirits. With feigned optimism we agreed to meet again at 5 a.m. to make a final decision regarding our proposed trip across country, in what proved to be a very trusty Morris Minor. Full of hope we set out at dawn. As daylight broke over the hills we beheld the autumn tints and the roaring torrents of flood water, as we slid along through that beautiful North Riding Country.

Arrived in Thirsk, we stopped to take our bearings, and received a lucid lecture on the art of motorless flying from the local Police Inspector, who informed us that the B.G.A. officials had left the square an hour previously. Once more we pushed forward, hearts throbbing with suppressed excitement, eyes scanning eagerly that distant grey hump on the horizon, whilst the car began to follow a sinuous path. In calmer moments we consider ourselves lucky that "Police cops" were not abroad, otherwise we might have been requested to walk the chalk line.

Now what is that on the horizon? Is it or is not a sailplane? It is! Attaboy, step on the gas! Faster and faster we travelled, all eyes glued on that distant object. Speculation became rife. It's a Scud! Good old Buxton! And now here's a Falcon; can it be Slingsby? Yet another, a Hol's; would you believe it? As steady as any bird, and once again two Scuds and two Falcons and again the Tern. We drew up at the base of the hill, for here was a sight we had often predicted; we were fascinated. We have collected pictures of the Wasserkuppe and dreamed pleasant dreams, yet here we beheld at last the real thing, taking place in gorgeous settings.

We were truly spellbound, until the gruff voice of the law urged us to keep moving. Cars were arriving in ever-increasing numbers and the narrow roadway was fast becoming jammed. Some of the party preferred to climb the hill on foot, anxious not to miss one single evolution of those gigantic birds circling overhead so gracefully, nosing out every bit of lift. It all looked extremely easy, so perfectly natural to us who have studied the birds. At times we were rooted to the spot, particularly when the beautiful Professor sailed overhead. We now realize that the bottom of the hill is the ideal spot for the spectator.

On the hill-top the scene was more familiar. We met and shook with all and sundry, saw many old faces beaming with smiles. We saw "B" pilots become "C" pilots as if by magic, and we were too happy for words.

The light was fading, we had some 200 miles of road to cover on our homeward journey. We had scarcely reckoned on the congested state of the roads. It took the best part of an hour to reach Thirsk, from whence we settled down to navigate our way back to the North West Country.

And so ended a Perfect Day. Our only regret was that we ourselves had not soared over such delightful terrain.

A HEADQUARTERS FOR THE NORTH.

The Yorkshire papers report that there is a scheme afoot for building permanent headquarters at the top of Sutton Bank, near Thirsk, for the use of the several Yorkshire clubs, such as Bradford, Ilkley, Huddersfield, the Scarborough and York groups, and possibly Middlesbrough, who would form an amalgamation for the purpose. It might even be possible to build a clubhouse and instal a resident ground engineer. The scheme is to be considered by the Bradford Club, the largest member of the proposed amalgamation, this month.

We do not know whether the owners of the land have been consulted, but hope they have, in view of the publicity that has been given to the scheme.



Sutton Bank: main soaring slope, looking north.

GLIDING CERTIFICATES.

The following gliding certificates were recently granted by the Royal Aero Club. The columns show respectively: No. of certificate, name, club, and date of qualifying flight:

"A" Certificates.

336	J. W. T. Jones	London	May 13th.
337	W. B. Murray	London	July 9th.
338	W. W. Briscoe	London	July 16th.
339	C. A. Pascoe-Ellis	Essex	Aug. 7th.
340	W. V. Tolhurst	Essex	Aug. 7th.
341	J. A. L. Royds	Imp. College	May 28th.
342	H. C. Bergel	London	Sept. 2nd.
343	C. E. Hardwick	London	April 7th.
344	H. Holdsworth	Bradford	May 16th.
345	H. Jones	Bradford	April 14th.
346	F. Yates	London	July 26th.

"B" Certificates.

188	J. Stephenson	Accrington	July 23rd.
319	A. Cox	Bradford	April 1st.
325	G. L. Bell	London	Aug. 24th.
330	C. W. Jowett	Bradford	July 9th.
336	J. W. T. Jones	London	July 16th.
337	W. B. Murray	London	July 9th.
338	W. W. Briscoe	London	July 16th.
343	C. E. Hardwick	London	Aug. 20th.
344	H. Holdsworth	Bradford	April 16th.

"C" Certificates.

160	R. F. Stedman	Bradford	Aug. 8th.
229	S. Whidborne	London	July 30th.
318	J. C. Dent	London	July 29th.
327	P. A. Wills	London	June 17th.
336	J. W. T. Jones	London	July 29th.
337	W. B. Murray	London	July 9th.
338	W. W. Briscoe	London	Aug. 16th.

The last list of gliding certificates was given in our issue of June 9th, page 122.

For the benefit of new readers and the uninitiated, we may explain briefly that the "A" Certificate is given for a straight glide of 30 seconds, the "B" for a flight of one minute with "S" turn, and the "C" for a soaring flight of five minutes above the level of the start.

According to these and previous returns, 70 British "C" Certificates have now been granted. At the end of last year the number was 60, and a list of them was given in our issue of April 14th.

AND A FEW MORE.

Since the above list was compiled, some further gliding certificates have been granted by the Royal Aero Club.

"A" Certificate.

347	W. Liddell	Ulster	Sept. 10th.

"B" Certificates.

19	B. A. G. Meads	Manchester	Oct. 1st.
186	F. S. Coleman	Manchester	Oct. 1st.
347	W. Liddell	Ulster	Sept. 10th.

"C" Certificates.

19	B. A. G. Meads	Manchester	Oct. 8th.
186	F. S. Coleman	Manchester	Oct. 8th.
342	H. C. Bergel	London	Oct. 15th.
343	C. E. Hardwick	London	Oct. 8th.
347	W. Liddell	Ulster	Sept. 24th.

This brings the number of "C" pilots to 75. But there is still a list missing, which we have not yet had—that which should include "A" certificates 332 to 335.

GLIDING IN HOLLAND

Motorless flying in Holland is carried on by 15 clubs, which possess 16 machines between them. Each club sends a representative to a central body, and this body has an inner council of four, consisting of a President (who is somebody of influence to lend the movement his prestige), a secretary (who does all the work), and two others. All these positions are honorary; in fact, the Secretary, Mr. L. C. Kruithof, spends as much per annum for the benefit of the movement as would keep at least two people in moderate comfort.

All the clubs practise auto-towing, or else use a mechanical winch. The progress of the movement was unfortunately marred by two fatal accidents in successive weeks about the end of July this year. In one case, a newly-purchased machine of MAYER-AACHEN design was being flown by an insuffiently experienced pilot, who stalled it after a towed launch and spun into the ground. The other accident was due to a ZÖGLING pilot forgetting to cast off the cable after a mechanical launch; he flew over the car, was pulled up sharp by the cable, and dived to earth. The secretary had previously advised those responsible to fit a release on the car as well as on the glider, but they, being engineers, had preferred to use their own judgment.

As a result of these two fatalities in such quick succession, all club activity was temporarily stopped, and meanwhile the Dutch government sent a high Aviation Official, together with the Secretary of the gliding organisation, out to the Wasserkuppe to find out all they could about the methods used in Germany. It was there that we met Mr. Kruithof and obtained the information given above.



Cumulo-nimbus clouds over the Dutch Coast.

The accompanying illustration has been kindly sent by Mr. G. H. J. J. Schuurmans Stekhoven, of Utrecht. It shows Mr. Hoekstra flying the ZÖGLING belonging to the very active Amsterdam Gliding Club, which operates on the Schiphol aerodrome. The aerodrome is several metres below sea level, and, up to the end of the 19th century, the site was covered by a lake. The machine is being launched by winch.

At first sight there would not seem to be much scope for motorless flying in Holland. The highest point in the country is less than 1,000 feet up. It might, however, be possible to do a little "ridge soaring" along the larger dykes. The late Ferdinand Schulz, when he did his flight of 38 miles in East Prussia from Rossitten to Memel (then a world's record), did not soar along the high dunes on the east side of the peninsula, but over the low sand cliffs along the Baltic shore, which are not more than about 30 feet high.

As for thermal currents, they should not be lacking in Holland, and we look forward to the time when our Dutch fellow-enthusiasts will start on some good cross-country work from the top end of a really long cable.

The accompanying cloud photograph shows what the air of Holland can do in the way of vertical movement. It was taken in interesting circumstances. Returning by train through Holland from the Rhön meeting last year, we passed through a series of violent thunderstorms. Yet a mile or so out at sea from Flushing we were under a clear sky. The photograph was taken from some miles out to sea, at 3.25 p.m., and shows a series of cumulo-nimbus clouds along the Dutch coast. As there was a wind blowing from England towards Holland, the clouds shown are newly formed in air which has just arrived over the land, and have scarcely yet begun to grow "anvils." From the English side, however, where similar weather prevailed, the anvils were being blown far out to sea, and could even be seen from near the Dutch coast. We got under the edge of the first English anvil at 5 p.m., when only about half-way across the North Sea. But there was no cumulus below it; no thermal soaring for the gulls, who had to be content with their Moazagotl-like patch of lift over the ship's stern.

So there is not much chance of the British and Dutch gliding movements visiting each other by sailplane—at least, not till we have learned how to soar behind a ship.



A winch launch by the Amsterdam Gliding Club at Schiphol Aerodrome.

GLIDING DRAMATISED.

Two young German glider pilots have written a play about gliding, entitled "In Europe's Skies," according to *Les Ailes*. The scene is laid at Rossitten, on the Baltic Coast, and on the stage are shown young people of both sexes who pass their "A," "B" and "C" tests. (We would like to know how this is done; are they catapulted off the stage into the wings?) The pupils include an elderly Professor who collects butterflies; presumably he provides the comic relief. Romance is not neglected either, for a young Frenchman comes to the school; he is welcomed by all, and forms an attachment with a charming lady pupil.

It is stated that the play, complete with its theme of international reconciliation, has been warmly applauded by the National Socialists and the German Press.

A THEORY OF CUMULUS DEVELOPMENT

Dr. F. J. W. Whipple, the Superintendent of the Kew Observatory, writes as follows in a letter published in *Nature*, of August 19th:

"In the note in *Nature* of July 22nd, where the achievement of Mr. G. E. Collins in soaring for twenty-seven minutes in an atmosphere free from clouds is recorded, it is stated that there 'were no cumulus clouds to produce the normal up-currents beneath them.' The use of the word 'produce' invites criticism. The word 'indicate' could have been passed without comment.

"Until recently, it was generally supposed that cumulus clouds were buoyant owing to their temperature exceeding that of the surrounding air. It was assumed that the air at the bottom of the cloud was at least as warm as other air at the same level, whilst the lapse of temperature inside the cloud was less than outside. The observations of W. Kopp (1930) have proved that such ideas are ill-founded, and that the air inside a cumulus cloud is cooler than that outside at the same level. The first evidence for this generalisation was found in a comparison between the temperatures estimated by the use of kite balloons and by the use of aeroplanes. It frequently happens that the temperature recorded by the observer in an aeroplane is the higher, and Kopp came to the conclusion that this is because the pilot of the aeroplane avoids the clouds and finds the temperature in the air between the clouds. Direct observation in aeroplanes taken through the clouds has provided confirmation. In fine-weather cumulus at any rate, there is a deficiency of temperature inside the cloud; the deficiency is of the order of 2 deg. C.

"Kopp has adopted the theory that the cloud is buoyant in spite of its low temperature, and that it contains a large amount of water vapour, sufficient to imply supersaturation amounting perhaps to 300 per cent. (Kopp quotes in one instance 600 per cent. The difficulty in reconciling this theory with physical principles has been stressed by Johannsen.) His observations may be explained more readily by supposing that, whilst the cloud is actually heavier than the surrounding air, support is provided by the lightness of the column of ascending air below the cloud. This column may extend upwards from the ground. The ascending current is fed by air which has been warmed near the ground and has received moisture by evaporation. As the air rises it cools, and before the condensation level is reached, the rising air may be a little colder than other air at the same level. The cool air is lifted up to form the cloud, but the average density of the whole column, including the cloud at the top of it, is less than the corresponding average for the surrounding air. When there is a suitable wind, the cumulus clouds form in rows and the countryside is covered with alternate blocks of warmer and cooler air.

"If this is the correct explanation of Kopp's observations, then the glider is served by convection currents, when he keeps below a cumulus cloud. The cumulus clouds *indicate* the normal up-currents beneath them.

"So far as I know, comparative observations of temperature and humidity just below the level of the clouds are not available. I hope that such observations will be provided by the friends of gliding.

"I have not noticed any observations of Kopp's referring to the lower parts of cumulo-nimbus or other rain-producing cloud. It would be a shock to meteorologists to learn that such clouds were not inherently buoyant."

A Reply.

In the issue of the same journal for September 9th appears the following reply from Capt. C. K. M. Douglas, who is well-known among cloud students for his aerial photographs of clouds and his investigations of them at close quarters from an aeroplane:

". . . . Dr. F. J. W. Whipple seems to imply that the coldness of a cumulus cloud relative to its environment represents a new discovery on the part of W. Kopp. Perhaps I may be allowed to point out that I noted this fact in 1917, and soon afterwards wrote (*Nature*, April 4th, 1918), '. . . . the lapse rate near the ground is adiabatic, but this is not usually the case at the cloud level, with the result that the clouds at the top of the ascending currents are usually colder than the surrounding air.' Later research has shown that on a sunny day the lapse-rate of temperature considerably exceeds the adiabatic rate in a shallow layer near the ground. I incline to the opinion that the rising air mass resembles a bubble, and that it gains vertical velocity in the lower unstable layer, and loses it higher up, but is carried by its own momentum past its equilibrium position. If this view is sound, it follows that a rising current should be found only under a developing cumulus cloud, but that under a dissolving cloud the motion should be downward. It would be interesting to know whether gliders can confirm this.



A Cumulus Cloud forming over Huish Hill.

"As regards large cumulus and cumulo-nimbus clouds, I find among my War-time notes a number of observations on this subject. The temperature in the cloud was sometimes lower than in the adjacent air at the same level, sometimes higher, and sometimes about the same. On showery or thundery days the cumulus clouds are started off in much the same way as on fair days. If one watches the clouds carefully, one sees that some of the clouds dissolve away, while others continue to grow and join with others, usually along a belt, and perhaps finally form thunderstorms, after a total period varying from two to six hours. Buoyancy is evidently sometimes lacking at the cloud base, but it is developed higher up owing to the latent heat of condensation, provided that the lapse-rate of temperature in the surrounding air exceeds the saturated adiabatic rate. At still greater heights the cloud top may penetrate a more stable layer and again become colder than its environment, but in the case of thunderstorms buoyancy is usually maintained to above 15,000 feet. The strong rising currents of thunderstorms are evidently a late development, since otherwise the development of the storms would be much quicker than it actually is. In the earlier stages there must often be a delicate balance between the factors producing ascent of air and those opposing it. Horizontal temperature gradients, covergence in the horizontal air motion (especially below 2,000 feet), or topographical features on the ground play a part in most if not all thunderstorms, though these factors are ineffective without a suitable lapse-rate of temperature higher up.

"The number of upper air soundings on thunderstorm days is now very large, and it is found on these occasions

that by far the most potent forces of buoyancy acting on an air mass rising through its environment act appreciably above the condensation level. In the absence of observations in the heart of the storms, it is usually assumed that the air rises adiabatically, and though mixing between the rising air and its environment may modify this in practice, the general qualitative conclusion regarding the main source of the buoyancy remains unaffected. Another complication is the cooling effect of precipitation, especially of hail and snow melting into rain. The air in a shower is normally colder than at the same level outside it, often up to 5,000 feet, and probably sometimes higher. This destroys the buoyancy of the air, and the downward current causing the out-rushing squall probably sometimes originates above 5,000 feet. The shower is sometimes maintained by fresh masses of rising air at its boundary, usually in front of it but sometimes also or alternatively behind or at the sides. Thus there is always a tendency for the old parts of showers or thunderstorms to diminish, and for the new parts to intensify."



The cumulo-nimbus cloud referred to in the text, advancing upon Dunstable from the north-west.

Some Comments.

The two letters reproduced above have been crowded out of successive issues of THE SAILPLANE, nevertheless we have included them in this issue, if belatedly, because of their important bearing on problems of cloud soaring.

The theory mentioned in Dr. Whipple's letter is liable, we find, to be misunderstood by some readers of it, who think it is claimed that the air in a cumulus cloud has merely been heaved up by a thermal current from below, instead of forming part of the actual thermal current. A closer reading of the letter will show that this is not so. If it were, such a cloud would be unlikely to have the characteristic appearance of cumulus. (The characters of clouds formed in such heaved-up air will be discussed in our report of Sir Gilbert Walker's latest lecture.) And in any case, sailplanes, newspapers and other objects can be carried up from low levels right *into* a cumulus cloud.

The letter of Capt. Douglas is of extraordinary interest. For one thing, he seems to have arrived independently at Hirth's "bubble" theory (unless he has heard of Hirth, which we doubt).

But we are specially concerned with his remarks about cumulo-nimbus clouds, the masses of overgrown cumulus which have grown big enough to produce showers, or, if still bigger, thunderstorms. There is still a lot to be learned about the life-history of such clouds. Owing to the great area covered by them, both in space and in time, their various parts cannot, like simple cumulus, be watched from start to finish by a single observer's eye.

The last part of Capt. Douglas's letter sheds a little much-needed light on the subject of "cold fronts."

Now, there are, broadly speaking, two distinct forms of cumulo-nimbus cloud. One is the kind that forms in a long line along a "cold front," that is, the line along which an advancing mass of cold air is pushing up the warm air in front of it, usually to such a height that cloud is formed. The other kind of cumulo-nimbus is that formed on days when the air is "unstable" higher up as well as lower down, so that cumulus clouds, once formed, tend to keep on growing bigger and higher; thus is formed the isolated or "local" or "passing" shower, or in extreme cases, the local type of thunderstorm. What has always perplexed us is that, although these two kinds of cumulo-nimbus are due to totally different causes, yet there seems to be no hard-and-fast boundary-line between the two types, for, on a day of merely local showers, often in some part of the sky a whole connected line of them suggestive of a typical "cold front" may be seen.

The question of the difference between the two types is an important one for the sailplane pilot. In the case of the "local" shower, the air currents can be extremely violent, but no meteorologist seems able to tell him how best and most comfortably to use the cloud for soaring, although he could, if he only knew enough, probably climb to far greater heights than with ordinary cumulus. But with the "cold front" type, the pilot can avoid the discomfort and violence of the inside of the cloud by soaring out in the clear air in front of the advancing "front," and perhaps do a really good cross-country flight into the bargain.

The text-books would have us believe that, in the "cold front" type of cumulo-nimbus, it is always the cold air which is the *cause*, and the cloud which is the *effect*. In the process described by Capt. Douglas, the opposite is the case; the cloud is there first, and the cold air comes afterwards, out of the cloud.

The characteristic visible sign of a "cold front" is the cylindrical roll-cloud, at a low level, which may stretch right across the sky along the advancing edge of the "front." We have sometimes seen this roll-cloud appear where there wasn't one before (an example, with photograph, was described in the London Club notes in our issue of August 11th). Capt. Douglas accounts for the phenomenon neatly. It would seem that a "cold front" can be formed at a definite stage in the life history of a cumulo-nimbus cloud, and this suggests that, if a soaring pilot keeps a sharp look-out on a day when such clouds are about, he may catch such a "front" at the first moment of its formation, and thus make the most of the opportunities it has to offer him.



The advancing edge of an extensive cumulo-nimbus cloud of "cold front" type, moving eastwards away from the camera. Four separate photographs which were taken a few miles south of Gravesend, have been combined to form a panorama. The darkness of the cloud has been purposely exaggerated.

CORRESPONDENCE

"POLITICS."

Sir,

I should like to trespass on your columns a second time on the subject of "Politics," and comment on a few of the points raised by correspondents in your November issue.

To begin at the end, I noticed the B.G.A. Council report that "in view of the letter . . . and the rumours this has given rise too. . . ." Now that is all wrong. It was the very size and general hairiness of the rumours floating round, and the entire absence of facts on the subject, that decided me to write. When Mr. Smith assumes that my letter was "anti-B.G.A." he is incorrect—I was complaining that we could only get at the views on the matter of *one side*.

Mr. Ashwell Cooke in his letter uses the word "Politics in the narrow sense of party politics, implying friction, and I heartily concur in his sentiment that we can do without. Unfortunately it will first be necessary to remove the large amount of it that is now littering up the place. Surely we cannot do *nothing*, and perpetuate the existing state of affairs? We are getting near the point when certain members of the B.G.A. will feel they cannot go to Dunstable and *fly*, and certain members of the L.G.C. feel they cannot compete at B.G.A. meetings and *fly*. That is to say *flying will suffer*, and I am sure neither Mr. Ashwell Cooke nor "Thirty Hours" would like that.

Now for "Thirty Hours"—I submit the most constructive letter which has so far appeared. But it is surprising how many of his tenets are already facts. Briefly, under the heading of "Legitimate functions": hearty agreement. *Add*, possibly, financing THE SAILPLANE deficit, providing the conduct and all other details of the paper are left entirely free. As far as I can see, these already *are* the main present functions of the B.G.A. The "cost of running" has perforce come down to about £100 a year *plus* THE SAILPLANE deficit. And very good for it too, say I. The "locus" of the body *is* practically the corner of a desk—and a cheaper desk than the R.Ae.C. would provide. Their powers are, I think, very much as outlined, their method of handling C.'s of A. almost identical so far as I know.

This analysis gives one, at any rate, the hope that there is not as much of a chasm to bridge as might be feared. My personal belief, for what it is worth, is that, now that the B.G.A. is right up against it, the situation will tend to clear up. *Because everyone admits that there must be a B.G.A.*—call it what you will.

I felt that the remark in a later letter anent criticising and standing aside touched me very nearly. Consequently I felt constrained to offer myself for a vacant post on the B.G.A. (of course this letter is purely a private one nevertheless). Having done that, I feel I can ask the present reader whether he is prepared to help ease the situation. If he ask, what can he do? I reply, "Have you *BOUGHT* this copy of THE SAILPLANE?" If not, you are a PARASITE on the movement. Send in your bob *quickly!*

I believe that the duties of a Worthy Member of the movement are:

First, to get more and more to fly, better and better;
Second, to buy and keep going THE SAILPLANE;
Third, never to forget that we are here to HAVE FUN.

P. A. WILLS.

Sir,

May I refer to your comments on Mr. Waplington's letter in your November issue which I think you have mis-read. Although one or two members of the Council did criticize the publication of Mr. Wills's letter on the lines set out by Mr. Waplington, my impression was that the criticisms were not adopted by the Council as a body.

Apart from this, I suggest that it is quite clear from his letter that Mr. Waplington considers THE SAILPLANE entitled to publish letters criticising the Association. The suggestion that the letter in question might have been referred to the Association before publication, could quite fairly be made to any journal, quite independently of any rights of ownership.

If I understand the position correctly the "past experience" to which you refer was a letter from an affiliated Club addressed to the Association, a duplicate copy being sent to THE SAILPLANE for publication. The letter was considered by the General Purposes Committee of the B.G.A. and replied to by the Chairman. The circumstances in my opinion, were such that there was nothing improper in making representations both to the writer and to the Editor of a Journal to which it had been submitted, that publication was likely to do more harm than good.

If I remember rightly no pressure other than expression of opinion was attempted or even considered.

S. WHIDBORNE,
Chairman, Finance and General Purposes Committee, British Gliding Association.

[We are still waiting to know *why* it was desired to have Mr. Wills's original letter referred to the B.G.A. before publication. We can think of only two possible reasons: *either* to enable a reply to be published in the same issue, *or* so that efforts could be made to prevent its publication. Our suspicion that it was for the latter purpose is borne out by what happened once before when we were discovered to have received a letter criticising B.G.A. policy. Mr. Waplington then made it quite clear that he wanted us to suppress publication of that letter, *even if* the Club which sent it insisted on its being published. The lengths to which Mr. Waplington will go in trying to get such letters suppressed is shown by what happened in the case of Mr. Wills's letter. He actually wrote and told us that the B.G.A. Council regretted that the letter had been published, when in fact the Council had done nothing of the sort. If letters criticising B.G.A. policy are to be suppressed, and at the same time public statements are made that such matters may be freely discussed in our columns, the effect is to deceive readers into thinking that no such criticisms have ever been made. It would be a betrayal of our readers' confidence to allow any such deception to be practised upon them.—ED.]

THE HEADINGLY CLUB'S GLIDER.

Sir,

I should like to correct a slight error which appeared in the November issue of THE SAILPLANE.

On page 220 it is stated that the newly formed Headingly Club have purchased a DICKSON (spelt "Dixon" in the report) primary.

This is not correct. The machine they have purchased is a Primary designed by myself for a firm who intended to build them commercially, but did not carry on owing to lack of support. It was flown by me about five times, and was originally tested at Malham late on the day of the B.G.A. competitions held there some time ago.

REX F. STEDMAN.

[This is what happens when Clubs send us no news of themselves, leaving us to get it from newspaper reports instead.—ED.]

WITHOUT PREJUDICE.

The following letter has been received from Mr. G. Tilghman Richards, Senior Lecturer at the Science Museum, South Kensington.

"Urgent: to all B.G.A. and Affiliated Clubs' Members.

"Sir,

"A most unfortunate happening has occurred for which I feel responsible, and I should be obliged if you would ask all connected with gliding to keep a sharp look out for any signs of an abandoned glider somewhere north

of Sheffield, and probably in some remote part of the Yorkshire moors. The pilot's name is or was Andrew McAndrew, and he may be found with, or probably detached from, his glider.

"The sequence of events leading to this feared tragedy was as follows: Some months ago one of the audience at my lectures on "Gliding and Soaring History," stayed behind and asked many particulars as to method and costs of soaring, formation of clubs, affiliation, etc., and seemed peculiarly enthused with the idea that with a communal-built glider, costing but little per member, one could soar for long distances, such for instance as from Aberdeen to London. As he remarked, it would not mean even shoe leather. It appeared that he was from Aberdeen, and later I received a letter of thanks, telling me of the formation of the Aberdeen Club, of how the members had subscribed to and purchased a sailplane, and made our friend chief pilot. Next came a bitter letter of remonstrance, written by the Club Secretary, about the way in which I had led them all wrong by my omisson to tell them that suitable country for topographic soaring ceased to exist further south than Yorkshire, of how they had just realised this after McAndrew had borrowed the Club's only asset, and started off for London with but little money in his pocket, money not being needed in soaring travel, and that they feared that some accident had befallen the pilot since nothing further had been heard since he left Aberdeen and that if he had been forced down in Yorkshire, they feared the worst. Why is not stated. Of course the moral is not to try distance soaring with inadequate knowledge of thermal and cloud soaring, but you can realise how upset I feel over this business.

"Yours faithfully, etc."

The following information has just been received from an equally reliable source: The very emaciated body of the unfortunate pilot has been found in poor lodgings in an obscure quarter of Bradford, and so the uncertainty is removed as to the ultimate fate of McAndrew. Poor fellow, but what a reckless fool! An Aberdonian without means would not stand much chance of survival in Yorkshire. News of what happened to the machine is not forthcoming, unless a note in the local Press recording the formation of the East Riding Gliding Society has anything to do with it. The Society solicits subscriptions and is stated to have five Founder Members, and assets, one sailplane under repair at the moment. Headquarters, under negotiation.

PRESS CUTTINGS

From an account of the Sutton Bank meeting in the *Manchester Guardian* and other Northern papers: "At least six sailplanes came down in the valley, but all the pilots escaped unhurt."

OUR UP-TO-DATE PRESS.

The *West Lancashire Evening Gazette*, of Blackpool, in reporting Mr. E. L. Mole's recent British duration record, gives alongside a drawing of a CHANUTE type glider (a late nineteenth-century design), with the pilot clutching the framework like grim death, supported only by his elbows, and the rest of his body swinging below the machine. We can just imagine the readers' thoughts as they cast their eyes over this picture, and then read on that Mr. Mole had hoped to beat the world's duration record of 21 hours.

SWAN'S FAULTY PILOTING.

On August 21st, according to *The Times*, a large swan was flying over Bexley Heath, Kent, when it hit the chimney stack of a house in Lodge Lane and was killed. The bird rolled down the roof and fell into the garden, narrowly missing a baby in a perambulator .

Swans, and other large birds who are somewhat sluggish on their controls, are advised to familiarise themselves with the nature of air flow round obstructions such as buildings, etc., before attempting to fly low over such places.

DO YOU AGREE?

"Gliding is one of the very few sports for which woman is better endowed by nature than man. 'Feel' plays one of the most important parts in efficient gliding and soaring, and a delicate sense of touch is more highly developed in women. . . ." A writer in *The Queen*.

A RUMOUR CONFIRMED.

The *Daily Express*, in publishing a photograph of Hanna Reitsch beside her glider, gives it the following description:

"Germany is developing air-gliding, and clubs have been started all over the country. Here is one of the women competitors, Fraulein Heitsch, at the first meeting in the hilly Rhon district."

We are glad to have this confirmation of our suspicions that the Germans were thinking of taking up gliding. And if they find the "hilly Rhon district" at all suitable, perhaps they may even glide there again some day.

WHAT A SQUALL CAN DO.

On the night of August 17th, according to *The Times*, a sudden gust of wind caught the hood of a motor-car on the outskirts of Carlisle with such force that it spun the car round three times. This happened just before a very heavy downpour of rain. The six occupants had to be taken to Cumberland Infirmary. The driver of the car said that the back portion of it was torn off and flung on the side of the road, and the passengers were thrown out.

The onset of heavy rain just after a gust suggests the arrival of a shower of the line-squall type. The weather map of that evening shows an "occluded front" (i.e., where the "cold front" has overtaken the "warm front") stretching S.S.E. from a depression centred near Iceland, and terminating at about the latitude of Carlisle. It would have passed over Carlisle at about 8 p.m., with perhaps a veer of the wind from S.S.W. to W.S.W.

What would such a squall have done to a glider?

THE GLIDING CRAZE.

Our press-cutting agency is nothing if not thorough. Instructed to send us every little snippet in which "gliding" is mentioned, it furnished us the other day with an account of a lecture on "Gliding Continents." Evidently this refers to the late Dr. Wegener's hypothesis that the continents can move about on a semi-fluid medium underneath them. Their rate of motion must be extremely slow—of the same order of slowness, one imagines, as the shrinkage of the Earth's crust due to cooling. In that case, it ought to be possible to combine the horizontal and vertical movements and work out a definite "gliding angle" for each continent.

Our agency's latest effort is to serve up a cutting about a new dance called the "Palais-glide," which the East Hull Gas Company introduced into its carnival "do" at the Metropole. No information is given as to the Rate of Fall of those who indulge in this form of gliding.

LEADERSHIP.

There is a cleavage between the gliding and the light aeroplane movements in this country, according to an "Evening News" gossip. He goes on: "Many experts consider that gliding is first-class training for power flying; most aeroplane pilots refuse to admit it, and regard gliding with good-humoured patronage which is reciprocated. The successful glider, thrilled by his achievement of floating serenely in the air, is well able to smile in superior fashion at the pilot who can do nothing without an engine. In fact the mutual feeling is akin, I am told, to that which exists between the devotees of motor boating and sailing. Yet the two leaders of the gliding movement are both light aeroplane pilots. . . ."

Precisely. And when we read who they were, we gasped. Evidently the word "leader" is capable of more than one meaning. Mr. Hugh Ruttledge, for instance, was the "leader" of this year's climbing expedition to Mount Everest. But Mr. Ruttledge actually went so far as to accompany the party all the way to the Himalayas. He did not just drive about at home in a car telling everybody what a fine thing a little rock-climbing would be for the youth of the country.

NEWS FROM THE CLUBS.



The Kent Club's converted "R.A.C.I.," showing the new nacelle.

ULSTER GLIDING AND AVIATION CLUB.

Saturday, Sept. 23rd.—Scud II, flown by Metcalfe at the Knockagh for half-an-hour. Wind due East, oblique to the face and about 10 m.p.h. The greatest height gained was only 250 ft., which was disappointing. Not to be outdone by our London friends, he tried circling at about 100 ft., got caught by the vicious downdraft behind the cliff edge, just scraped over a fence and being so thankful at finding height on negotiating the brink, promptly dived and found himself unable to regain his lift. He was retrieved intact from the bottom, and, though he succeeded in doing his circle, we strongly suspect a case of "wind-up."

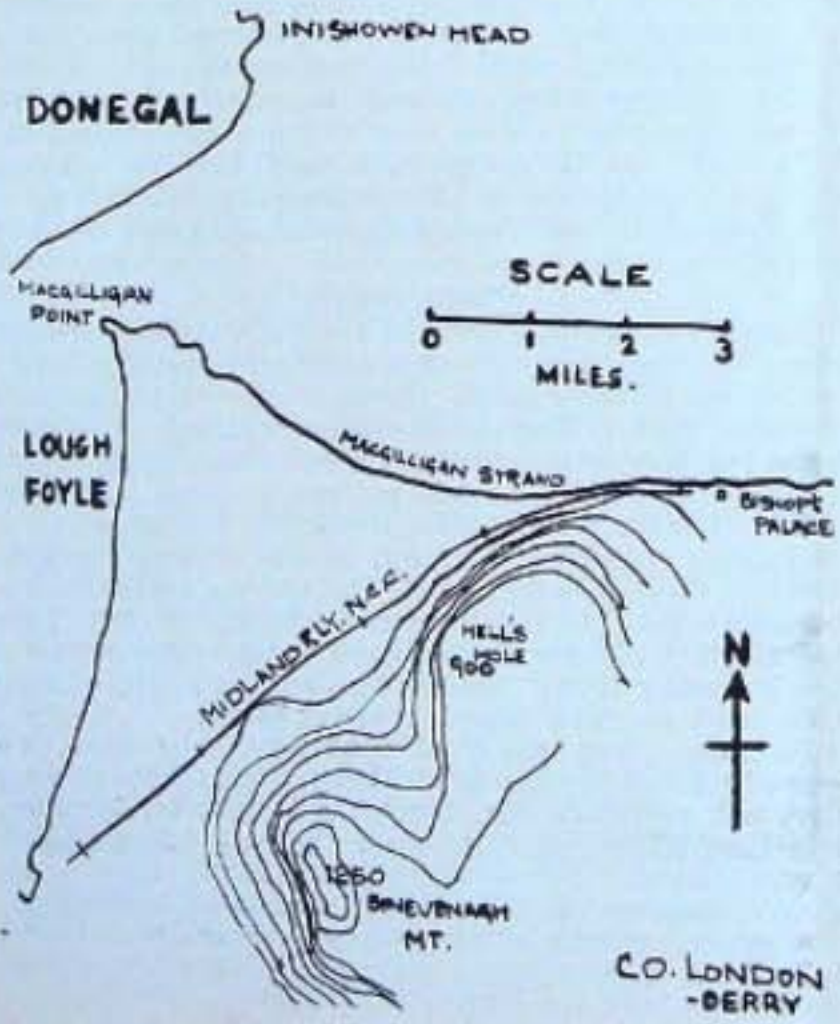
Sunday, Sept. 24th.—Kassel 20 flown at Magilligan in stately fashion by Mackie, Mrs. Mackie, Baster and Liddell, the latter gaining his 'C" by two flights of 20 mins. and 30 mins. at a height of 1,000 ft. (It sounds easy, it looks easy, and it *is* easy if you fly at Magilligan.)

The flying time for the day was 3 hours, and the wind being 10-15 m.p.h. from E.N.E. (i.e., practically straight against the cliffs) gave great lift. Maximum heights gained in the three best flights were 1,670 ft., 1,650 ft., and 1,820 ft., by Mackie, Mrs. Mackie and Baster respectively. The latter had another flight, the particulars of which we have persuaded him to write personally. They will appear later.

Soon after this day's flying, a paragraph in the local press stated that the existing official British altitude record had been beaten with the flight of 1,820 ft. Now, while we do not wish to belittle our performances, which we believe show creditable progress, we think it only fair to point out that all our flights at Magilligan are made with an auto-towed start. This launch varies in height according to wind strength. For example, with a strong wind against the cliffs, it is necessary only to tow up to the height of these cliffs, release, and drift in, rising all the time. With a wind of poor strength pilots nearly always prefer to take all they possibly can out of the launch, some 650 ft. The height of the lowest part of these cliffs is 200 ft.

It will be seen, therefore, that these stated maximum heights are all reduced by the amount of the launch. So far 200 ft. seems to be about the minimum from which soaring is possible.

While on this subject we should be interested to know how the London Club arrives at altitudes when the winch launch is used, also if possible the rate of climb. A barogram of ours shows in one launch a climb of 500 ft. in half a minute. The normal is about 700-800 ft. per min.



Sunday, Oct. 8th.—We had to-day two machines flying, one in Yorkshire, the other at Magilligan!

Scud II at Sutton Bank, in the hands of Wynne, made two flights of 1 hour and 2 hours, and was then unfortunately forced down by a "burble" somewhere near the White Horse. According to the pilot, the machine suddenly went into a steeply banked turn *towards* the face of the hill when at only too short a distance from it. He extricated himself from the nasty predicament in some way or other, but lost so much height in doing so that he was compelled to land at the bottom.

Some half-hour later our ground engineer was informed by the B.G.A. observer who was "observing" this flight, that our machine was to be seen some mile or two away in company with the Tern!

As our American friends would exclaim—"So what?"

Kassel 20 made ten auto-towed flights at Magilligan, but a S.W. wind prevented any soaring. Pilots, Mackie, Mrs. Mackie and A. N. Other.

Saturday, Nov. 4th.—Kassel 20 and Scud II launched repeatedly at Magilligan, but failed to stay up for more than ten minutes, in spite of a 5-10 m.p.h. breeze from N.W. We are puzzled, and whispered mutterings of "inversion" and "lapse rate" were to be heard in dark corners. Kassel, 3 flights, Scud 11 flights, flying time 1 hour 20 mins. Pilots: Harris and A. N. Other.

Sunday, Nov. 5th.—Both machines flying all afternoon put in 6½ hours with 13 flights. All our "C" pilots, with the exception of Mrs. Mackie, who was not present, spent the time according to their various proclivities. The wind was slightly stronger than yesterday and from the same direction.

Harris and A. N. Other visited Hell's Hole and Castlerock on both Scud and Kassel at 1,100 ft. and 1,000 ft. Metcalfe pottered over to Binevenagh in the Scud, but only managed to get 1,650 ft., so gave up, and visited Castlerock. The height lost on the 6½ mile trip (in straight line) was only 400 ft. Mackie also in Scud, bridged the gap between Hell's Hole and Binevenagh, made two beats

along the face and got up to 2,000 ft. as per barograph. He returned at immense height, and also visited Castlerock.

Baster, who professes great fondness for the KASSEL, rumbled (literally) over the same track, but thought the Bishop's Palace was far enough on the return journey. His height at Binevenagh was 1,400 ft. with one beat along the face, and he says his return to Hell's Hole took him a long time owing to the head-wind.

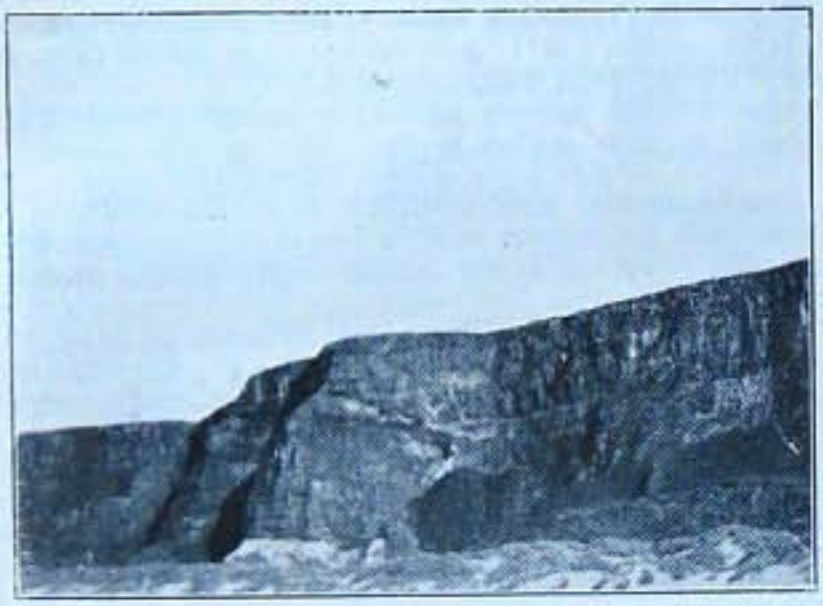
The SCUD's gliding angle certainly showed up to advantage to-day, but at the same time old KASSEL 20 is an extremely gentle and polite old lady, even in spite of her "rumblings internal." Her aileron control is delightful.

Altogether a most excellent week-end with good flying, steady conditions (as usual on this site) and no fuss.

Sunday, Nov. 12th.—Was spent in towing the old R.F.D. up and down at Tyrella. Harris and A. N. Other attempted to show how the machine ought to be kept level behind the towing car for one slide each. Then in a really generous manner gave up the rest of the afternoon to telling the others what was wrong with each "flight." We suspect they now know the meaning of the London Clubs' Correspondent's "Bell-Lifool."

The old machine stood up marvellously to the 20 miles of sliding, but is very near her last.

We take off our hats to the "pilots," namely, Beck, McFall, Douglas and Malcolmson, who all stuck out four double slides each.



The "Kassel 20" soaring over Magiligan cliffs last summer.

LONDON GLIDING CLUB.

October 29th.—Last Sunday was a sticky form of atmospheric flop, fog following heavy rain. The club-house fires burnt up well. This Sunday a wavering breeze wandered along out of the N.N.W., the Bowl thus blanking the home-ridge, and the Bastion spoiling the Zoo-wards reach.

Until lunch-time beginners were launched at the foot of the hill in the DICKSON machine which Derby-Slater presented to the club. She is no great shakes to look at, but is surprisingly kindly in the air. Another party did test-hops in the re-re-re-built R.F.D., which gleams and glitters and is a perfect joy to look at, all except the tail which, having protruded unharmed from many wrecks, is not in keeping with the pristine sparkle of the wings and nacelle. The lines of the nacelle are pretty well perfect, and altogether she ought to be a dead snip for would-be "C" pilots. She is already drawing people away from the PRÜFLING. He who wrecks her this time will be thrown to the Whipsnade lions.

In the afternoon the CRESTED WREN made an effort to soar, but found little, and only made a snaky descent of 3½ minutes. The breeze was clearly slithering along the face of the hill, instead of rising up it. She was followed by the PRÜFLING, the R.F.D., HOL's, and KASSEL 2-seater, none of whom had any luck. The wind then faded away altogether, leaving the machines to descend in a steady stream till after dark, retrieved by an Austin Twelve, hauled up the hillside by the ex-Alvis winch, and launched by infinite relays of amiable spectators. Nothing could have been more entirely charming, and nothing was broken. As the *Daily Express* said next day, having listed world-wide commotions, "In England it was Sunday." These unheroic days have their own attraction, especially when there is a tea and a bar to fall back upon at nightfall. But no doubt we are prejudiced; we grow middle-aged and very fat, so that we tend to take our aeronautics more comfortably and without our earlier passion.

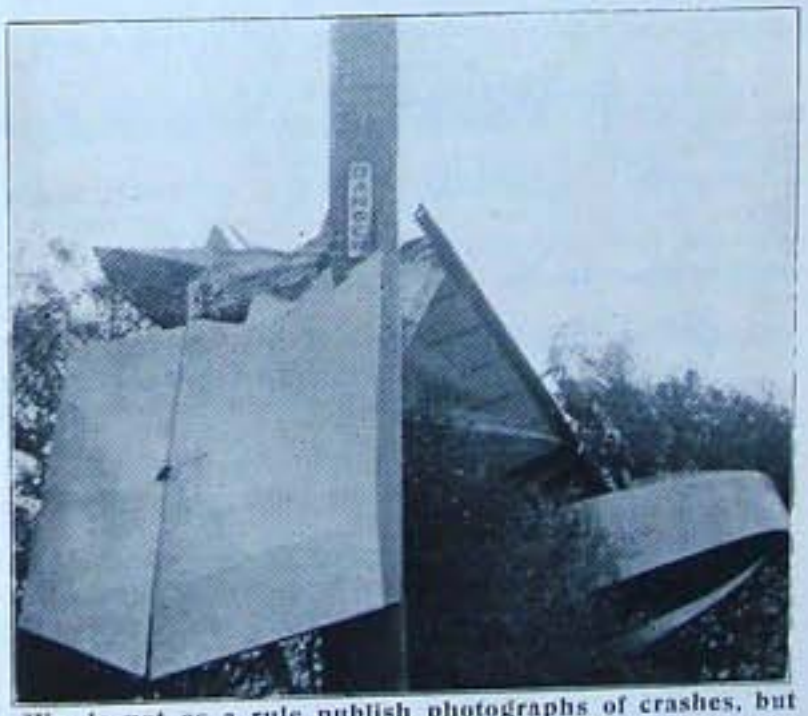
Sunday, Guy Fawkes Day.—The prize guy, or boob, is the pilot *(sic)*, terrestrially a very nice chap, who flew the gloriously titivated R.F.D. full tilt into a hedge, hitting an H.T. pole right on the notice that says: "Danger." He scratched his face and wrote a wing off. The moral is that she is too efficient for her job, being more silent, and having a better gliding angle than the PRÜFLING. In future she will have to be flown without a nacelle and with the crew's washing hanging in the rigging. That will larn 'em.

Otherwise we had another nice quiet day with all the men we like in attendance, e.g., Slingsby, Manuel, Buxton, and heaps of others who would also box my ears if I listed them. We started with hops in the DICKSON and R.F.D., retiring to the hill-top in the afternoon. The calm conditions were rendered entertaining by attempts to land within the newly marked-out thirty-yard square. The PRÜFLING once finished with her hook over the central spot, a feat rudely labelled a Perishing Fluke. The CRESTED WREN circled the area twice and finished up inside, thus performing an even more Perishing Fluke. Attempts to soar her in the calm were either partly successful, or else she still retains that extraordinary gliding angle which once enabled Major Petre to glide clean out of the Barrow Moors when we thought that no machine on earth could possibly do it.

The WILLOW WREN was brought back to Dunstable after her repairs at Scarborough, *per* Slingsby. She looks perfect. After tea there was a swarming round an acre of blue prints representing a new Very-Hush machine. The bar did well and we all had a nice time.

Sunday, Nov. 12th.—A footling N.N.W.'ly air. Elementary training in the DICKSON in the morning; in the afternoon descents from the hill-top in the PRÜFLING and CRESTED WREN, without breakage. Landings ranged from a rowdy down-wind affair on the spot, to a genteel up-wind landing on the wrong side of the hedge. Carpentry in the workshop. At a late hour the penny-in-the-slot

HE DIDN'T READ THE NOTICE.



We do not as a rule publish photographs of crashes, but have made an exception with this one, as it took place in such an appropriate setting. The pole is one of those which carry high-tension cables across a corner of the London Club's ground.

machine consented to disgorge the desired pile of bullion. Another peaceful Sabbath. Gales overdue.

On **Nov. 19th** the long spell of easterly winds was continued, but the DICKSON, PRÜFLING and WILLOW WREN were repeatedly hopped in the foot-hills. No damage. The Imperial College Club also hopped their primary machine, using a car in place of a human team.

Sunday, Nov. 26th. It's an ill-wind that does not do somebody some good, and the beginners have had a regular debauch of primary instruction lately, under the kindly wing of the DICKSON. When these dratted easterly winds have at last given way to shrieking westerly gales, we shall undoubtedly be drowned out with new beginners all moaning for ground-hops. Meanwhile the perspicacious lads are becoming expert and the nit-wits are staying away. Some people ain't got much sense. *Verb: sap.*

But to-day's proceedings were jollied along no end by the re-appearance of the launching-winch, which gave the PRÜFLING many hearty (drat that word) long-hops, one elderly gent trying to taxi right round the hangars instead of returning to the launching point. Crabtree from Ilkley tried this form of launch and emerged unshaken, being a stout fellow.

The WRENS, being fitted with quick-release gear, were thrown skywards with great force, reaching a measured maximum of 340 feet, i.e., 100 feet above the top of the hill. Note that our cable is rather short, far shorter than the length recommended in Germany, but is the best that we can manage at present. In any case if the pilot retains any intelligence after the substantial terrors of a high launch (a list of the terrors would contain about twenty items), he can then have a glorious ride round, or round and round, for a couple of minutes—and this on a day when, without a winch, the limit would be a hand-launched straight hop of a couple of hundred yards.

Don't forget, however, that a sensible winch-driver is infinitely more important than a host of regulations and mechanical safeguards. If you should see a high-launch about to start with a palpable fool at *each* end of the wire, you may as well start picking funereal flowers straight away—or else go into the bar, call for rum, draw the blinds, and play loud music to drown the noise of crashery.

THE AIRCRAFT CLUB, HARROGATE.

There has been no soaring weather at Sutton Bank for the last seven weeks. The ZEPHYR has been brought back to Harrogate to save it from being snowed up.

The new arrangement is to meet at The White House, Starbeck, at 10 a.m. on Sundays and proceed to the most suitable soaring site with the ZEPHYR. If the weather is unfavourable, work will be done on the new training machine. Work also every Tuesday and Friday night.

FURNESS GLIDING CLUB.

Oct. 8th.—The stay-at-homes tell us that this day was ideal for soaring at Askam and Ireleth.

It proved to be a great day on the opposite side of the country. A few of our members took a chance and left Barrow in the early morning darkness; they were rewarded by the magnificent spectacle when nearing Sutton Bank.

Nevertheless, these members feel distinctly ashamed that playing truant should have robbed the experts of the only soaring breeze which has presented itself for months.

We seem to have struck an unlucky patch! Had our towing car licence been valid, we might so easily have joined that happy band at Thirsk.

Nov. 2nd.—The 4th Annual General Meeting was held on the premises of Messrs. Vickers-Armstrong's, Ltd. The Management has always given unstinted assistance to the Gliding Movement in this country and to the Furness Club in particular.

The meeting was presided over by the Vice-Chairman, Mr. J. P. Redshaw, who apologised for the absence of several officials, and read a letter received from Commander C. W. Craven, expressing pleasure and satisfaction with the progress, and his willingness to continue his valued support.

A similar letter received from Capt. John Fisher urged the members to aspire to even greater things.

Mr. Redshaw referred to the loss the Club had sustained during the year by the passing, after a long illness, of its respected Treasurer, the late H. B. McLaren, and also to the enforced absence of the Secretary, Mr. H. S. Gross, due to a most unfortunate accident. The meeting expressed sincere good wishes for his speedy and complete recovery.

The Secretary's and Treasurer's reports were read by Mr. Robt. Cuthell, who has nobly filled the breach. Mr. Cuthell pointed out that the Club was getting together much valuable experience and property and fast becoming thoroughly mechanised. The total flying time for the year was 3¼ hours, some 280 launches have taken place, and, further, the Club had managed once again to balance its budget. These reports being duly approved, the meeting proceeded to tender its appreciation and thanks to retiring officers.

The following officials for the season 1933-34 were then elected:—President, Commander C. W. Craven, O.B.E., R.N.; Chairman, Capt. John Fisher; Vice-Chairman, J. S. Redshaw; Ground Engineer and Captain, C. S. Britton; Secretary, Byron Winder; Treasurer, Robt. Cuthell; Auditors, R. B. Domony and C. Armer; Committee, V. Foster, W. A. Stevens, S. Burnett, C. S. Redshaw and W. Butterfield.

The Club's policy for the ensuing year was discussed at great length, and it seems likely that new machines and conversions will be put in hand at an early date. Affiliation to the B.G.A. came in for a good share of discussion; enough said! And so the Club enters upon its fourth season with renewed optimism.

Note: The Secretary's address is now 16, Powerful St., Walney, Barrow-in-Furness.

BRADFORD AND COUNTY GLIDING CLUB.

Since the last report in THE SAILPLANE there has been very little actual flying owing to unsuitable weather conditions.

We have, however, a great deal of work in hand, the most important being the repairing of the CLOUDCRAFT, and the construction of the "Stedman Two-seater," which is now coming on rapidly.

It has been noticed that several members who turn up to work on the CLOUDCRAFT suddenly disappear, and subsequent investigation has brought to light the fact that they slope off to Stedman's to give him a hand on his machine. Friend Sharpe has now decided to sit on a box at the entrance to "Cloudcraft House" with a large hammer and smite those who show signs of sneaking out before "closing time." Stedman has retaliated by offering fat teas and much beer to all who show up at his place in time for a spot of work.

Oct. 22nd.—Working on CLOUDCRAFT (and at Stedman's).

Oct. 29th.—Conditions not too bad, so we had DICKSON out and gave Elliott, Alderson and Watson flights from the top of Hope Hill. These three members are now coming on well, and as soon as the weather permits should be making good progress towards the sailplane class.

Nov. 5th.—On the strength of a favourable weather forecast on the wireless, and signs of wind both in Leeds and Bradford, an expedition was organised for Sutton Bank. On arrival, however, the wind objected to our looks and would not do its stuff. We rigged HOL's in the hope that it would get up, but it started raining instead, so we had to regard that day as a "full dress rehearsal" for what we hope will be regular flying on this site. The HOL's and PROFESSOR are still there, and enjoying their rest.

Nov. 12th and 19th.—Work in progress both on the CLOUDCRAFT and the STEDMAN, and, if things go along at this speed, both these machines should be in the air well before Easter.

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