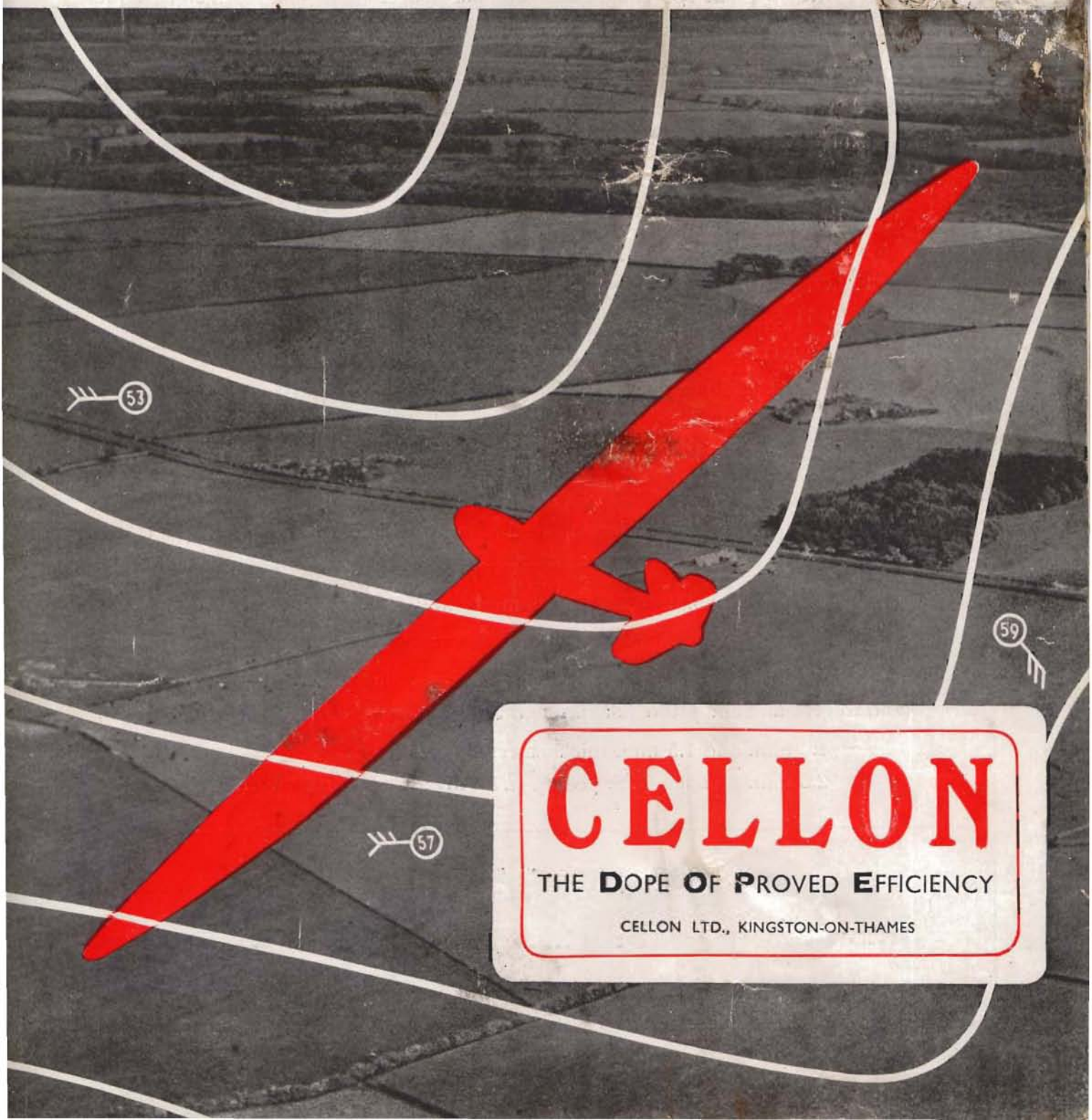
SAILPLANE AND GLIDER

DECEMBER
1938
Vol. 9 No. 12

Published Monthly
PRICE - - 1/-
Editorial Offices:
13 Victoria St., S.W.1

Official Organ of the British Gliding Association

EDITED BY ALAN E. SLATER



THE SAILPLANE *and* GLIDER

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Economics

GERMANY is before all others the country where motorless flying is encouraged as a preliminary to learning to fly aeroplanes. And the reason for its encouragement has been, not so much the idea of getting to know the ways of the air in a craft where such knowledge is essential, as the belief that it is the most economical way of teaching people to fly.

It therefore comes as a surprise to find the editor of that excellent journal, *Der Deutsche Sportflieger*, Ing. Karl Seyboth, putting forward the opposite view. "First motor flying, then sailflying" is the title of an article in which, after some preliminary remarks, he goes on to describe a number of modern ultra-light aeroplanes. It is the preliminary remarks which specially demand attention. "The times which forced upon us the slogan 'If not with motor, then without motor' have finally passed with the setting up of the Third Reich," he asserts, and further on he says:

"For a movement which one can conceive as a future People's Flying Movement, sailflying and its methods are much too uneconomical. That the gliding movement took on to the extent it did in earlier years in Germany, was mainly due to the catastrophic unemployment. Time then played no part. The various flying groups had enough forces at their disposal at any time for construction and schooling, so that there was no need to enter into economic questions. Meanwhile the position has altered. . . ."

It is no new thing in this country to hear an argument as to which method of flying is the cheaper. The argument consists of dividing the money spent by the number of hours' flying put in. Unfortunately it contains three glaring fallacies, which are the beliefs:

(1) that the pilot derives as much benefit from an hour's flying with a motor as from an hour's flying without one;

(2) that he derives as much enjoyment from an hour with a motor as from an hour without;

(3) that he will be as keen to continue power flying after a given number of hours in aeroplanes as to continue sailflying after a similar number of hours in sailplanes.

Those who use the economic argument, whatever the result of their findings, regard these three beliefs as axiomatic. Yet not one of them is true.

A Book for Soaring Pilots

THE Art of Soaring Flight. By WOLF HIRTH. Translated from the German by Naomi Heron-Maxwell. *The Sailplane and Glider* Office, 13, Victoria Street, London, S.W.1. Price 5s.; post free 5s. 4d.

This is the book which, more than any other, has helped to make soaring history. At the time the first edition appeared in the original German, none but a few experts could get beyond the stage of slope-soaring. The great majority of pilots became stuck at that stage because the information they needed to advance further, even where published at all, was hard to come by. That is why, as Wolf Hirth says in his preface, he wrote the book.

Within a year of its translation into Polish, Miss Heron-Maxwell tells us, 19 "Silver C's" were acquired in that country; and she herself admits to having been "severely hampered" in learning to soar until she met Wolf Hirth and read his book, whereupon, she says, "a new world was opened up to me."

The English translation has been made from the latest German edition of the book, which has been brought up to date by the inclusion of accounts of flights which have helped to bring about the more recent advances in soaring technique.

After some preliminary remarks on sailplanes and their instruments, and a useful chapter by Hofmann on making steep turns, a section is devoted to each kind of soaring in turn. Hirth's method is to describe the theory and the means of putting it into practice, and then to add a number of accounts by pilots of outstanding flights they have made by the means described. To show how the same technique can be applied in other countries, accounts are included of flights in England, America and South Africa by P. A. Wills, J. S. Fox, and L. B. Barringer.

A short history of soaring flight in Britain and America is included, and there are brief biographies of Eric Collins and Warren Eaton, to whose memory the book is dedicated, and of several leading German pilots. Finally there are interesting forecasts into the future by Wolf Hirth: "From Glider to Powered Sailplane" (don't be alarmed—he means power for occasional use only) and "How far can the standard of soaring be raised by man's skill alone?"

At the end is a bibliography and a list of British gliding clubs.

From Here and There

Another "unexpected" down-current?—A report from Osaka states that, while flying an aeroplane over the sea there, a pupil at a Japanese aviation school was thrown out of his machine into the water when the 'plane dropped over 600 feet and his safety straps gave way.

* * *

Youngest Meteorologist.—So good were the observations sent in by Roger Cade, who has studied the weather from his bedroom window in Portsmouth since the age of 11 and is still only 14, that the Royal Meteorological Society invited him to become a Fellow, not knowing he was "only" a schoolboy. His troubles started when he tried to find three other Fellows to sign his application form, for they had strict ideas as to the sort of people who are capable of becoming meteorologists and thought he was pulling their legs.

* * *

New Height Record.—On November 28th Herr Zi[illegible] of the Grunau Gliding School in Silesia, set up a [illegible] height record there, flying a KRANICH. A newspaper report gives the height as 4.35 miles, which is 7,00[illegible] metres or 22,970 feet, but *Flugsport* gives it as 8,60[illegible] metres, or 28,215 feet. The latter journal reports that the pilot, at the highest part of the flight, was flying blind for over an hour in ice-crystal clouds at a temperature of minus 40° C. (equal to minus 40° Fahr.). He is probably to be identified as Erwin Ziller, who obtained "Silver C" No. 31 in 1934. Meanwhile the F.A.I. has recognised the previous height record set up by Walter Drechsel in a MINIMOA at the Rhön on August 5th; the official figure is 6,687 m., or 21,939 feet. Previous height records at Grunau were unofficial, as the instrumental records were not such as to satisfy F.A.I. regulations.

Review

Cardboard Crucifix. By OLOFF DE WET. Wm. Blackwood & Sons, Ltd., Edinburgh and London, 1938. Price 8s. 6d.

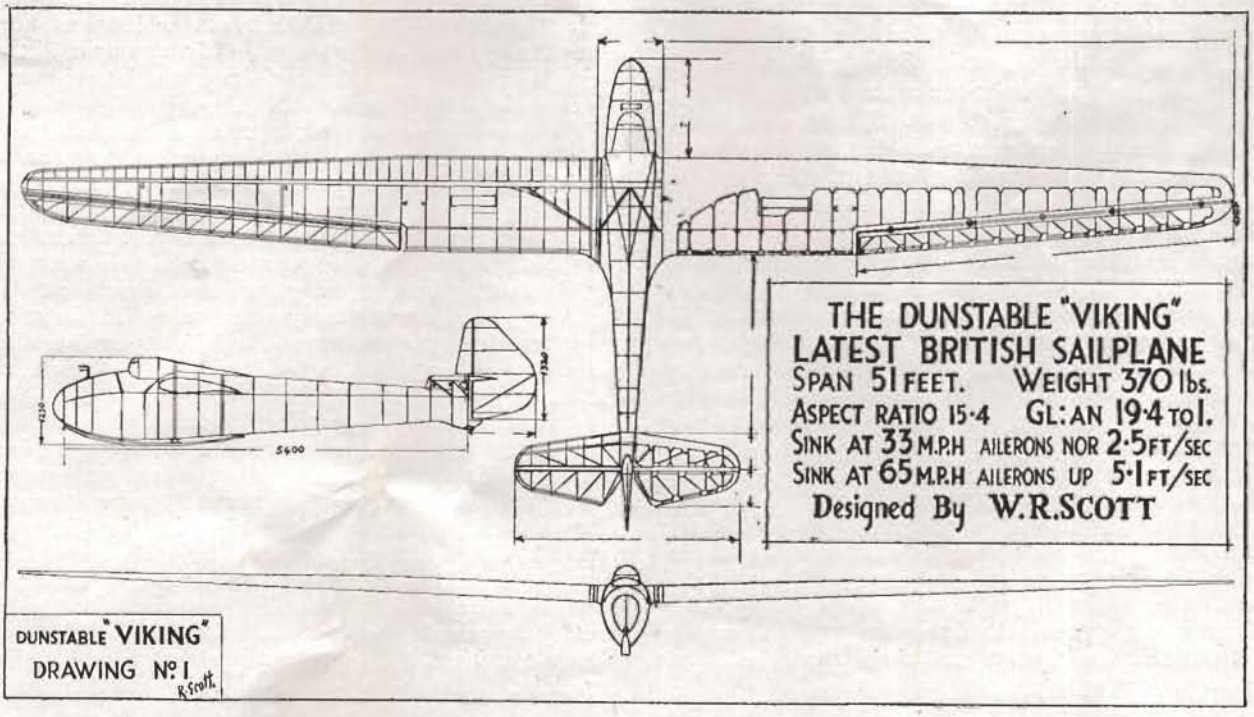
This book, sent to THE SAILPLANE for review, contains nothing which touches upon motorless flight or upon meteorology, but is an intimate account of flying and other adventures in Government Spain. The author had already survived air-war in Abyssinia and Bolivia, preceded by Sandhurst and the R.A.F.

Possibly due to the influence of his artistic ancestor, who was court-painter to King James II, the author sprinkles his book with gaudy word-pictures and a queer tangled style better understood at a second reading. But thereby he mercifully obscures a nightmare of knifing, mutilation, strangulation, assassination, torture, execution, drowning, shooting, crashing, bombing, burning, racketeering and imprisonment, against a background of death and decay, dirt and stink, cruelty and treachery, terror and drunkenness.

Discipline as we know it does not seem to exist, and De Wet at last became so disheartened that he ceased flying of his own accord, mixed himself up with an anti-Government intrigue betrayed by a peculiarly loathsome agent-provocateur, hid for fifteen days in a room stinking of rotting corpses, was caught and imprisoned under foul conditions, was made to witness the execution by night of four men and a woman, and was finally ejected from Spain.

Our tougher subscribers will read the book with avidity; others can here come to understand the nature of civil war, probably little worse than in Ireland, Russia, Germany or South America. Yet in the absence of a similar book written about Insurgent Spain, one is left with one's previous views on the war badly shaken up.

S.H.



The "Viking"

[The firm of Scott Aircraft, Ltd., successors to Messrs. Scott & Zander, are celebrating their incorporation by bringing out a new high-performance sailplane, which is now being put into production. It has a span of 51 feet and weight of 370 lbs., and general arrangement drawings are reproduced on the opposite page. The first "Viking" is being taken out to Buenos Aires this month by Mr. R. P. Cooper. It was first flown and soared on November 6th, aero-towed at Heston on November 19th, and test flights, which are reported below, were made at Duxford on November 27th.]

THE VIKING high-performance sailplane was designed to meet the needs of the private owner and clubs who require a high-performance machine for general use without employing a machine of large span.

Its main features are as follows:—

Simplicity in rigging: The wings are easily attached with two tapered pins and one parallel pin in the rear. Both ailerons and spoilers connect up automatically and the wing makes a butt joint to the fuselage without fairings. The tailplane is attached to the top of a short fin with three bolts, the nuts for which are on fittings inside the fuselage. The rudder does not have to be removed to put the tailplane on, and on all future VIKINGS the elevator control will interlock on assembly without pin.

Diagonal grain plywood has been used in the covering of the rear part of the fuselage, which gives remarkable torsional stiffness and makes the skin stiff for man-handling.

Two light intermediate stiffeners have been put in each bulkhead bay to give the ply local strength on the lower part of the fuselage.

The cockpit is quite roomy and arrangements are made for wearing a parachute without having a parachute box. The spoilers are operated by a small lever on the left-hand side of the cockpit.

The cockpit is lined and upholstered with leatherette.

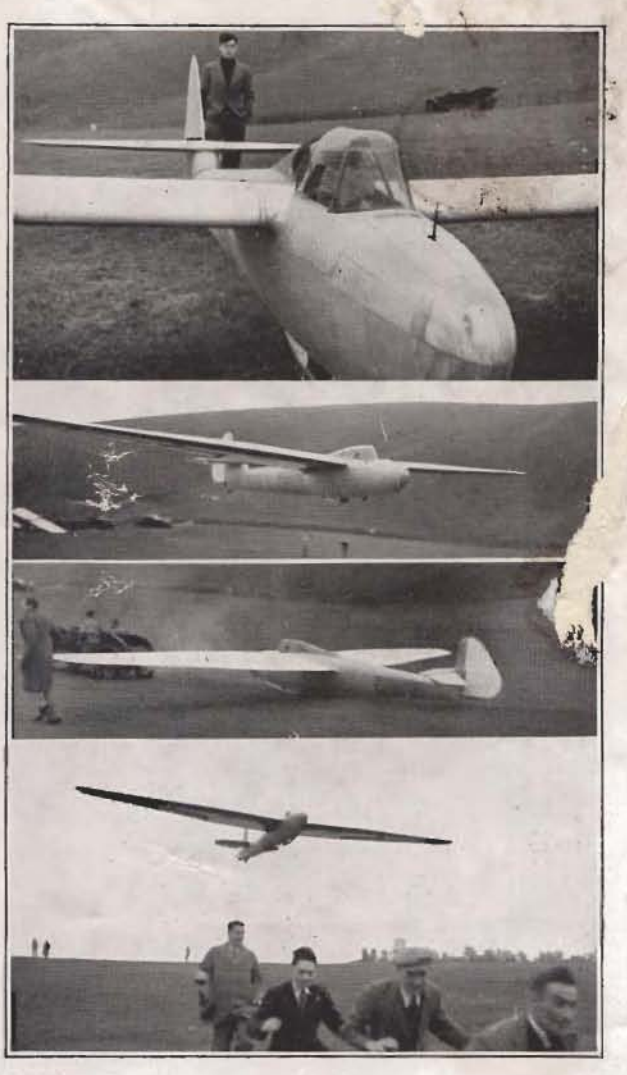
The nose of machine is removable and rudder pedals are easily adjusted.

The ailerons can be trimmed both up and down during flight. The trimming is operated from a square-tooth positive ratchet lever with half up and full up position, and the same in the downward position, complete with indicator, so that the pilot can tell the position of the ailerons. This mechanism does not interfere with the differential of the aileron gear, which is about 6 to 1; but when the stick is over 2½ ins. to 3 ins. either side the differential is 95%. This is done to prevent the ailerons moving down any more when circling with them in the fixed down position, thus avoiding stalling of the inner wing when circling slowly with ailerons down.

The VIKING is the first English machine to have this mechanism to alter the ailerons during flight. It has proved very valuable for speed range.

Quite a number of these machines are now under construction.

W. R. SCOTT.



The "Viking" on the occasion of its first ground hop and (below) launched on its first soaring flight at Dunstable on November 6th.

TEST REPORT

Duxford, November 27th, 1938. I was aero-towed up from Duxford Aerodrome on the morning of this day, carrying a barograph, and cast off at 11.56 a.m. Wind almost due south, 15 m.p.h., later strengthening to 20–25 m.p.h., at ground level; cold sunny day with light haze; high cirrus cloud; stable above 1,000 ft., but rather bumpy from this height to ground level; no appreciable signs of thermal activity. Aero-tow to just over 4,000 ft. on altimeter, checked by barograph as 4,400 ft. corrected.

Test made to determine sinking speed in normal trim, with aileron trimming gear in the neutral position. Machine brought down at a constant speed of between 34 m.p.h. and 33 m.p.h. on the air speed indicator fitted; which speed appeared to give the minimum sinking speed on the variometer; until the bumpy conditions on the last few hundred feet of descent made it difficult to keep an absolutely constant

speed. Variometer remained practically steady mid-way between the 3 ft. per sec. and 6 ins. per sec. graduations for the first 3,000 ft. of descent, the 3,000 ft. and 2,000 ft. levels on the altimeter carried being clocked at almost exactly 8 minutes and 16 minutes respectively by watch. Barograph shows approximately 7½ minutes per thousand feet for the first three thousand feet of descent as shown on the chart. A minimum of turns was done, and these were kept gentle. On a few occasions on the latter part of the descent the variometer dropped momentarily to the 6 ins. per sec. mark, returning to the 3 ft. per sec. mark almost instantaneously, and thence returning to the mid-way position.

Landing made on the aerodrome at 12.25 p.m. Time of descent, 29 minutes, as taken both in the air and by ground observers; though I myself should have given rather 30 seconds. Sinking speed 2.53 ft. per sec. approximately over the whole descent. Gliding angle, maximum sinking speed, 19.4 to 1, approximately.

Dr. H. T. Edmunds then had a flight in the machine.

Aerobatic Tests

I was then launched again after lunch by aero-tow to 3,900 on the altimeter, with a request from the designer and constructor to "throw her about a bit, if you feel like it." The haze had thickened and the wind increased, and I released at 2.28 p.m. up-wind of the aerodrome above a layer of rapidly thickening milk and water, which only allowed a surmise at the ground immediately below. I watched the towing aeroplane disappear into the mist down-wind, and rather optimistically marked the spot where it disappeared as the probable whereabouts of the aerodrome.

Looking down at the misty whiteness below, I did not feel that the second part of Mr. Scott's request was fulfilled; but having a guilty consciousness that he was probably watching me from the ground, and reflecting that the top of the layer gave a fairly good horizon, I proceeded to put the first half into execution. I stalled the machine with the nose well up, and put on full aileron and rudder to the left, with the stick right back. The machine dropped her nose well down, did a half-turn of a spin, and then came out as before. I repeated to the right, and with a little coaxing got her to hold a spin to the right. On centralising the controls she instantly came out. I repeated with similar results. The machine spun pretty briskly with the nose very well down, at about 50 m.p.h., and was picked out of the dive at 60 to 65 m.p.h., control being recovered almost instantaneously, and the machine having to be firmly held in the spin. I could not get her to do more than three-quarters of a turn to the left. I have a strong impression that if the controls were merely released she would promptly come out into a straight dive.

I next did a couple of stall turns, and then dived the machine to 85 m.p.h. and looped it. She came over cleanly and well, with plenty of speed over the top of the loop, and with no impression of being unduly stressed at any point.

I then did some circling, with the machine well banked over. She held a circle very pleasantly, once set, there being no difficulty in keeping the speed constant at 34 m.p.h., and the machine being exceedingly stable and pleasant, and demanding no concentration at all to keep in the circle. She is noticeably easier to circle than the RHÖNSPERBER or even the RHÖNBUSSARD, seeming to sit in it with practically no attention, and feeling very safe and steady.

I then did another turn of a spin to the right; and, being now well below 2,000 ft. on the altimeter, decided it was time to look for the aerodrome. I could see a few buildings, a rather curiously shaped wood, and a minor road immediately beneath me; but to either side was nothing but the mist, which had noticeably thickened. I cast about down-wind, but could find nothing that I recognised, it being impossible to see ahead for more than two or three fields. I found what I took (correctly, as it proved) to be the Newmarket Road; but unfortunately followed it the wrong way, and ultimately abandoned it. I finally landed at 2.44 p.m. near the windmill on the Balsham–Linton Road, at a point 200 ft. by altimeter higher than the aerodrome, and about 7 miles E.N.E. of it.

Time taken on descent, 16 minutes.

R. P. COOPER.

With Ailerons Down and Up.

Aero-towed in the "Viking" to 4,600 ft. Wasted first 1,000 ft. looking for the aerodrome which had completely disappeared!

After that fixed ailerons in the *down* position (lever back), and flew the machine at 31 m.p.h. (on one or two odd occasions this went up to 32 m.p.h.), dropping 1,150 ft. in 7¾ minutes. Therefore sinking speed, ailerons down, at 31 m.p.h., equals 2.64 ft. per sec.

While losing the next 575 ft. of height, the ailerons were fixed in the *up* position (lever fully forward), and the time taken was 5¼ minutes. The machine was kept at the same speed of 31 m.p.h., therefore sinking speed, ailerons up, at 31 m.p.h., equals 1.82 ft. per sec.

Having drifted some distance away during these tests I kept the ailerons up and flew back against wind at 48 m.p.h., during which time the variometer indicated a fall of 3 ft. per sec.

The machine at all times was very responsive to the controls, and one felt a complete sense of confidence in its behaviour.

Having arrived at the aerodrome I forgot to replace the ailerons in the neutral position and landed with them up! But by using the air spoilers until a few feet from the ground, I felt quite happy about the landing and experienced no difficulty.

H. T. EDMUNDS.

[NOTE.—Weather conditions this day at Duxford were: cold S.S.W. wind on the ground, fairly strong; alto-cumulus moving fast from N.N.W., warm front approaching. Mildenhall observations also showed a marked veer in the wind from 200° on the ground to 250° at 10,000 feet, at noon, though the wind speed from 1,600 feet upwards remained constant at 28 m.p.h. The country around Duxford is flat over a large area, except for slightly rising ground to the south. There appear to have been, therefore, no thermal currents or slope lift to influence the sinking speed observations, and the only kind of lift that cannot be excluded is that of stationary air waves, owing to the strong wind and stable atmosphere.—ED.]

The National Rally in South Africa

[Last month we gave an accoun. of the astonishing results achieved at the South African National Rally in October, but it was all too brief, and we are delighted to be able to publish fuller details in this excellent account sent by Mr. Frank Hatfield, of the Rand Gliding Club and the Johannesburg "Star."—ED.]

AN altitude flight of 10,250 feet; a cross-country flight of 214 miles in a MINIMOA; a cross-country flight of 113 miles and an altitude flight of 8,650 feet in a GRUNAU BABY were among the performances at the national gliding rally which concluded in October in South Africa. The Rally Committee, a joint one composed from the Rand Gliding Club and the Defence Gliding Club (the gliding club of the South African Air Force), is just recovering from the shock of these performances, and the total of 219 hours of competition flying recorded in a sport which is only three years old here. Bouquets are still hurtling back and forth.

We chose October because it is the change of the season and the wind comes whistling in from the north against the Quaggapoort Ridge. Nearly every day was a flying day, and a good one. We had six sailplanes on the ridge quite often, Winter's MINIMOA scrambling along over the rocks with Hakl's RHÖNADLER; the Rand Gliding Club's GRUNAU BABY IIA, and GRUNAU BABY; the Defence Club's WOLF; the Transvaal Pioneer Club's "A" and "B" team WOLFS. In addition, the KIRBY KITE which Wills brought out in 1936, and with which he created no end of a stew, was hired from the Defence people and privately entered. These were often on the ridge together, and in the half-mile beat that was usually used the air was quite often thick with machines, which were often joined by vultures.

Thermals were exceptionally powerful. We all experienced lift up to 20 feet a second and more, and Evert Dommisse, when he hit 8,600 in the GRUNAU BABY IIA, said the Collins variometer he had borrowed from HJORDIS was over the end of the scale and was right down showing about 15 feet per second downdraught. He computes it at 30 to 35 feet per second at its strongest—just before, without blind flying instruments, he got sucked into the cloud while trying to photograph the town of Pretoria 6,000 feet below him.

Hermann Winter, of the Transvaal Pioneer Gliding Club, won his "Golden C" with a remarkable flight of 215 miles from Quaggapoort, which is 5 miles to the west of Pretoria, right across the Eastern Transvaal into Natal and the borders of Zululand. He flew for most of the time at from 5,000 to 7,000 feet. On the second last day of the rally—a peculiar one, very hot and steamy with a very high grey haze beneath which cumulus was forming rapidly with a base of about 6,000—he flew for hours in thermals until the clouds coalesced into a violent fast-travelling storm.

Hakl, a Tyrolean ski-jumper, who owns the RHÖNADLER, had tried to land some days before on the extremely rocky south slope and had bashed the belly

Above are the winners in the inter-club event for the Argus Trophy at the South African Rally; left to right: Dr. Rainey, Geoffrey Peirce, Evert Dommisse. Below is a view, from the hangar mouth, of the hurricane which gained Hermann Winter his "Golden C" altitude and blew him 100 miles in an hour. The winch cover had just been blown away, and the winch may possibly be seen beyond the agitated central figure.

out of his machine. He launched ahead of the storm, connected almost at once, rose rapidly about 1,500 feet, and then vanished on the storm front. The hurricane which hit the camp reached 80 miles an hour. A tin-covered Bessoneau hangar, guyed and mounted in concrete, nearly blew away. Winch cover and tin shacks vanished, the winch cover, known as The Sarcophagus, being blown right over the winch. Hakl let the storm overtake him, and the last we saw of him he was turning over in a sort of roll. He landed later 18 miles away in some disorder after a doing he never wants to repeat. He was so buffeted that blind flying was impossible, and the torsional stresses had buckled all the paint off the ply.

Meanwhile the MINIMOA, which had been maundering about some distance away, came whistling towards the storm front. Winter connected and soared to 10,250 without much difficulty. He had a bad time when, soaring ahead of one storm, he met another advancing at right angles. He did 135 miles an hour to get away from the pair of them and covered a cool 100 miles in one hour between tea-time and dusk. We last saw him at 3.45 p.m. At 5.45 p.m. he telephoned us from over 100 miles away, having landed on a lonely farm and walked for an hour to get to a telephone.

Sergeant-Major M. of the D ding Club, was 40 miles a o r Spring. stern end of the Witwatersrand chain of gold-mining towns, when he was hit by the storm. He spent over half an hour in the clouds without blind flying instruments, and gained heights in the sideslips he made to try and escape. He had to spin out, and there are rumours that he gained height in the slips. But his pair rk was also dislodged by distortion.

The Hat Trick.

Dunstable and Sutton Bank people may be interested to hear that Redge Rainey, who years ago used to fly at Dunstable and bicycled from Portsmouth to Sutton Bank to attend a rally, gained his "Silver C" with some really nifty work. He is now something rather important at a cotton research station. The Union people write him letters addressed to "Dr." ey. And in his three cross-country flights he landed on two of them in very strange places. In one tried to fly right across Johannesburg, but was compelled to land on a golf course between a ten-story of flats and some 60-foot blue-gum trees. In rt, incidentally, of Johannesburg's more modish ial centre. The papers were full of it, and hed him from every angle, Redge feeling . On the other occasion he circled ceaselessly and unpleasantly at about 300 feet round a mine headgear of 150 feet at Springs after he had prepared to land, in zero lift, until the thermal strengthened and he got away to fly another nine miles and land on a rugby ground at Nigel, a recently started mining town. Distance about 50 miles.

Young Geoffery Peirce, aged 18, of the Rand Gliding Club, did 113 miles in a GRUNAU BABY. This lad, a former national swimming champion, blithely takes the air in a pair of very abbreviated running shorts. He flew for over two hours above 6,000 feet and nearly froze from cold. His best altitude was 7,200. And his wretched recovery team, led by Redge Rainey, drove 300 miles overnight to fetch him, returning at 8 in the morning. Winter's recovery team, incidentally, went 600 miles to retrieve him from the 215-mile flight.

Day after day the cumulus clouds came up, and everybody knocked up thousands of feet. There was some really magnificent stuff. Soaring usually ended, according to the 'phone calls from people wanting to be retrieved from all over the Eastern Transvaal, round about 3.30 in the afternoon.

Dr. Rainey, using a whirling hygrometer and the Fox formula, often computed accurately the cloud base at 6,000 to 7,000 feet. The chart given in THE SAILPLANE had to be enlarged to enable us to make the calculations.

We completely ignored the machine-gun and rifle-club practice on the ranges at the base of the slope, and only stopped soaring when trench-mortar shells were fired into our landing circle by an enthusiastic but inaccurate militia unit at training.

With the terrific conditions we found obtaining in South Africa, cross-country flying has taken on new terrors. It seems that you can go too far. Bartaune, a German "Silver C" out here, did a 212-mile flight into Swaziland. [This was described in last month's SAILPLANE.—ED.] Swaziland is very primitive country.

Above: the Quaggapoort soaring slope, looking towards Pretoria. A "Kirby Kite" is soaring in the distance. Below: the launching winch. Beside it, from left to right, are Hermann Winter (in "frantic" shirt) and R. C. Rainey (operating winch guide). In line with Dr. Rainey's head is the rocky slope on to which Mr. Hartung crashed as a result of an attack of sunstroke while flying.

It is extremely mountainous, covered thickly with bush, and for 80 miles of the flight there was nowhere where a sailplane could put down without a major crash in very desolate country. He plunged deep into Swaziland and decided to put down at the last bit of habitation, a townlet called Bremersdorp. Had he gone on he would have hit the uninhabited country of Portuguese East Africa, and might not have been found for weeks and weeks. To prevent this calamity Bartaune had to soar for 25 miles along an appalling razor-back and battle desperately with odd fragments of lift for over five hours. There is a story that the local farmers, believing the MINIMOA to be a huge eagle, were in two minds about taking a shot-gun to him.

We found it very difficult to cross a low-lying river valley between Quaggapoort and the Rand, the Jukskei River Valley (translation: Yoke-pin River Valley), unless you had about 4,000 feet or more of height. At least 4,500 feet, if not more, are necessary for successful cross-countries out here. Rainey once went off with 3,500 feet or so, and, as recorded, landed on the Killarney Golf Course, 26 miles away. Others who tried it landed about six miles away.

Sergeant-Major Mayhew, who won the Pidsley Trophy for the national championship, flew steadily and consistently well in the Defence Club's WOLF, which he handled in the most masterly fashion. His team-mates were Captain Sandenbergh and Lieutenant Noel Harvey, and the show the Defence people put up in a club only nine months old was really outstanding. The Rand had a hard time to beat them for the team event, the Argus Trophy.

There was remarkably e[illegible] crashery at the rally. HJORDIS, bought by Mr. [illegible]dries[illegible]k from Philip Wills, after extensive trials the [illegible] crack up [illegible]in 20 minutes of the s[illegible] of [illegible] ORDIS but proved very c[illegible]ult[illegible] rally [illegible]k decided to land. I had [illegible]nd t as she was touching do[illegible]nt er on to her back.

The other accident was to Hartung, [illegible]aal Pioneer Club. He was smitten with [illegible]un after three hours, and spun into the rocks, bre[illegible] both legs and his back. Those Quaggapoort [illegible] are appalling.

One of the surprises of the rally was the pe[illegible]nance of the Rand Gliding Club's old g[illegible]ey GRUNAU BABY, nicknamed the "Royal and Ancient". It is a venerable old thing, but the way it soared! The dear old bus was up with the best of them, notably in the hands of Bert Hodgson, who knocked up about 10 hours in her.

Summary.

Here is a summary of performances at the rally, to the training camp of which gangs came from Durban (400 miles away) and the Eastern Cape Province (650 miles away):—Launches, 108. Competition time, 212 hrs. 6 mins. Miscellaneous flying, 5 hrs. 56 mins. 30 secs. Training camp time, 43 hrs. 52 mins. 39 secs.

Argus Team Trophy: Rand Gliding Club "A" team, 1; Defence Gliding Club, 2; Rand Gliding Club "B" team, 3. Pidsley Memorial Trophy (national championship): Sergeant-Major Mayhew. Wills Trophy (distance), Hermann Winter (215 miles). Junkers Altitude Trophy, Hermann Winter (10,250 feet above launch). Goal flight, G. Peirce (15 miles).

Outstanding cross-country flights were made by Hermann Winter in a MINIMOA of 214 miles from Quaggapoort to Sulphur Springs, in Natal, when he reached an altitude of 6,700 feet and made his "Golden C" distance flight. His altitude for "Golden C" he gained with a flight to 10,200 feet, when he covered 105½ miles to a place called Panplaats on right-angle storm fronts. And he made another of 135 miles when he reached 6,600 feet flying to Breyten in the Eastern Transvaal. Sergeant-Major J. Mayhew flew over 120 miles in the WOLF of the Defence Gliding Club, reaching altitudes of over 6,000 feet. Hakl in a RHÖNADLER went 120 miles to Estantia and reached 7,000 feet.

Of the three Rand Gliding Club "A" team pilots, G. Peirce in a GRUNAU BABY IIa went 113 miles to farm Bosmanskrans, near Estantia, in Eastern Transvaal, reaching a height of 7,200. He flew for over two hours above 6,000 feet.

Dr. R. C. Rainey, in the same GRUNAU BABY, flew to Grootpan, 70 miles away, reaching a height of 6,100 feet; to Killarney Golf Course, Johannesburg, 26 miles, reaching a maximum height of 3,500 feet; and to Nigel, a distance of 51 miles, in 1 hour 57 minutes after spending half an hour on the ridge.

Evert Dommisse flew to Strydpan, 47 miles, and reached a height of 8,650 feet, which was for a week or so the South African record until Winter broke it with 10,250. He also flew to Benoni, landing on a patch of ground in the suburbs after a flight of 30 miles. His third attempt ended when he was afflicted with air-sickness and decided to land.

FRANK HATFIELD.

'iding C tificates

The following gliding certificates, for which qualifying flights were made on the dates shown, were granted by the Royal Aero Club on November 23rd:—

"A" Certificates

No.	*Name.*	*Club.*	*Date.*
1154	G. R. Gallant ...	Norfolk and Norwich...	9.10.38
1155	J. B. Wagstaff ...	Derby and Lancs. ...	23.10.38
1156	K. R. Allen ...	Furness	7.3.37
1157	Jessie Gent ...	Derby and Lancs. ...	29.10.38
1158	T. Pye	Derby and Lancs. ...	23.10.38
1159	W. E. Walsh ...	Midland	18.9.38
1160	S. J. Bartlam ...	Midland	30.10.
1161	J. M. Flint ...	Cambridge Univ. ...	3.11
1162	G. B. Ratcliffe ...	Oxford Univ. and City	4.
1163	J. C. Trenchard ...	Oxford Univ. and City	2[illegible]
1164	J. S. Walters ...	Oxford Univ. and City	[illegible]
1165	D. J. Samuel ...	Oxford Univ. and City	3. [illegible]
1166	J. T. Jones ...	Oxford Univ. and City	25.9
1167	H. M. Klopstock ...	Oxford Univ. and City	21.[illegible]
1168	M. S. Brander ...	Oxford Univ. and City	23.[illegible]
1169	S. R. Rishworth ...	London	[illegible]
1170	W. G. Worton ...	London	
1171	A. D. M. Musker ...	Cambridge Univ.	
1172	P. S. Fowler ...	Cambridge Univ.	
1173	A. E. Thickett ...	Cambridge Univ.	[illegible]8
1174	J. C Cooke ...	Cambridge Univ.	[illegible]
1175	P. S. Bramwell ...	Cambridge Univ. ...	[illegible]1.38
1176	D. Pile	Cambridge Univ. ...	[illegible].11.38
1177	D. C. A. Laverack ...	Derby and Lancs. ...	5.8.38

"B" Certificates

No.	*Name*	*Club.*	*Date*
1154	G. R. Gallant ...	Norfolk and Norwich...	22.10.38
1080	T. G. Griffiths ...	Southdown	23.10.38
1156	K. R. Allen ...	Furness	4.7.37
1160	S. J. Bartlam ...	Midland	5.11.38
864	T. H. Greenburg ...	Cambridge Univ. ...	16.10.38
1166	J. T. Jones ...	Oxford Univ. and City	30.10.38
1165	D. J. Samuel ...	Oxford Univ. and City	8.11.38
1164	J. S. Walters ...	Oxford Univ. and City	24.9.38
1163	J. C. Trenchard ...	Oxford Univ. and City	16.10.38
1162	G. B. Ratcliffe ...	Oxford Univ. and City	11.6.38
926	O. R. Cramer ...	London	30.10.38
1171	A. D. M. Musker ...	Cambridge Univ. ...	31.10.38
1174	J. C. Cooke ...	Cambridge Univ. ...	2.11.38

"C" Certificates

No.	*Name.*	*Club.*	*Date.*
1131	E. G. W. Johnson ...	Midland	16.10.38
1156	K. R. Allen ...	Furness	25.7.37
911	C. L. Faulkner...	Derby and Lancs. ...	30.10.38
920	E. W. Skirrow...	Furness	30.10.38
1091	G. H. Briggs ...	London	5.11.38
1071	G. E. T. Scrase ...	London	2.11.38

"Istus" Meeting, 1939

The British Gliding Association has heard from Dr. Georgii, President of the International Commission for the Study of Motorless Flight, that the Annual Meeting of the ISTUS will take place from May 14th to 20th, 1939, in Warsaw and Kattowitz.

In order to draw up the programme Dr. Georgii would be glad to know before January 20th, 1939, if any members of the B.G.A. would like to read a paper at the meeting. Names and addresses and the title of the subject of the paper should be received by the B.G.A. not later than January 15th.

Correspondence

Subsidy Grants

[illegible] confusion of thought [illegible] terms of reference of the [illegible] Subsidy [illegible] ed in 1935. As one of the [illegible] six [illegible] the scheme which was, [illegible] Air Ministry, I thought it may be helpful [illegible] necessary to re-state to the best of our knowledge the [illegible] points concerning the plan.

The chief objects of the plan was:—

(*a*) To train the greatest number possible of glider pilots, and in order to do this

(*b*) to provide well-equipped gliding organisations, so situated as to provide facilities reasonably accessible to the main centres of population throughout the country, and in order to provide the necessary aircraft for this objective

(*c*) to encourage the British manufacture of motorless aircraft.

It was recommended, having regard to the available sites and distribution of the population, that clubs to be subsidised should be selected on a regional basis, with the object of making training available *to all parts of the country*. In future years the possibility of localised developments around main regional centres was to be carefully considered.

As a guide to the allocation of the second year's subsidy, that is, for 1936-7, it was recommended that it should be *influenced* by progress of the clubs during the previous year, as indicated by the Royal Aero Club certificates. This latter recommendation was made to preclude the possibility of subsidy going in directions where it might be used for other purposes than for strictly flying and pilot-training uses.

In accepting this scheme as a broad basis for the subsidy administration, the Air Ministry wrote:—

". . . . at the same time it must be understood that the Secretary of State cannot accept responsibility for the detailed provisions of the scheme. . . . The application of the basic principles underlying the scheme must in general remain *a matter of internal administration* within the gliding movement itself."

The trouble appears to have arisen through the last paragraph of the recommendations set out above; this was apparently read by some to mean that the allocation of the subsidy as between the clubs was not to be *influenced by*, but *to be based solely upon* certificates gained, rather than upon a carefully thought-out system of geographical spread and the obvious minimum requirements of each operating unit necessary for it to develop and become self-supporting. If this view had been correct, the formation of new regional centres and the speedy growth of small nucleus ones could not have taken place, and the whole regional scheme approved by the Air Ministry would have been brought to nought. This view, I think you will agree, Mr. Editor, is a case of putting the cart before the horse, only here there were no roadworthy carts at that time, other than London and Yorkshire!

If at some future date, when more clubs have reached the economic stage, and when the great variations in facilities, so marked at present, are more evened out, then perhaps it may be possible and even desirable to allocate subsidy on a certificate basis, but even then it would surely have to be done proportionally to the amount of subsidy received by each club in relation to the certificates gained.

It would clearly be ridiculous to assess a club receiving, say; £200 subsidy, against one in receipt of, say, £800; to be fair and achieve the aim of the scheme, it would obviously have to be dealt with on a compensating scale thus: two hypothetical clubs, "A" and "B," take 10 and 20 "C" certificates with £200 and £800 subsidy respectively; the certificates taken by "A" are thus four times as valuable on subsidy earning power as those of "B," and should therefore be multiplied by four for the next year's prospective grant.

This, surely, is plain arithmetic and common sense; what is not, I submit, is the view which has prompted this letter, viz.: that the object of the subsidy as set out in the memorandum can be achieved with the present glaring disparity of subsidy disbursements among the clubs, and the widely varying stages of their developments, if an attempt were made to measure grant-worthiness solely on a certificate basis. If it were done, then only those lucky clubs, or club, which had had substantial grants through being first "in," and were therefore on their feet, would be eligible for substantial future grants, for—make no mistake about this—it is only when adequate facilities and management are forthcoming that satisfactory and worth-while results can be attained in certificate training (see club results and grants for last three years). The result would be that small clubs would remain small, and partly-developed regional main centres would be stultified through their inability to earn enough subsidy against the demands of their older and therefore richer comrades.

All this is much accentuated by the present complete inadequacy of the subsidy, which has not been increased since its inception, despite the fact that the movement has grown 500 per cent. since 1935; as I see it in future no club will get sufficient grant to do any really useful and constructive work unless the subsidy is increased.

This, Sir, I submit is a serious oversight on the part of the Government, for the plain fact is, that at present our little Cinderella of aviation does not exist in official minds!

Are we not foolish, therefore, to trouble in these circumstances about the national side of the sport, if the "powers that be" will not provide the necessary recognition and sinews of war? I suggest to all who are trying to do their bit at present under impossible conditions, that the wisest thing to do is to "pack up" the national expansion side for the present, and enjoy for the time being their own well-earned soaring, until such times that a change of heart takes place in high quarters, for it is abundantly clear that at the present we are all, other than London, wasting our time and patience.

C. Espin Hardwick.

The "Nyborg" Sailplane

SIR,

I was very interested to read in the October issue Mr. Saffery's report of the performance of the NYBORG sailplane, and the calculations of sinking speed from the data obtained. Some of these experimental data, must, however, have been rather inaccurate, and I thought it would be interesting to compare his "energy equation" results with those obtained in a slightly more theoretical way.

Is there any objection to using the ordinary sinking-speed formula:—

$$Vs = \frac{K_D}{K_L^{1.5}} \sqrt{\frac{W}{\rho A}}$$

where Vs = sinking speed,
W = weight,
ρ = density of atmosphere,
A = wing area,
K_D and K_L are lift and drag coefficients?

W, ρ and A $\left(\text{or } \frac{\text{Span}^2}{\text{Aspect Ratio}}\right)$ are known.

K_D and K_L could be found from the characteristic curves of the aerofoil used, employing the particular polar for the NYBORG's aspect ratio, and taking into account the increment of drag for the fuselage, which Needham gives empirically as 0.0060. (I don't know if this would apply to an all-wooden box machine).

What wing section is used on the sailplane? If it is not a standard one, test results would be hard to obtain, and I suppose this method could not be used.

MICHAEL SAVAGE,
Pilot Officer, R.A.F.

Load Factors

SIR,

The provisional load factors of the B.G.A. Technical Committee are of considerable interest. It is accepted that the loads which may result from loss of control in blind flying, coinciding with sufficiently high gust velocities, can break any machine, and for this reason increased load factors alone will not produce safety. The fourth case of the provisional factors involves stressing for loads which will normally be between 12*g* and 18*g* according to the wing section used. This is 2–3 times the load under the old factors, so that wing weights would be doubled at least.

These factors will presumably apply to all types; and while the increase of weight may not harm the freak high-speed type of machine, it may be definitely harmful in other cases. Pilots of training machines will not escape so lightly from minor crashes if landing speeds go up 25% and they sit in front of large masses of timber. Two-seaters are quite heavy enough already, and many clubs would be unable to operate them if they became 50% heavier. The sinking speed of all types would be raised 25%, effectively preventing soaring in poor conditions.

Since the old load factors proved sufficient for normal flying in good visibility, it is suggested that they should be retained for a category of machine which would be prohibited from stunting or cloud flying unless the pilot and any passenger wore parachutes and could get clear easily. Existing types could be put in this category, avoiding [illegible] anomaly of pre-1939 types. The majority [illegible] shown that they regain parachutes [illegible] safety factor in all conditions. Loads [illegible] however, be more clearly expressed, [illegible] for the C.P. Back and Inverted [illegible] machines should show the maximum safe [illegible] An aerobatic category, for which parachutes [illegible] not be required, should have factors [illegible] as provisional factors, and provide for a [illegible] inverted case. Pilots could then choose the type of safety they prefer, while training types and performance would not be spoilt.

J. A. ALLAN.

To Exchange Correspondence

Herr Werner [illegible] Aeronautics, aged 19, who has [illegible] Certificate, writes to the British Gliding Association asking to be put in touch with [illegible] country. He would like to correspond [illegible] claim to fame as the perpetrator [illegible] joke about an imaginary turbine-propelled [illegible] he says, "has caused much comment [illegible] the British Model Clubs". He concludes:—

"If you could arrange correspondence with English sailplane pilots I shall be highly glad, as I often wished to come to connection with my English gliding friends and to exchange interesting experience and thoughts with them."

Herr Funke's address is: Hildesheim, Wilhelm-Raabe Strasse 3, Germany. Would any reader like to correspond with him?

Dual Control Training

Major W. H. Vetch, Chief Instructor of the Penang Flying Club, The Aerodrome, Bayan Lepas, Penang, S.S., writes to the British Gliding Association:—

"I would be much interested to hear from some of your members who have done any *ab initio* dual instruction gliding. Have any flying clubs considered the possibilities of starting the training of their pupils on a dual control glider towed to a sufficient height to give a practical lesson?"

To Correspondents

Letters intended for the Publisher or Advertisement Manager should not be addressed to the Editor. They should be addressed to the Publisher or Advertisement Manager. They will then make only one journey through the post instead of three before being attended to, and the Editor will be saved much trouble and some expense (1½d. a time).

A letter has been received, postmarked Wallasey, Cheshire, containing a blank envelope and nothing else. It has not been replied to.

Letters signed with a pseudonym cannot be published in THE SAILPLANE unless the writer's identity is known to the Editor.

Continued from page 292

Bristol.—The recently formed Bristol Gliding Club began training on November 27th at Leighterton Aerodrome, Glos.

Birkenhead and Wirral.—At an Extraordinary General Meeting held on November 16th it was decided that the club's activities should cease, consequent upon the complete failure of the club to obtain a flying ground.

"Aeronca" into Glider

WE are always being told that the real value of gliding is its uselessness (and a very proper sentiment, too). To achieve a really useless flight and at the same time to get a real "kick" out of it must, therefore, presumably be the aim and object of the true gliding enthusiast—who therein shows his wisdom in these soullessly utilitarian times in which we live. This short history is only justified because it is an account of a peculiarly useless but extremely amusing experiment.

Some time ago I bought £5 (one hundred of which was "borrowed" from a kindly aunt) the one and only single-seat "Aeronca" in Europe—aged 5 years and with 12 months' C. of A. My qualifications as a private owner were 17½ hours' solo on autogiros and 3 hrs. 5 mins. on a "Moth." The aeroplane was only insured for Third Party Risks, so taking delivery was exciting. However, the anticipated crashery did not materialise, and eight months later we had over 100 hours' solo up our sleeves.

At 113 hours, worn out by amateur ground-engineering, the engine dissolved into its component parts at 1,200 feet. Three minutes later I owned an air frame, complete—less engine.

There was no money for a new engine and no market for the air frame (at least, having a mad idea in the train I decided, so as not to spoil it, that there wouldn't be). After some heavy mathematics on the backs of envelopes it was decided that the remains could be turned into a primary glider.

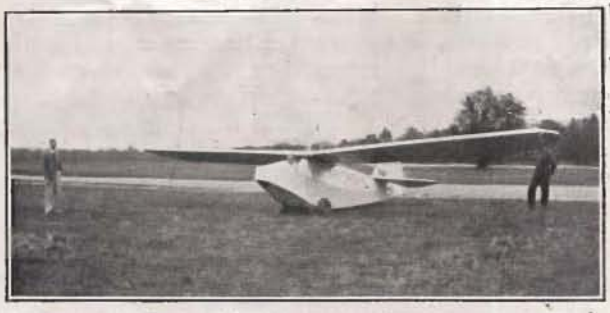
Having no one to help with anything, the conversion (carried out in spare moments and in a variety of curious "workshops") took some time. I am no mechanic, so the metal frame, with controls which finally protruded from the fireproof bulkhead, with its sawn-off engine bearers, was definitely a blacksmith's job. The 3-ply packing case which surrounded it, and the wooden seat, proved conclusively the truth of Mignet's slogan that if you can nail a packing case you can build an aeroplane—but mercifully it carried no stresses. After what seemed ages I checked up the c.g. and found it within ⅛ inch of the original aeroplane's—a fluke.

A second-hand launching rope was acquired and the great day came for a ground-hop. I had only once seen a glider launched, so we were on delicate ground. I shall never forget the delightful sensation of the first launch, or the fifty-yard flight that followed, or the astonishment of the launching team—none of whom had ever seen a glider fly before.

After some more of this a trailer was made—the most rudimentary trailer that ever took the road (it cost 30s. all on), and at 5 one morning two of us set out for Wiltshire as one might set out on a pilgrimage to Mecca.

That day was the second big date, for after 1½ hours' hard rigging and a very deep breath we were projected off a high down in a gentle breeze and did "S" turns all the way down, landing easily about half a mile away. This proved the controls were sound.

A long wait followed as the cowshed containing the flying machine was 60 miles from the pilot's abode.



The converted "Aeronca" glider at Bordon in April, 1937. Its span is 36 ft., length 24 ft., and weight 270 lbs. Area 150 sq. ft., aspect ratio 8.4, wing section "Clark Y."

However, one cold evening in May, 1937, I went down there and awoke early next morning to hear the wind howling in the trees—but it was a *north* wind! A quick reconnaissance on to the down confirmed my hopes—and fears—for it was a fearsome wind for the mere aeroplane pilot to tackle. A scratch team of helpers was assembled from various parts of the farm and we sallied forth after breakfast.

The complete rigging of a monoplane with 16 streamline wires on top of a down in a gale is not a task to be "enterprised, nor taken in hand unadvisedly, lightly nor wantonly"—to quote from a rather different source, and we were either very hot or very cold, or rather frightened (in my case), at the end of an hour and a quarter when we had the machine pointing well and truly into the wind and the far below valley.

When I shouted to the chap on the tail to "let go," I was a bit doubtful about it all, but the two "Pou" wheels had barely started to turn before we were off the ground and sailing out over the edge.

And then, of course, the big thrill happened, because, like the famous "Brokker" at Itford in 1922, we went up instead of down—and at no mean rate either, and were shortly cruising about 500 feet above the top of the hill with a rapidly recovering morale. Tacking backwards and forwards over a ¾ mile beat, things went swimmingly for fifty minutes, but then the wind began to fall and life became exciting again. However, the incredible happened, and we were still flying when the hour was up, and three minutes later by my watch (but five by the onlookers) we landed smoothly in the valley.

Not a great performance by present-day standards, but as a sort of "knockabout turn" probably as satisfactory a flight as I shall ever have the good luck to achieve—judged by those two standards mentioned at the beginning of this yarn, at any rate!

Some months later I got my "A" on a DAGLING!

Since then the matter has unfortunately got no further owing to lack of time; but various short flights up to 7 or 8 minutes were carried out on the AERONCA, and I finally gave it away as I felt I couldn't find the time to get the last remaining bit of usefulness out of it. But I reckon it didn't owe me much.

H.J.P.

News from the Clubs

Rand Gliding Club

During **October** 160 ground-hops, 111 hill-top launches, and two aero-tows were made:—

Machine	*No. of Flights*	*Time* h.	m.	s.
PRIMARY	168		21	11
KIRBY KADET	44	4	39	51
Grey GRUNAU BABY	37	51	2	50
Cream GRUNAU BABY	18	51	13	0
HJORDIS (Privately Owned)	6	3	34	0
Total	273	111	50	52

Certificates Gained:—"B": Finney, Rothchild, and H. Keartland. "C": Rothchild and A. Crocker. "Silver C": E. Dommisse and R. C. Rainey. Legs towards "Silver C": Distance: G. Pierce. Altitude: G. Pierce. Duration: H. E. Hodgson and F. Hatfield.

The increase in flying during the month was mainly accounted for by the National Gliding Rally at Quaggapoort from October 1st to 23rd. The club "A" Team, consisting of Rainey, Dommisse, and Pierce, won the Argus Trophy, for which five teams competed, gaining a total of 2,827 points against the runners up—Defence Club's 1,939.

The new cream GRUNAU BABY was first flown by Mr. Brink after an aero-tow at the opening of the new club house on October 8th. During the Competitions this machine broke the South African Altitude Record on October 13th, when Mr. Dommisse reached 8,650 feet above his starting point by flying in a cloud. This record was, however, again broken later in the Competitions. The craft's mileage in cross-country flights amounted to 372, the longest being one of 113 miles by G. Pierce to Bosmanskrans near Ermelo.

Surrey Gliding Club

The club officially started on November 12th with a hut on the hill top which had to be moved to the bottom, a hangar which did not arrive, and a PRIMARY which did.

On the Sunday Ann Edmonds, Joan Price (chief instructor), and R. H. Shaw tried out the PRIMARY, after which A. G. Douglas was given his first ground hops. The wind was very strong and gusty, however, so nobody else was experimented upon.

We ended the week-end with 31 paid-up members, and a hangar excavation party for the Monday.

A KADET, convertible to a TUTOR, has been ordered for November 26th.

The landing ground is the field next door to the one which was used for soaring meetings throughout the summer, and is 60 acres in extent.

The first meeting of the new Surrey Gliding Club on November 19th. The "beginner," a pilot with some hundreds of hours' power-flying experience, was the only one allowed up that day owing to a southerly gale. Standing beside him is Miss Ann Edmonds, the club secretary.

It is planned to give full flying facilities on Mondays and Wednesdays (if more than three members are able to turn up) as well as at week-ends.

Winch launches for private machines may be had on any other day justified by the weather.

Any further particulars can be obtained from Ann Edmonds, the Hon. Secretary, Buckland, Betchworth, Surrey.

Week ending November 19th.—On Saturday hopping started seriously, and eight members were given their first introduction to gliding.

Sunday was windy and very wet, but in spite of this 12 members turned up and dug the hole for the hangar, which is now big enough to hold one.

Week ending November 27th.—Hopping was started on the winch on the Saturday and continued on Sunday morning, after which A. G. Douglas, G. D. Jones, and A. R. Turpin got their "A's" from bungy launches off the hill side.

Although the wind-sock spent most of the day hanging limp, the CAMBRIDGE II, which now belongs to Hatcher and Copeland, and Ann Edmonds's GRUNAU were able to soar continuously in a very gentle breeze, only apparent on top of the hill, but which provided lift up to 800 feet.

Membership now numbers 43.

The club has instituted a "Certificate of Competency" for its members, printed on a card which they carry about with them. It begins: "This is to certify that on the dates stated . . . . qualified for the Surrey Gliding Club as follows." After this is a list of various items, each followed by a dotted line for the date and signature of ground engineer or instructor. Here they are:—

(*a*) For winch driving and auto-towing.
(*b*) To give ground instruction.
(*c*) To pass out training gliders and standard types of sailplanes as airworthy on daily inspections.
(*d*) For winch launches and auto-tows.
(*e*) For aero-towed launches.
(*f*) To carry passengers and give dual instruction in two-seater gliders.
(*g*) To pilot the following types of gliders.

British Gliding Association

Gliding Subsidy.

Subsidy Committee.—Meeting November 28th, 1938. Present: D. Hiscox, J. W. S. Pringle, J. V. Rushton, P. A. Wills. In attendance: H. E. Perrin, Secretary; E. H. Spence, Assistant Secretary, R.Ae.C.

The Subsidy Committee met on November 28th and gave effect to their recommendation of August 3rd, 1938, approved by the Council on August 24th, that a sum of approximately £1,000 should be ear-marked for clubs which had not yet received subsidy.

The following claims were passed:—

	£	s.	d.
BRISTOL GLIDING CLUB	182	17	6
FURNESS GLIDING CLUB	113	10	6
OXFORD UNIVERSITY AND CITY GLIDING CLUB	460	10	5
SURREY GLIDING CLUB	28	0	0
B.G.A., 3rd Quarter	100	0	0
	£884	18	5

With the exception of the Furness Gliding Club, which has received no subsidy so far this financial year, the above clubs are in receipt of subsidy for the first time.

Gliding Subsidy Trustees.—Meeting December 2nd, 1938. Present: Prof. D. Brunt, M.A., W. E. L. Courtney, H. E. Perrin. In attendance: E. H. Spence.

The claims recommended by the Subsidy Committee were approved and payments made.

The total payments made to date for the year 1938-39 amount to £4,320 4s. 10d.

Cambridge University Gliding Club

Aero-towing.—Although there have been several mornings during the past two months when it has looked "soarable," the clouds have always shown an elusive tendency to fade away just as we finish rigging. We have made attempts to soar at Duxford on Sundays, but with no success

The "Moth" spent ten unusually perilous minutes on October 29th. We had stopped towing as the cloud base was dropping lower and lower. Thomas and Davie decided to take the "Moth" back to Marshall's. They took off and found cloud base at only 100 feet. However, they followed the railway, flying blind in the smoke from a train part of the way, until they thought it was time to turn off, and found themselves very low over the Gogs Golf Course, well off the route. Luckily the "Moth" almost knows its own way to Duxford, and they appeared there soon after and landed safely.

At Caxton.—We have been kept very busy training the flood of new members who joined at the beginning of the term. There are about 50 of them, and we have already obtained 20 "A's" and 6 "B's." We have given up using open primaries, and now train *ab initio* in NACELLES fitted with wheels. The old problem of transport to and from Caxton has at last been conquered by the purchase of an ancient and rather halting, but enormous Humber, which Payne drives out every day.

We have managed to keep the DAGLINGS intact, in spite of the number of *ab initios*, though Payne spends most of his time coping with the various wings, which are, of course, interchangeable, and suffer frequent minor damage. We normally have at least two flying or flyable at Caxton.

Sunday, November 13th.—As there was an extremely strong wind, we tried out a new technique in winching, about which we have had theories for some time. We have found, on windy days, that it is best to winch in a lower gear than usual, and to slow off the winch almost to a stop long before the machine has reached its full height. It is obviously possible, when the wind speed is greater than the flying speed of the machine, to stop the winch altogether directly the machine is off the ground.

Glider into Kite.

On this occasion Cole, in the TOTTERNHOE, was launched by MacClement thus: Shortly after the take-off the winch was stopped and the brake put on. The TOTT continued to climb till it was in the normal position at the top of the launch at about 1,000 feet over the winch end of the field. Mac then started allowing the cable to run out. The TOTT went on up and up until there was no cable left on the drum. To show there was no deception, Cole stayed up, on the cable, his height varying with gusts between 1,500 feet and 2,000 feet for half an hour! Then he lost his *Sunday Pictorial* over the side and released and came down. We intend to get even higher by releasing the cable from the drum when it is all off and attaching to it a length of very light cable and letting it out by hand. There is surprisingly little tension in the lower end of the cable, the normal pull at the nose of the machine being almost entirely due to the weight of the cable. We have visions of sending up sailplanes on windy days and letting them wait on the wire until a good thermal comes along, then going across country. It should be possible to discriminate between gusts and thermals by comparative readings of variometer and A.S.I.

Sunday, November 27th.—There was rather a large gathering at Duxford. Scott and Phillips were here with the VIKING, by which we were all much impressed. Cooper test-flew it to find its sinking speed. Then Doc. Edmunds arrived and tried flying it with its ailerons depressed and raised. Finally it disappeared into the haze flown by Cooper, got lost, and landed safe and sound seven miles away. John Simpson was also there with his KITE, and attempted, without success, to spin it. We were also pleased to see the Editor and Charles Wingfield. The latter has been doing some soaring at the Mynd in the GRACIAS.

At Caxton a new member with power experience succeeded in spinning and recovering twice, then spinning into the ground in a NACELLE—our first spin-in this term.

The equipment of the club now includes:

1 KIRBY KITE with trailer and parachute.
1 CAMBRIDGE I with trailer and parachute.
1 TOTTERNHOE secondary and trailer.
Various nacelled DAGLINGS (roughly 3).
1 "Moth" towing aeroplane.
3 winches.

We have a permanent ground engineer, who also instructs on week-days, and an assistant, who works in the workshop in Cambridge.

Certificates: "A's": Cooke, Musker, Young, Bolton, Flint, Becket, Clapin, Crosfield, Gibson, Fowler, Drew, Bramwell, Thickett, Hargreaves, Loch, Elton, Morison, Pinckney. "B's": Greenburg, Jones, Musker, Cooke, Bolton, Charles.

Derbyshire and Lancashire Gliding Club

November.—Our remarks last month with reference to the winter providing some unusually good training days were a little premature. This has been a disappointing month with little soaring and less training. How unfortunate is the lot of the trainees, of whom we have a very enthusiastic crowd, when for several week-ends in succession rain or gales give them not the slightest opportunity for any flying. Nevertheless, with enthusiasm that one learns to expect from the majority of would-be glider pilots, they willingly spend their week-ends digging drains and removing still more walls, for we are preparing an entirely new road from the hangar to the west launching slope, which should prove a great asset, particularly during the winter.

The dance and party, which took place on Saturday, November 26th, at the Marquess of Granby Hotel, Bamford, was hailed by all as being an unusually cheery event, 160 members and their friends attending, and the evening was rounded off by a film of the National Competitions, 1938, and that now famous cartoon, "Air Hoppers." Major Jeffries and his son demonstrated to us once more that their hospitality is unlimited.

Our Annual Dance is at the same venue, and the date is January 28th, 1939.

Saturday and Sunday, November 5th and 6th.—Wind W.S.W., 15 m.p.h. Good soaring with a fair number of thermals until Sunday afternoon, when the lift disappeared, although the wind did not seem to vary in strength. As a result, Godson, who was trying for five hours in his KESTREL, was let down after 2¼ hrs., and compelled to land at the bottom.

On Sunday morning cloud base was at about 600 ft., and at times people had difficulty in keeping out of it. Smith, having an invitation flight in Brown's MINIMOA, made straight for Rebellion Knoll where he had seen a rift in the clouds, found good lift, and circled up between and above the clouds to 2,500 ft. He was still going up at 3 ft. per second when he had to leave, as he did not want to go away. Meanwhile, however, the hill lift had degenerated to a miserable 2-300 ft., and no one dared to trek down to the more or less permanent strip of sunshine beyond Bradwell for fear of never getting back. Smith's comment on the MINIMOA when he landed was that it was "as nice as it is supposed to be." Davies also had a flight in it later on. Brown should have no difficulty in obtaining a retrieving crew next time he goes to the bottom.

Another Kiting Attempt.

Saturday and Sunday, November 12th and 13th.—Wind S.S.W., 25 m.p.h., with plenty of rain. Uncomfortable soaring at about 600 ft. near cloud base on a 200 yd. beat for those who wanted it. Smith, in a G.B., attempted to remain indefinitely on the top of a winch launch, flying like a kite, but the wind wasn't quite strong enough to realise this long-standing ambition of his. Meanwhile a working party had been tackling the winter morass in front of the hangar. Several rubble drains were dug and laid, and a length of stone wall was taken down preparatory to opening up a road direct from the hangar to the west launching point.

Saturday and Sunday, November 19th and 20th.—Wind S., 25 m.p.h. Another dud week-end. On Saturday Slater, the Chief Instructor, landed after 10 mins. in the G.B., and pronounced conditions unsuitable for flying, and on Sunday it rained all day with cloud on the hill. A few ground-hops were made in defiance of the weather, while other stalwarts continued with wall removing and mud slinging in front of the hangar. In the afternoon Swale gave a show of Adler's colour films taken at Camphill. The colours were most effective.

Saturday and Sunday, November 26th and 27th.—Much the same as last week-end. We very much doubt if the Editor would pass our private opinion of warm fronts.

Tailpiece.—Brown's MINIMOA, ready for launching, with the winch cable already tight, was resting on the ground with its tail well up in the air.

AWKWARD SPECTATOR: "What happens to his tail when he takes off?"

HARASSED INSTRUCTOR: "Well, he usually takes it with him."

Summary of Flying During November.—Bungy launches, 38; winch launches, 73; flying time, 26 hrs.

London Gliding Club

Cross-country in November.

Tuesday, November 1st.—John Saffery finished off his "Silver C" and at the same time put up a record by making the latest (in the season) cross-country flight ever done in this country. The previous record of the kind was set up when three pilots went off on a cold front on October 25th, 1936.

Saffery flew the Desoutter GRUNAU 44 miles to Billericay in Essex, landing in a ploughed field between Tye Common and Little Burstead.

The flight was made under a cloud street formed in Polar Air behind a depression. The high cloud of the depression cleared off about 10 a.m., and at 11 we noticed a terrifically long and thick cloud street to the north. A short street of separate clouds was also to be seen in the south beyond Ivinghoe. After that the clouds practically disappeared for an hour or more, but as Saffery was launched at 1.15 several parallel short streets again appeared. One of them, which looked flat and appeared to be melting away (and Saffery says it looked just the same from the air), came over Dunstable Downs and was the one he used. There was a very active-looking one to the south, and two or three to the north also looked good; they were further advanced down-wind.

Saffery, having got up to 1,800 ft. over the hill with the help of some thermal lift, went out to meet the street at 1.30 and circled up to cloud base at 4,000 ft. Its southern side seemed to give best lift. It is curious that whenever he stopped to circle the cloud street seemed to overtake him, as if it was growing at the front end. He had risen to the cloud at 8–10 ft. per second, but close under it the lift was mostly 2 or 3 ft., though once the GRUNAU had to be dived at 50 m.p.h. to keep out of the cloud base (and didn't it shudder!). What finally let the pilot down was the melting away and flattening of the clouds and disappearance of lift. When he landed there was only one piece of cloud left, though the street to the south still looked as good as when it had first been seen over Ivinghoe an hour before. But it was out of reach.

Saturday, November 5th.—Just soarable wind after the weather cleared at 11 a.m. A large obstruction on the landing ground, part of which consisted of condemned DAGLING wings and an even more condemned car for "fuselage," revealed its purpose after dark when it was set alight as the grand finale to a firework display.

Sunday, November 6th.—The VIKING turned up from Scott Aircraft for its aerial baptism, and after some ground-hops was launched off the top into an indefinite cloud base which was just skirting the hill-top. Fortunately visibility is good from the cockpit, as it needed to be until the cloud base gradually began to lift. Wills, Cooper, Fox and Edmunds soared it. Other machines, winched into the cloud, would occasionally reappear in its company in a startling manner. It created a most excellent impression.

Copeland and Hatcher, from the Surrey Club, came to take away the CAMBRIDGE II to its new home. However, we expect to see it appear in the sky again one day when the wind is in the south and thermals are good.

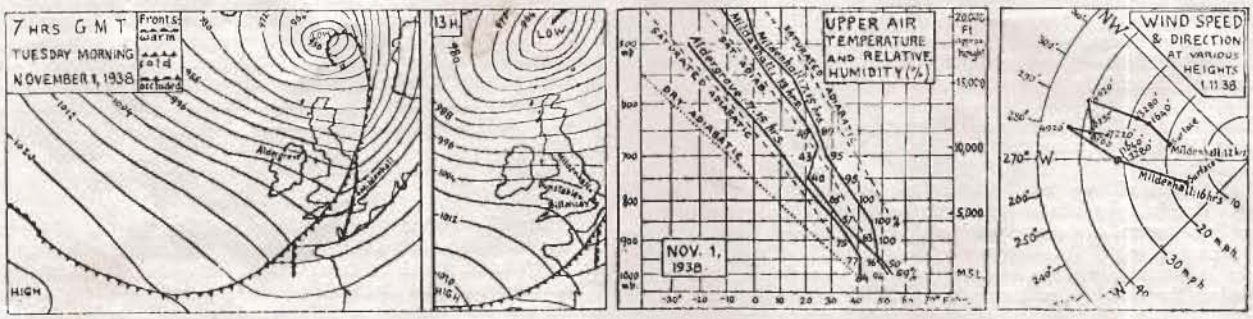
Summary of Flying.

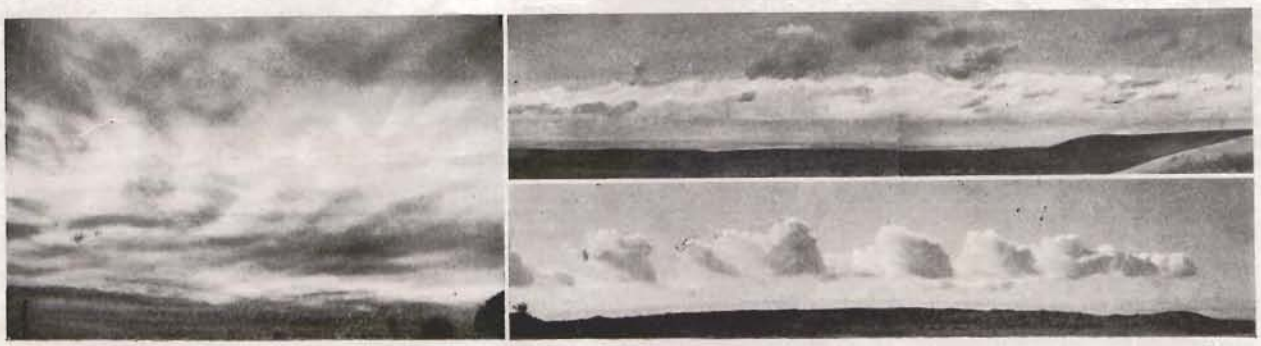
Week ending:	*Days of Flying*	*Ground-hops*	*Timed Flights*	*Flying Time hrs.*	*mins.*
November 6th ...	4	73	118	50	11
November 13th ...	1	15	—	—	—
November 20th ...	2	28	34	9	47
November 27th ...	2	62	56	17	56

Total since January 1st: 12,915 launches, 1,551 hours 48 mins. flying time.

Certificate Flights.

November 1st.—Saffery, "Silver C" (distance and height).
November 2nd.—Scrase, "C"; Sellar, part "Silver C" (duration).
November 5th.—Briggs, "C."
November 26th.—Riley, "C"; Villiers, "C."





Mr. Saffrey's flight from Dunstable to Billericay is the first cross-country to be done as late in the year as November, so the weather conditions on that day are of especial interest. The weather maps show that polar air behind the cold front was coming from far north owing to the large size of the depression (winds blow roughly parallel to the isobars). The Upper Air diagram shows that at 7.15 a.m. Aldergrove had polar air up to great heights, while Mildenhall had the saturated air of the warm front close overhead, the front being about to arrive at ground level. Later, at 13 hours, when the cold front had lifted the warm-sector air off the ground, the latter was still present above 10,000 feet, separated by an inversion from the polar air below. The wind diagram is drawn to show the shear in the wind, which is theoretically responsible for the cumulus clouds being arranged in "streets." The diagrams are reproduced or compiled, with acknowledgments, from the Daily Weather Reports of the Meteorological Office.

The cloud photographs are taken from Whipsnade, one mile south of Dunstable Downs. On the left is the cloud formed in the warm-sector air, seen at 9.22, soon after the passage of the cold front at ground level; view is looking south-east. It soon thinned out to nothing, and there was already open sky to the west. Above, on the right, is an immense cloud street seen to the north at 11.2 a.m. (Dunstable Downs on the right). The remaining photo, looking S. to S.W. five minutes later, shows a street of separate clouds similar to the streets which appeared in the sky when Mr. Saffrey took off on his flight (Ivinghoe Beacon on right).

Yorkshire Gliding Club

November is the month when the search for clouds, favourable and unfavourable, is abandoned. There is no need to look for clouds because, for the major part of the month, we are already in one at ground level! This November, whilst giving some fairly decent days, has been largely up to the usual specification, and, coupled with the arrival of nightfall around four o'clock, has dealt the total hours flown a nasty kick in the trousers. Apart from the lack of visibility, there have been hefty gales mid-month.

Flying done has been briefly as follows:—

November 3rd.—Strong south-west wind, business-like hill lift. Hastwell and Fisher shared the air for the afternoon. 1,500 feet obtainable in KITE and GRUNAU; 3½ hours aerobatics (they're fit at it—energy left over from last month).

November 5th.—West wind, 30 m.p.h. Shaw, Gibson, and W. Sharpe flew fifty minutes all told. Pretty rough.

November 6th.—South-west wind, 25-30 m.p.h., decreasing. Good thermal lift available. There was a good deal of low cloud, above which both A. O. Pick and J. C. Neilan rose respectively to 3,000 and 2,500 feet. James (Midland Club) was with us for the week-end and rigged his machine (KITE) for his first soaring flight at the Bank; although he has visited us on many occasions and put in hours of hard work as a winch-driver (amongst other things), he had *never* had the conditions (or, given the conditions, the opportunity at the same time) for a soaring flight. Even this time the wind dropped within a few minutes, but we hope for better luck next time.

Amongst other members who took advantage of the rapidly deteriorating conditions were Barker, Pearson, Gibson, and Moon (who landed on top of the Whitestone Cliff). J. Maw, Charman, Robson, and Bradbury came from Durham branch in the hope of "C's," but the wind, as aforesaid, dropped. They all flew winch-launched circuits in the NACELLED DAGLING in a manner which leaves no doubt as to the benefit that they have derived from constant practice at Whitburn. Incidentally, we have now sent a KADET to Whitburn, thereby increasing the fleet to three.

Flying now cancelled out entirely by weather conditions until November 19th, when a south-south-west wind of 25 m.p.h. provided a Saturday afternoon's hill-soaring for Raphael, Neilan, Pick, Shaw, Lucas, and Billy Sharpe—aggregate 5¼ hours.

November 24th.—West wind, 20 m.p.h., decreasing suddenly. Pick and Hinchliffe flew two hours and five minutes (respectively).

November 26th.—West to north-west wind, 20 to 30 m.p.h. Fisher, Pick, Wordsworth, Hinchliffe, and Lucas flew until dark at 4 o'clock.

And that is all, we fear. Total time for the month, 19¼ hours only. But in spite of weather conditions large numbers of members have turned up every week-end, and mid-week too, on the off-chance of conditions improving, and the time has been well spent in overhauling mechanical gear and carrying out repairs to bring the fleet up to strength.

During the month the secretary had the pleasant duty of sending a congratulatory telegram to Mr. Alderman Rowland Winn, a life member and one of the founders of the club, who has been made Lord Mayor of Leeds.

Our West Riding branch at Holmfirth (Huddersfield) has commenced operations under the instructorship of Cyril Brooke, and Wordsworth has been over on two occasions to give instruction and assist the dozen or so *ab initios*. There have been very few decent training days during the month, but none the less some good progress has been made at this branch, and the training field is excellent for the job.

Tailpiece.—Prosy Chairman (prosily): ". . . . and we have left no stone unturned. . . ."

A Nasty Voice (nastily): "Obviously, or you wouldn't have crawled out!"

By the way, our blonde has just told me that she doesn't want to see "A Yank at Oxford" because she has already seen a winch-launch at Cambridge!

Durham County Branch.

November.—We have had a very successful month of training—every week-end without exception. The branch has now three "C's" and seven "B's." During the month we obtained two "A's" and five "B's": Pratt and Aird "A's"; Robson, Charman, Bradbury, Aird, Pratt, "B's"—a nice four weeks' work.

We have gone a little further ahead through the kindness of our chief instructor, Mr. N. Sharp; he has loaned us a KADET which has created great interest.

During the early part of next year we intend to advertise extensively and think the prospects good.

We have one man who comes up for training from as far away as Stockton, and we shall be pleased to see other club members who are not actually enrolled at Durham County Branch any week-end. We will do our best to give them a good time.

The secretary of the branch is G. S. Aird, 57, John Street, Sunderland (Tel.: Whitburn 273).

Furness Gliding Club

November.—A month entirely devoid of any flying activity. Solid rain for most of the time has curtailed all club activities. Still, good work has been done on hangar improvements. The sides and ends have been covered with thick calico, well tarred to position, and with the stove again in working order, we now have a hangar which will keep out the fiendish weather ahead.

Some poor old farmer a few hundred years ago has done us a really good turn. Most of the material used for the building of the "wailing" walls was quarried from a spot level with the hangar and about 300 yards away. By the temporary removal of a piece of intervening wall, the towing car and trailer brings through the chippings of slate which have been used to form a good dry area in front of the hangar doors. As the quantity of these slate chippings is unlimited, we anticipate extending our efforts to the roadway as well. Whilst we were previously aware of these chippings, of which there only seemed a limited quantity, digging has revealed untold amounts covered only by a thin skin of soil and grass.

Norfolk and Norwich Aero Club

More Kiting.

During November the experiment of keeping a glider aloft on the end of a cable, like a kite, has been made for the first time (?) in England by three clubs independently. Trials at the Cambridge and the Derbyshire and Lancashire Clubs are mentioned on previous pages. The third is the Norwich Club, and what was done there is thus described in the *Eastern Daily Press*:—

Mr. Firmin had been towed up to some 500 ft. and had instructed the driver of the car to slow down gradually. The force of the wind was strong enough for the glider to gain height and start to pull the car backwards. By the application of brakes the driver was able to get out of the car and walk away from it and share with us this unusual sight. On a number of occasions Mr. Firmin was able to get up to nearly 1,500 ft. and stay there for minutes on end.

[*Continued on page 287*

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