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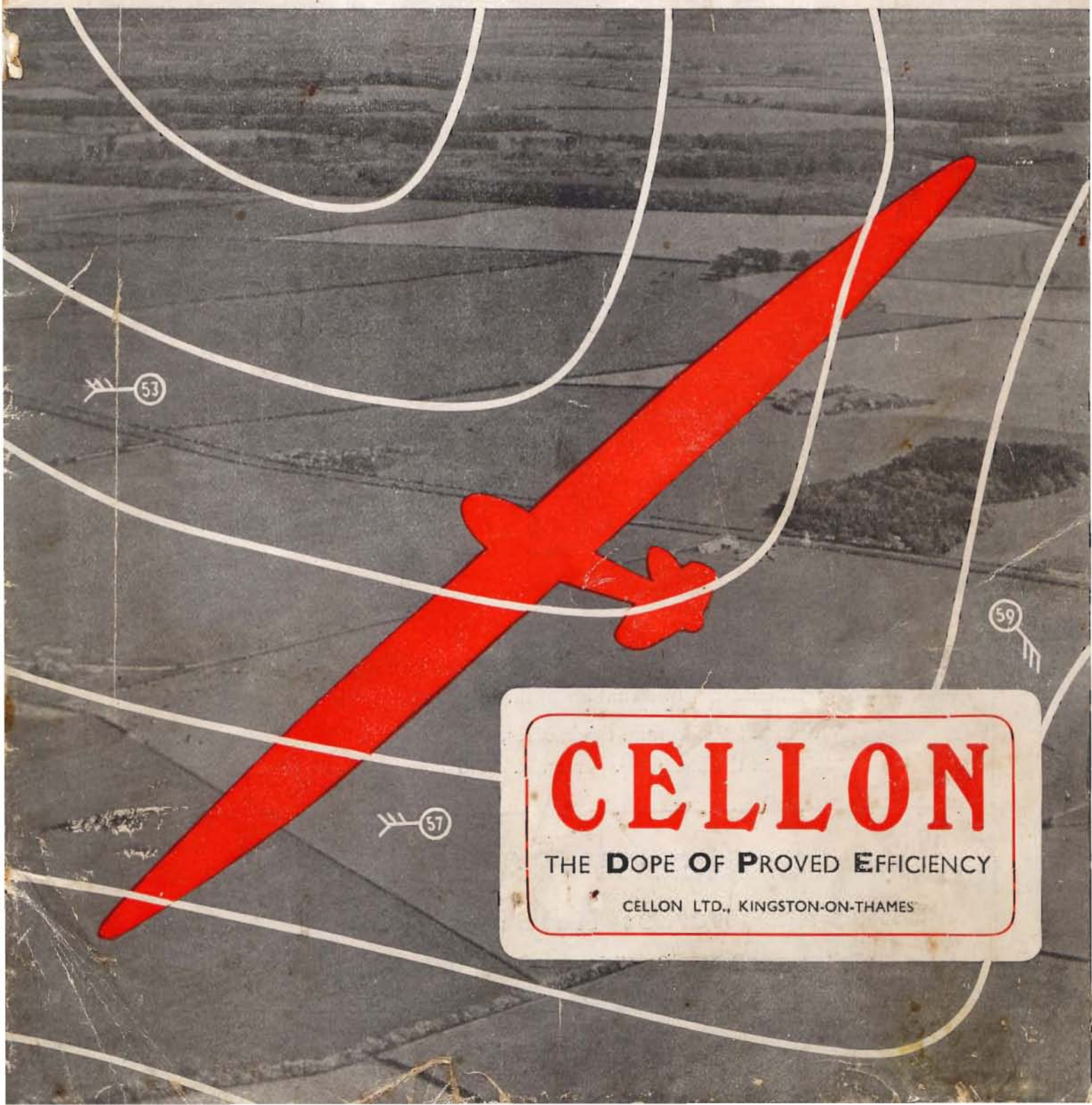

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Instruction Camps

THE last of this year's gliding instruction camps, run by clubs but open to non-members, has been held, and it would be useful to review the achievements of camps of this sort during the year—or, better still, of all such camps since they began to be held.

At present the gliding movements of the world combine two distinct functions: developing the art of soaring, and teaching beginners to fly. It is often forgotten that this combination is quite fortuitous, and is due to the particular way in which gliding was developed in Germany, where, for some years, it was practically the only method of getting would-be young aviators into the air. But even there, the first four years of soaring were put in by pilots who had already learned to fly on aeroplanes. Only when the PRÜFLING, the first secondary training machine, was invented in 1926 was it possible to train beginners to the soaring stage.

If history had been different, soaring flight might still be the special preserve of aeroplane pilots; alternatively, if soaring flight were not yet mastered, pure gliding might nevertheless serve as a useful and economical introduction to power flying. But we have always contested the views of those who look on the latter as the main function of a gliding movement, for we hold that beginners will never, in large numbers, learn to fly on gliders in preference to aeroplanes unless soaring flight has attained such prestige as to rouse their ambition to master its art.

And now to get back to instruction camps. The first of any consequence to be held in England was that run by the British Gliding Association at Huish, Wilts., in June and July, 1933. It lasted a whole month, in conjunction with that year's National Contests, and was ambitiously called a "gliding school," the proposers of the scheme believing that it would rouse the British public to become glider-minded and, incidentally, put the B.G.A. of that time financially on its feet. It did neither.

After an interval of two years, the London Gliding Club held the first big instruction camp during two weeks in August, 1935. It had the phenomenal attendance of 65 pupils, and 61 gliding certificates were earned.

In the following year both the London and the Yorkshire Clubs held camps in August lasting a fortnight; London had 22 pupils and obtained 32 certificates, and Yorkshire 12 pupils and 29 certificates. So that, though the combined camps earned as many certificates as the single one the year before, they had only about half as many pupils. Evidently smaller camps make for quicker instruction. The drop in numbers would be accounted for by the fact that, in 1935, hardly any provincial clubs had good training facilities, whereas in 1936 many provincial pilots could get good instruction at their home clubs during ordinary week-end training, and so did not need to flock to London for a holiday camp.

Four camps, open to outsiders, were held in 1937, three by the London Club and one by Yorkshire. At London the March camp (10 days) had 10 pupils and got 8 certificates; July, 14 pupils and 17 certificates; and August (2 weeks), 20 pupils and 21 certificates (excluding Germans), while Yorkshire (2 weeks in August) obtained 34 certificates (14 of them "C's") for 22 pupils, of whom four who had not flown before were trained right through to the "C" stage. This makes 66 pupils and 80 certificates in the year.

In 1938 no less than four clubs went in for the camp business, and earned 170 certificates during their camps; the number of pupils is uncertain, as the Yorkshire, Midland, and Derbyshire and Lancashire Clubs have not published their figures, but we estimate it as about 135.

In judging whether it would be worth while nowadays to establish a permanent instruction camp at any gliding centre or centres, one should consider the results of previous camps in detail, and one striking fact which the figures show is the seasonal character of the demand for gliding instruction. For instance, the numbers of pupils at camps during the various months this year have been: April, London, 17 (including 13 from Imperial College); May, London, 8; June, London, 9; July, Derbyshire and Lancashire, about 15; August, London, 25; Yorkshire, about 25; Midland, about 10; September, London, 35.

The figures show that, as expected, August is the most popular month, and in September there is still quite a big demand; excluding the winter and late autumn, the times least sought after are May and June, and it is noteworthy that in 1937 a June camp proposed by the London Club has to be abandoned owing to lack of applications.

No doubt more advertisement would increase the attendance at gliding instruction camps; but, as we have said, we believe its influence to be small compared with that due to advancement of the prestige of soaring flight considered as an end in itself.

"Silver C" Certificates

SIX more "Silver C" certificates have been awarded to British pilots in the past month. As it is nearly a year since we last gave the complete British list, here it is up to date. In each case the number is that in the international series, and the date that on which the certificate was awarded by the International Commission for the study of Motorless Flight (Istus).

No.	*Name.*	*Awarded.*
26	G. E. Collins	17.5.34
45	P. A. Wills	20.9.34
75	R. G. Robertson	20.7.35
85	S. Humphries	19.8.35
174	J. C. Neilan	2.11.35
177	C. Nicholson	17.11.35
208	Miss N. Heron-Maxwell	17.5.36
241	P. M. Watt	9.7.36
244	H. C. Bergel	25.7.36
291	A. L. Slater	18.9.36
298	G. O. Smith	16.10.36
338	J. S. Fox	3.5.37
542	R. S. Rattray	6.9.37
543	P. B. N. Davis	6.9.37
544	R. Haslinger	6.9.37
545	G. H. Stephenson	6.9.37
560	D. G. O. Hiscox	20.9.37
561	K. G. Wilkinson	20.9.37
562	J. E. Simpson	20.9.37
563	J. V. Rushton	20.9.37
564	G. A. Little	20.9.37
565	K. Lingford	20.9.37
566	J. S. Sproule	20.9.37
567	K. W. Turner	20.9.37
568	E. J. Furlong	20.9.37
585	S. C. O'Grady	5.10.37
594	E. E. H. Collins	10.10.37
595	J. L. Wordsworth	10.10.37
621	Mrs. J. Price	2.11.37
622	G. M. Thompson	2.11.37
625	L. R. Robertson	25.11.37
856	E. Thomas	1938
857	I. Pasold	1938
858	H. Tudor Edmunds	1938
859	J. C. Dent	1938
860	L. H. Barker	1938
861	D. F. Greig	1938
1004	A. J. Deane-Drummond	1938
1005	A. Ivanoff	1938
1006	A. W. Lacey	1938
1007	M. H. Maufe	1938
1008	J. T. M. Parker	1938
1009	E. H. Taylor	1938

Of the last six, Mr. Deane-Drummond belongs to the Yorkshire Club, Mr. Ivanoff and Mr. Lacey to the London Club, Mr. Maufe to the Bristol Sailplane Club, though he didn't earn his "Silver C" there, Mr. Parker to the Cambridge University Club, and Mr. Taylor to the Derbyshire and Lancashire Club.

Miss Heron-Maxwell, who has now become Mrs. Allen, obtained her "Silver C" in Germany, and Mr. E. E. H. Collins and Mr. Wordsworth theirs in Poland. Herr Haslinger is of German nationality, but Mr. Ivanoff, who comes from Russia, and Mr. Pasold, from Czechoslovakia, are both British subjects. The position is, therefore, that 42 British pilots have the certificate, and that 40 pilots obtained it in Britain.

It is notable that the number of "Silver C's" in the world has now reached four figures. Their distribution among the various countries is only known to us as far as No. 845, which was reached in the middle of July this year. The figures at that date were: Germany, 651; Poland, 101; Britain, 29; France, 20; Switzerland, 12; United States, 10; Hungary, 7; Czechoslovakia and Finland, 3 each; Holland and Jugoslavia, 2 each; Brazil, Rumania, Lithuania, Danzig, and South Africa, 1 each. The South African is Hermann Winter, who completed his tests at the Cape Town meeting last Christmas.

The first "Silver C" certificate was granted to Wolf Hirth on April 15th, 1931. Since then the total number in the world at the end of each year has been: 1931, 6; 1932, 8; 1933, 18; 1934, 60; 1935, 195; 1936, 324; 1937, 631.

We have no further information as to recipients of the "Golden C," which was instituted at the beginning of this year. The German aviation Press only mentions that Mr. P. A. Wills has No. 2—which it apparently learned from THE SAILPLANE.

Requirements for "Silver C" and "Gold C"

As the result of a request by the British Gliding Association to the ISTUS regarding the interpretation of the requirements for the "Silver C" and "Gold C," a copy of the latest ISTUS regulations has been received. They are now as follows:—

"Silver C." (*a*) DURATION.—Flight of five hours or over, returning to within 1,000 yards of the point of departure.

(*b*) DISTANCE.—A flight of 50 kms. or over, measured in a straight line. The difference in height between the point of release and the landing point must not exceed one per cent. of the distance covered.

(*c*) HEIGHT.—A flight of 1,000 metres or over above the point of release or above the lowest point recorded after release before reaching maximum height.

Method of Carrying out Tests. (*a*) The Duration and the Distance tests must be separate flights.

(*b*) The Height test may be a separate flight or be combined with either Duration test or Distance test.

(*c*) A sealed barograph must be carried for the Height test. It must be sealed and opened by a B.G.A. Official Observer.

"Gold C."—A DISTANCE test of 300 kms. or over, with the same requirements as for the "Silver C."

A HEIGHT test of 3,000 metres or over, with the same requirements as for the "Silver C."

The B.G.A. is having the new regulations printed; also certificates required for each of the tests. They will be distributed to clubs shortly. All previous regulations regarding the "Silver C" should therefore be regarded as cancelled.

British Pilots in Poland

SEVEN British pilots have been this year to the gliding school at Bezmiechova in the Carpathians. All were members of the London Gliding Club, and here, in tabular form, is an outline of what they did, and when :—

Month.	*Pilot.*	*Total Flying.*	*"Silver C" Flights*
June	J. P. Lassam ...	... 10 hrs. ...	5 hrs. duration
,,	A. W. Lacey ...	... 10 hrs. ...	67 kms. distance
Aug.	H. Adcock ...	... 7½ hrs. ...	—
Sept.	G. O. Manning	... 8 hrs. ...	—
,,	D. A. Smith ...	... 12 hrs. ...	5 hrs. duration
,,	C. A. P. Ellis ...	... 12 hrs ...	80 kms. distance
,,	K. M. Chirgwin	... 10 hrs. ...	50 kms. distance 1,000 m. height

Mr. Chirgwin, who belongs to the Imperial College Club, finished off his "Silver C" by doing the height and distance; Mr. Lacey still had the height to do, but has since done it in England so now also has the "Silver C."

It was while Mr. Lassam was attempting the five hours' duration that he turned upside-down in a storm, as described in last month's issue. We have since heard how this happened. He got caught in the strong up-current of a "cold front" storm, and, in spite of diving as fast as he dared (he was in a KOMAR), still rose rapidly towards the clouds. So he tried to put the machine into a spin, first pulling the stick back in order to stall. But at the speed he was going, this caused the KOMAR to do the first half of a loop. The stall came when he was upside-down, and he slid out of it sideways and only just recovered a few feet above a wood.

All the pilots flew KOMARS most of the time, though one of them crashed a SALAMANDRA (a nacelle type). The KOMAR is rather like a GRUNAU BABY, but has a better performance.

The three Polish pilots who soared into Russia and, as recounted in our last issue, were never heard of again, have, we hear, returned to Poland at last. All had landed in different places, and each was kept in ignorance of the fate of the other two. No explanation was given them of why they were being detained, though they were well treated. One of them said his sailplane was left out of doors the whole time, and he brought it back with him in a disintegrating condition.

We gave last May, on page 108, particulars of how to join the school, and what personal details one should send. It is advisable also, we hear, to write to the school itself, as this accelerates the dealing with one's application. There is also a school at Katowice which teaches aero-towing, sailplane aerobatics, and parachute drops from aeroplanes and balloons.

The new buildings at the Bezmiechova Gliding School in the Carpathians. In front is a "P.W.S. 101," which attended the International Contest in Germany last year. The hangars are on the extreme right, next to the old club buildings.

Some of the pilots who went to Poland this year. Left, below: J. P. Lassam, who was turned upside-down in a cold front; right, below: A. W. Lacey, who has just received his "Silver C," for which he did the distance flight in Poland. Above is D. A. Smith in the cockpit of a "Komar," photographed in Poland by K. M. Chirgwin. The instructor, Mr. A. Dziurzynski, who is giving him some parting advice, has qualified for the international "Gold C."

And now here follows an account by Mr. Lacey of his 67 kms. (41.6 miles) distance flight.

Bezmiechova to Arlamowska Wola

Bezmiechowa, June 23rd, wind very light and southerly, up the hill. I was launched in KOMAR 451 for my first soaring attempt on that type. The wind being very light I gradually got halfway down the hill. Here my Dunstable "scrapery" experience helped a lot and I was able to hang out for 15 minutes until a succession of small thermals carried me over the top and a big fellow lifted the KOMAR up to 700 metres and made me independent of the hill. I played around for 1½ hours and then noticed the ground signals told me to land, which I hastened to do, thinking that perhaps I had been a little hoggish. However, the instructor merely told me (in Polish French) that he thought the conditions were suitable for a "Vol de distance et altitude" and gave me map, baragraph, identity card and a letter telling my finders what to do with me. Thus armed, and marvelling at the fact that I had been actually *told* to go away, I climbed back into No. 451 and was again launched.

After a short time I picked up a "snorter" that carried me right into cloud at 1,200 metres. I dived out of this and set off down-wind. I noticed another KOMAR and an S.G. going back to the school about 1,000 feet below and experienced to the full that "burning boats"

feeling. Following a rough compass course, I only deviated from it to circle when the variometer showed rise. This plan seemed to work fairly well, but once I got down to 600 metres over some very craggy and tree-covered ground. Every cloud I tried yielded nothing, so in desperation I just kept my head inside and flew cross-wind. As soon as the variometer showed "0" I circled and the thermal gradually built up to five metres per sec., again taking me up to cloud base.

I now left the hills and noticed a town to my left which I was delighted to be able to identify from the map as Przemysl. Conditions now deteriorated, the air becoming absolutely calm. There was nothing over the town, so with 1,000 metres on the clock I set out to glide as far away from Bezmiechowa as I could. I picked out the exact spot on the ground I would have to reach to cover 50 km., and it seemed ages before I reached it, the altimeter reading 100 metres. Bezmiechowa is apparently much higher than the plain, and I covered a lot more ground before landing in a marshy field at Arlamowska Wola. Distance 67 km. I was subsequently told that I had flown over marshes which never gave any lift; these, however, were not marked on the map. I would like to put a word in for the KOMAR—it is an ideal machine for the job, being easy to fly, efficient and straightforward in design.

I shall not forget the wait and subquent retrieve for a long time. I could not speak a word to the large and curious crowd that gathered—I simply gave my letter to the most likely-looking chap and hoped for the best. The mob carried the machine about a mile and we dismembered it with some rustic tools and put the pieces in the churchyard. I became the guest of the local priest who did his best to entertain me for the eight hours until the trailer came. Meanwhile all work in the district ceased while everyone discussed the situation and stared at the "Angielski."

We got back after a 12-hour ride, only to find that the barograph had not registered the maximum height. I was restrained from jumping on it while they pointed out that it was of English manufacture!

In conclusion I would like to thank the Polish Aero Club for the magnificent hospitality we were given, and I can really recommend lovers of the unusual to do a cross-country in Poland!

A. W. LACEY.

The Fourth Polish National Contest

MASLOW, JULY 10th to 22nd, 1938

[For the following abridged translation of an article by Tadeusz Wasiljew in "Skrzydlata Polska," describing this year's soaring contest in Poland, we are indebted to Miss D. Kuklinska.]

FOR three years the National Gliding Competitions had been the most interesting event of the season. In 1935, except at the Competitions, we only flew very rarely; in 1936 we set up records for height and distance; and last year we made a great many long flights. At last the good luck had to come to an end, and it did so this year at Maslow. There was only one reason—weather!

This year we have had competitions both for individuals and for organisations. The order of placing in this contest has been decided not only by the pilot, but also by other things such as the organisation of transport, the launches, and retrieving.

We award points for height, together with distance; for ordinary distance flights and goal flights; and for speed in cross-country flying. The minimum performances to earn points are 500 km. altitude and 25 km. distance.

The winners (winning team) of this contest were the four competitors from our gliding school at Pinczow-Polichno.

The Competitions began on July 10th. The first three days were very bad. There were low clouds and rain, and none of the starts was successful.

On July 13th there were 12 launches. The weather conditions were again very bad, and with aero-towing to 1,000 metres, only two cross-country flights of 22 and 38 km. were made.

On July 14th aero-tows were to 800 m. (2,625 feet). There were a lot of clouds of stratus type. The longest flight was 53.5 km. by Captain J. Orzechowski. Twenty-two pilots had no success.

July 15th brought a little better weather conditions. On this day there were eight goal flights; each was of more than 100 km., and most of them were to Lodz, 130 km. (81 miles). The longest cross-country flight of the day was by Mr. M. Lewandowski, who landed in Germany at Slask, near Kreuzberg, 185 km. (115 miles). The best flight was by Mr. W. Grzeszczuk who, during his flight from Maslow to Maslowice (153 km.), reached a height of 1,440 m. (4,724 feet).

On July 16th two goal flights to Inowroclaw (270 km., 168 miles) were done by K. Plenkiewicz and T. Gora. Mr. Szukiewicz flew a little over 200 km. and the other pilots only about 100 km. each. Altogether there were 30 cross-country flights, with aero-towed starts at 600 m. (1,970 feet).

On this day, at about noon, Captain Eugeniusz Makowski crashed near Konskie in the sailplane ORLIK. He flew into the clouds and the machine broke up. The pilot was killed. He could not jump out with his parachute because the wings were broken and crashed on the cockpit.

On Sunday, July 17th, distances totalled 2,733.5 km. (1,698.2 miles). The longest distance was done by Mr. Tadeusz Gora—299 km. (186 miles). There were 22 cross-country flights including two goal flights; T. Matlawski, 198 km., and K. Plenkiewicz, 149 km. On this day the record height of the Competitions—1,950 km. (6,398 feet)—was attained by Engineer St. Piatkowski.

Miss D. Kuklinska, a Polish visitor to England this year, is seen about to start a flight from Dunstable Downs. She visited several gliding clubs, usually walking all the way from one to the other.

The weather was terrible on July 18th, there were six starts, all unsuccessful, the first being at 1.15 p.m.

Weather conditions were better on July 19th. There were 21 cross-country flights, all of more than 100 km. The pilot M. Lewandowski flew to Koszyce in Czechoslovakia, 263 km. (163 miles). The same flight was made by Mr. T. Gora, who landed on an aerodrome at Koszyce, 249 km. Other flights were: Mr. Kasprzyk, 211 km.; A. Dziurzynski, 195 km.; H. Milicer, 194 km.; Z. Zabski, 182 km. Mr. K. Plenkiewicz did his fourth goal flight; it was to Krosno, 153 km. On this day we flew for a total of 94 hrs. 32 mins. Aero-towing was to 600 m.

July 20th: Captain Blaicher and M. Offierski went 195 km. Aero-towing was to 700 m.

July 21st: 22 cross-country flights; only ten were of more than 45 km. The best were by J. Kawalec, 210 km., and M. Offierski, 195 km.

July 22nd was the last day of the Competitions. Only six cross-country flights were made: one of 74 km. (M. Offierski), three of 29 km., and two of 28 km. Aero-towing was to 500 m.

The general results of the Contests were:—

Launches, 289.

Aggregate of altitudes reached on cross-country flights, 15,658 km.

Number of cross-country flights, 168.

Goal flights, 15.

Aggregate duration of flights, 478 hrs. 29 mins.

Number of altitude flights above 1,000 metres, 45.

Mr. Weigl and Mr. Felkerzam had the largest number of launches (12 each), and Miss Wanda Modlibowska and Mr. Baranowski the smallest (three each).

The greatest aggregate distances were achieved by T. Gora (983.5 km.—611.1 miles) and K. Plenkiewicz (949 km.—589.7 miles).

The greatest number of goal flights were done by Mr. Plenkiewicz (four), and Mr. Tarczinski and H. Milicer (two each).

The individual winner was Kazimierz Plenkiewicz, with 1,125.1 points; Tadeusz Gora was second with 1,113.9 points.

[A number of tables are appended, of which Miss Kuklinska has kindly translated the headings. The principal one shows what each pilot did in distance and altitude each day, or, if he did nothing, various signs show the reason why. A smaller table shows that 11 organisations (aero clubs and gliding schools) took part, and had between them 36 sailplanes, 17 aeroplanes, and for transport 9 cars and 13 "carriages." Perhaps one of the latter accounted for the fact that, according to the larger table, one pilot appears to have taken three days to return after a flight of 64½ kilometres. There was, according to this table, only one pilot to each sailplane entered.—Ed.]

Two-Seater Duration

THE record set up at Dunstable on July 9th to 10th by W. B. Murray and J. S. Sproule, who soared for 22 hours 13 minutes in a Falcon III, has been beaten by two German pilots, Toni Kahlbacher and Josef Führinger, who stayed up for 40 hours 51 minutes on September 8th-10th. Previous to this, according to *Flugsport* of September 14th, Kahlbacher had stayed up for 23 hours 39 minutes with a companion named Tauschegg, but no date was given.

Both these flights were made at a site called Spitzerberg, which has not been in the news before. It is stated to be near Deutsch-Altenburg and in the neighbourhood of Vienna.

Luftwelt gives the following account of the record flight:—

"On September 8th at 8.10 a.m. they were towed up from the Spitzerberg gliding site by a motor 'plane to 500 m. (1,640 feet). At 8.35 they began to perform circles about 1 km. distant Gundsheimer Kogel. All the necessary conditions were strictly adhered to, in order to secure recognition for the record. The pilots took with them a sealed barograph, their combined weights had to be over 150 kg. (23 stone 9 lbs.), and they had to land within one kilometre of the starting place. All these conditions were fulfilled. They landed at 1.26 on the night of the 9th on the Spitzerberg national gliding school site. During the night flight the flying terrain and the summit of the Gundsheimer Kogel were lit by fires, which was especially necessary since during both nights mist prevailed, and towards midnight the clouds came low. From time to time an aeroplane climbed up to them in order to give the pilots weather forecasts by flag signals. For provisions the pilots had with them only a packet of biscuits and water."

The type of sailplane used is not stated, but a photograph shows it to have tandem seating, with the fore cockpit enclosed and the rear occupant's head inside a gap in the "neck," which carries a gull wing supported in addition by upside-down "V" struts.

According to the weather maps, there appears to have been a light north-easterly wind, produced by a mild depression centred over the Mediterranean south of France, throughout the flight.

French Soaring Contests.—These were held at the Banne d'Ordanche from August 8th to 18th. Greatest distance was 76 miles, by Gasnier; greatest height 5,304 feet by Lamont, and greatest duration 5 hrs. 26 mins. by Denize. The final order was: Lamont, Nessler, Gasnier, Marcel Spire, Medicus, Denize. This year, for the first time, goal flights were encouraged. The goal at Brioude, 36 miles distant, was reached by Denize and Gaudry.

The "Nyborg" Sailplane

MR. T. G. NYBORG writes from Boughton Villa, St. Johns, Worcester:—

SIR—As your article about my sailplane in the September issue of THE SAILPLANE is somewhat misleading as regards its performance, I should be obliged if you would publish the report by Mr. Saffery of some flights he has made in the same machine during August Bank Holiday, 1938, in Worcester.

From this report it will be noticed that the performance during each flight varied so much that it is apparently difficult to draw any definite conclusions. As both Mr. Green and I have had somewhat similar experiences, i.e., on some flights the sinking speed seems to be abnormally small and on others the sinking speed seems excessive, I shall try to explain how this big variation of sinking speed can exist at the same flying speed.

During many of my flights, generally done at heights varying from 6 feet to 15 feet, I noticed that sometimes the machine would shoot through the air apparently without effort and then, at other times, I felt as if I had put a brake full on—rather like putting the blade of an oar in the water. I have experienced this braking effect at 57 m.p.h. and have flown without effort at 45 to 50 m.p.h.

Mr. Saffery says in his report that he found the machine begins to stall at a fairly high speed, but it is quite gradual and there is still control well below it. My impression is that the machine can be semi-stalled at high speed and can be semi-stalled over a large variation in speed and still be controllable. It has been flown below 40 m.p.h. When once stalled it requires a fair amount of practice to correct this, but I have done it on several occasions, although, unfortunately, the field at my disposal is too short (only about 600 yards long) to get the necessary practice. I think that even an experienced pilot will require considerable practice before he can stall and correct the machine at will without losing too much height or getting into trouble in windy weather, but once having learned it, it should not cause much trouble as the controls of the machine seem to react very quickly if used the correct way.

To get some idea of the sinking speed, I have used the data given regarding Mr. Saffery's first flight, and it will be noticed that the minimum sinking speed of the machine is well below that mentioned in your report, and we can therefore conclude that, as the sinking speed in Mr. Slazenger's flight was 8 feet per sec., the machine can be flown semi-stalled at 65 m.p.h. or at even higher speeds.

However, if the pilot flies the machine semi-stalled he will have to look out for trouble if he is doing it at a slow speed.

How much the so-called "ground effect" has to do with the sinking speed of the machine, I am not prepared to say, but I do not think it is very noticeable above 10 feet flying height as the wing chord is only 18 inches.

T. G. NYBORG.

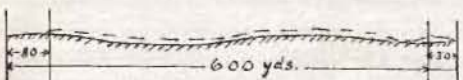


Diagram of flight by J. Saffery in Nyborg Sailplane

Some Flights in the "Nyborg"

August 1st, 1938

By J. SAFFERY

During the Bank Holiday week-end Mr. Nyborg was kind enough to let me fly his machine. The flying on the first day was on a field of about 600 yards by 400 yards belonging to a farm a few miles out of Worcester.

On my first hop I determined to rise to three or four feet from the ground and then to keep the machine straight and level while I learnt what it felt like. The machine was put with its tail near the hedge and pointing in a direction which gave me an uninterrupted stretch of about 500 yards before a fence of iron uprights and stout steel wire which divided me from another big field. This fence, however, was out of sight behind a slight crest about 300 yards away upon which I expected to land.

The launch by auto-tow with a double rubber rope is powerful and gave me an initial speed of about 55 m.p.h. The machine rose quite quickly and I levelled off as soon as it was well clear of the ground. After a rather undulatory 150 yards or so we settled down to steady flight at about three feet and remained there until to my amazement I saw through the windscreen, which was very discoloured, that the fence was only about 40 yards away. We were travelling much too fast to land and pull up so I put the nose down a fraction to try to jump it, but touched the ground, and an instant later we went through the fence in tremendous style just off the ground and stopped 30 yards the other side. Although the iron posts were bent over at 45 degrees, one by the nose and one by each wing-tip, the damage to the machine was negligible. But unfortunately the air-speed indicator was wrecked. Several more hops were made in the afternoon, but with a less powerful launch and up a slight rise. I found that trying to gain height quickly on the launch produced a semi-stalled condition. Any attempt to cure this by lowering the nose put one on the ground at once, but if held steady the machine would fly under control at a coarse gliding angle. At no time during the day were we over 10 feet high.

The following morning the direction of the wind necessitated flying across the short way of the field, so we decided to try to get much more height on the launch and then turn and fly over the fence and into the next field.

I asked for a good strong launch, as 30 or 40 feet at least would be needed to clear the fence which was 300 yards away. Also I was anxious to have plenty of speed and height for the turn as the machine had not been turned before.

We went up well on the launch and probably got nearly 50 feet (a film was taken of the whole flight, so it should be possible to check up on the height of the launch). I flew fast and began a wide turn towards the fence. It was soon obvious that we should clear that particular menace with plenty to spare so I just kept things steady, went over the fence at 12 or 15 feet and landed on a slight rise about 130 yards into the

next field. I did not try to hold off at all, and the machine landed faster than necessary. The skid mark was over 90 yards long. The time of the flight was 20 seconds and the distance about 580 yards.

This was a very satisfactory flight to me. I got more height than I expected on the launch, and the turn, which I had been a bit anxious about, was very steady. The ailerons are rather heavy but follow the stick at once. Also we had cleared the fence easily.

A second flight was made and was almost exactly the same. I held off and so got about 50 yards further and 22 seconds.

On the next flight I did not get quite such a strong launch, but nevertheless gained a little more height than on either of the previous occasions. This time I tried to keep my height a little longer, so did not fly so fast—a bad policy, because we immediately began to sink so rapidly that it was obvious we had not proper flying speed, and also that we would not clear the fence. I put the nose down well to get plenty of speed. But it was no good. I flattened out just above the ground but could not lift it. We touched the ground once and wallop—we were through the fence again! And once more the fence came off second best.

I find it very difficult to draw satisfactory conclusions from these flights. I was amazed at the distance covered in the first hop, even taking into account the speed of the launch. But the rest of the hops that day were disappointing. Also the first two flights on the next day were good, but the last one again was a fearful come-down in every sense.

A great misfortune was the demise of the air-speed indicator in the first encounter with the fence, so I do not know at what speed I was flying on any flight nor do I know where the stall begins. Also the smallness of the field was a handicap because the longer flights had to be made on a curve which make it very difficult to estimate the distance covered.

The machine flies fast, I should think at 65 m.p.h., and is beautifully steady. Elevator and aileron seem to be good. I did not use the rudder enough to know anything about it. The stall evidently begins at fairly high speed, but is quite gradual and there is still control well below it. If the wing begins to stall a good bit of height is needed to get it properly flying again. I had no opportunity to try the flaps or the wing tip drag rudders, which I would very much like to do.

It would be most interesting to fly the machine again with an air-speed indicator and on a field with fences a day's march apart.

Calculation of Sinking Speed of the "Nyborg" Sailplane

(Data given in J. Saffery's report of flight, August 1st, 1938.)

Distance travelled in free flight about 3 ft. above ground was 500 yards, and the observed starting speed by Air Speed Indicator was about 55 m.p.h. The ground is nearly horizontal as shown by sketch. As there was practically no wind, and the flight was in the shelter of a high hedge, it is assumed that there was no wind effect.

As the starting point was not higher than the landing point we know that the energy consumed during the flight must be due to a reduction in speed.

$$\text{Hence } E = \frac{1}{2}\frac{W}{g}(v_1^2 - v_2^2) \quad \ldots \quad (1)$$

Where v_1 is the starting speed
v_2 is the landing speed
W is the weight of the glider.

Also the energy consumed is $= E = StW$ ... ... (2)

Where S = sinking speed per sec.
t = time of flight in sec.

$$\text{If we assume } t = \frac{D}{\frac{v_1 + v_2}{2}} \text{ (D is distance of flight)} \quad \ldots \quad (3)$$

Then we have from (1) (2) and (3)

$$\frac{v_1^2 - v_2^2}{2g} = S\frac{2D}{v_1 + v_2}$$

$$\text{or } S = \frac{(v_1^2 - v_2^2)(v_1 + v_2)}{4gD} = \frac{(v_1 + v_2)^2 (v_1 - v_2)}{4gD} \quad \ldots \quad (4)$$

As only the starting speed and distance of flight are known we cannot find the actual sinking speed but we can find the sinking speed corresponding to any assumed landing speed. Mr. Saffery states a starting speed of about 55 m.p.h., so to be on the safe side we shall take it to have been 60 m.p.h. and calculate the sinking speed for a landing speed of 35, 40, 45, 50, 55 and 60 m.p.h. Then we can consider which values of sinking speed and landing speed are the most probable.

Taking $v_1 = 60$ m.p.h. or 88 ft./sec. and D = 1,500 ft.

v_2 m.p.h.	v_2 ft./sec.	$v_1 + v_2$	$v_1 - v_2$	S ft./sec.
60	88	176	0	0
55	81	169.5	7.5	1.125
50	73.5	162	15	2.05
45	66	154.5	22.5	2.8
40	59	147.5	29.5	3.35
35	51.5	140	37	3.75

$4gD = 4 \times 32 \times 1{,}500 = 192{,}000$

From the marks on the ground it was seen that the glider had touched the ground for about 20 yards and again lifted 10 yards in front of the fence. As the fence is 4 ft. high and the top wire struck the glider on the top side of the nose and ripped the 3-ply covering of the body, the machine must have been 2 ft. clear of the ground when it struck the fence. We can therefore conclude that the speed of the glider was well above the minimum landing speed as mentioned by Mr. Saffery.

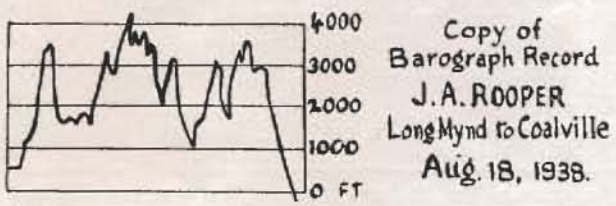
From the above examination of this flight it appears that the sinking speed is well below that of an orthodox machine, and that the flying speed is much higher though the landing speed is not excessive.

T.G.N.

Two Cross-Country Flights

Seventy Miles from Long Mynd

I WAS launched at 12.15 and intended to stay up for my five hours duration, but at the last moment a map and a barograph were hastily shoved in and I was given permission to go off across country if the conditions seemed good. I spent an hour beating up and down the Mynd, and managed to get up to a good height once during this period, under a solitary cumulus; but, being a novice, I decided to wait until conditions were more generally better. Several good streets of cumulus were blowing up from the west, but with infuriating persistence they seemed to be just out of reach at either end of the Mynd. Finally I managed to reach one, and circled up to cloud base in no time, and so I headed down-wind. At that supreme moment I felt particularly sorry for Anthony Young, who was then in the middle of his duration record flight. After staying under the same cloud for some time I grew bolder and hopped from one to the next, heading as nearly east as I could by the shadows on the ground. Lift was very plentiful (too much so at times—I had to dive at sixty to keep out of the clouds) and I made good progress until I had passed the thirty-two mile line that someone less fortunate had marked in blue on my map. I grew rather too confident and at one time got to within about 300 feet of the deck when I caught a good thermal at 10 feet per second, and circled in this until I had to change direction to preserve my reason!



Just to the north of Wolverhampton I got completely engulfed in cloud, and lacking blind flying instruments or a parachute I came diving out in quite a hurry, to the intense surprise of a "Hart" that was just going in. He flew round me for about five minutes, apparently convincing himself that he wasn't seeing things.

Eventually I got too bold and in trying to reach another fine-looking cloud street down-wind, I found that I could not make the grade and so I pulled off a landing at 3.55 p.m. in a field that could not have been better chosen for convenience to road, telephone, and pub, or for a more appreciative rustic audience! As I had been off my map for some time I had only a very vague idea where I was; the village proved to be Griffy Dem, near Coalville in Leicestershire.

My thanks are due to Mr. Hardwick and the members of the Midland Club whose efforts combined to give us such a good week there, and particularly to Bill Hardwick who drove a long way under trying circumstances to retrieve me.

As it was only my second flight in the KITE, and also my second flight with a variometer, I feel that I probably did not make full use of the conditions, and that a more experienced pilot would have reached the coast before the sky became overcast. As a complete novice I was pained and surprise to find that every cumulus did not have its silver lining, and also at some of the locals who kept on asking me where I kept my little engine. They also pondered deeply on how I could have got in to the cockpit through the narrow slit on the top of the cover!

ANTHONY ROOPER.

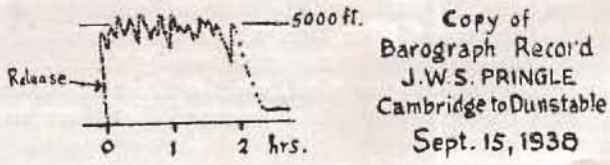
Mr. J. W. S. Pringle (left) photographed on September 15th beside the "Kirby Kite" in which he had just arrived at the London Gliding Club from Cambridge. This was the first cross-country flight to Dunstable from another club.

Cambridge to Dunstable

Getting a launch in Cambridge in September is somewhat of a problem, as the University is not in residence and helpers are hard to find. However, waking on September 15th to find a light drift of polar air from nearly due north, I felt the time had come for our long-planned visit to the London Club, and decided to risk making enemies of a few more of my friends by asking them to come and help me rig. Accordingly at 1.50 p.m. I found myself safely and skilfully dumped at 2,000 feet under a large cumulus cloud over the aerodrome, and soon was watching the re-winding of the cable nearly a mile below.

Cloud base was at 5,300 feet. Unfortunately the turn-and-bank refused to start, so we could not go in for more than a few hundred feet; but perhaps this was as well, for the lift was better lower down. I got out a map and surveyed Cambridgeshire. It is a good county for aerodromes, which were a most necessary feature on this flight, as I knew there was no car in Cambridge that could be used to bring the KITE back for over a week. But the sky looked good except for a large bare patch of blue to the north, over the fens, so putting the nose down we made for Royston at 45 m.p.h.

The barograph chart shows how the rest of the flight was made. On only one occasion did we drop below 4,000 feet, and then only because in order to save time we missed out one cloud and went on to the next. All



the way along it was amusing to pick out places made familiar by journeys in car or train, and over Hitchin we hung about for a bit to watch the trains go by on the L.N.E.R. main line. Each town was in sight before leaving the last, and the clouds never failed to produce good lift under their southern edge.

We explored Luton and found the aerodrome there, and then pushed on to Dunstable, where a camp was in full swing and DAGLINGS swarming over the Downs. The day was by no means done, and a 6 feet per sec. thermal which took us back from 3,000 to 5,000 feet stirred visions of going on to Oxford. But tea called, and 3,000 feet of spin followed by "sundry loopings" soon brought us down to it. The landing was at 4.10, just 2½ hours after leaving the ground at Cambridge.

Flights on windless days like this are to my mind the high spots of gliding. The reasonable certainty of staying up and the ability to go anywhere (or nowhere) put them in a different class from any other type of soaring I have done. Perhaps in a machine with a high flying speed any thermal flight would be like this; the KITE, though a fine craft, doesn't like being hustled.

The real moral is the aero-towed start. We tried to fly her home next Sunday in a S.W. wind and good cloud conditions, but could not get away from the Bowl. So she had to wait the full week and come back ignominiously by road.

J. W. S. P.

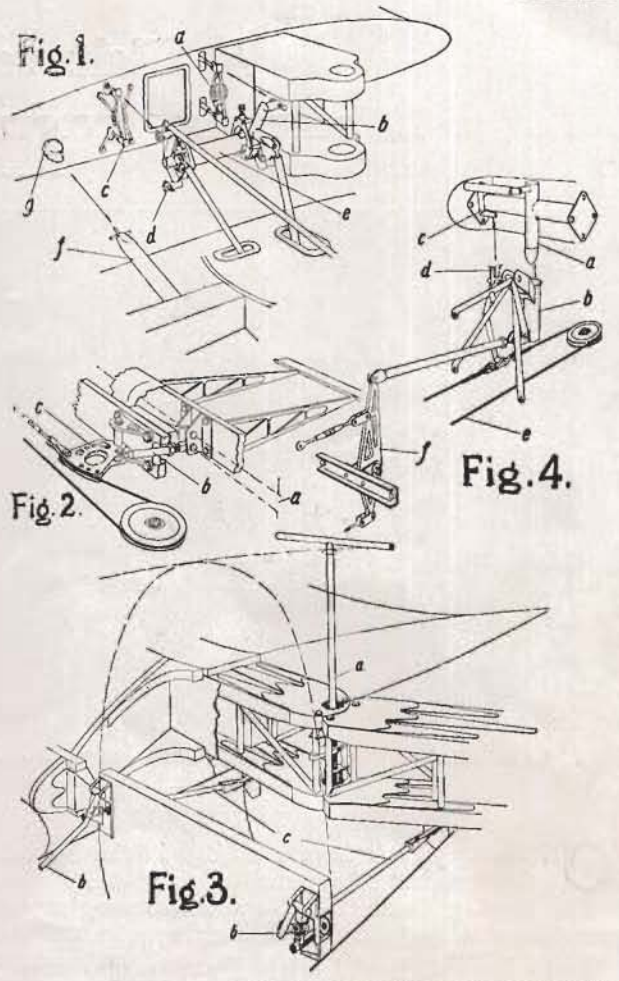
Some "Reiher" Details

[The German sailplane "Reiher," of which details have recently been made public, was described in the September issue of THE SAILPLANE *on pages 210 and 211. Here are some further details of the machine, translated from an article in "Flugsport."]*

ALL connections for working the ailerons, flaps and air brakes are automatically coupled up when the wing is joined to the fuselage. Fig. 1 shows the coupling arrangement. Levers *a* and *b* actuate the ailerons, and connect with each other with a common axis when the wing and fuselage are brought together. Likewise the levers *c* and *d* are for actuating the air brakes. In order to allow the connection to be made on the same axis, the levers *b* and *d* on the fuselage are placed upon an adjustable tubular shaft *e*. The connecting-up of the actuating shaft *f* for the flaps is brought about through its engaging obliquely (*Querstift*) with the claw *g* in the wing.

The aileron mechanism lies within the wing. Owing to the small thickness of the aileron and the rear spar, the length of leverage available (*a*, Fig 2) is only 2.5 cm. (1 in.). To render this mechanism sufficiently stiff, the actuating lever is joined up into an "aggregate" with the base of attachment (*Lagerung*) of the aileron (Fig. 2). The aileron was subsequently mass-balanced, as in very gusty conditions, with the comparatively large ailerons, they exhibited great unsteadiness. By means of partial mass-balancing this fault was corrected.

The main spar has broad flanges with cross-pieces which are built up as fully-covered ribs. The height



[Reproduced from "Flugsport," Frankfurt a.M.

of the spars at their junction is 188 mm. (7.4 ins.). The great breadth of the spar results from stiffness requirements. The metal plates of the main spar junction lie horizontally [i.e., on the upper and lower surface of the spar, which, as already stated, is very broad]. The pressure and fuselage-weight forces at this junction are taken by steel tube diagonals.

The junctions between the main spars and between wing and fuselage are shown in Fig. 3. The cylindrical bolts for the main spar junction fittings are inserted or removed by means of the shaft *a*. The connecting of a wing with the fuselage is done by two bolts lying in the line of flight, which can be inserted or removed with a handle by means of the lever *b* and the push-rod *c*. By means of a coupling, the operation of removal is separate for each of the bolts which lie one behind the other, so that the effort needed is small.

Fig. 4 shows the coupling for the elevator and trimmer-tab mechanism. In setting up the control mechanism for the elevator, the lever *a* is pushed into the socket *b* on the fuselage; when in position for assembly they lie on the same axis. Simultaneously the small lever *c* inserts itself into the fork *d* and so couples up the trimmer-tab actuating mechanism; *e* is the trimmer-tab cable, and *f* the elevator horn.

A Visit to Switzerland

NATIONAL CONTESTS AT BRAUNWALD

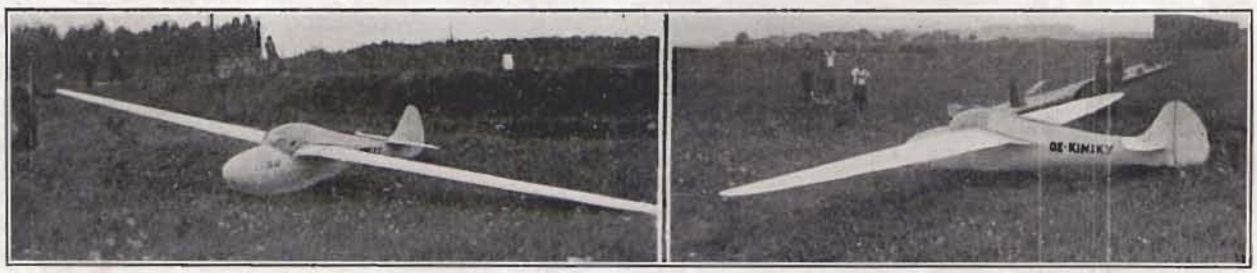
At the Swiss National Competitions. Left: a "Spyr III" on the Hotel tennis court at Braunwald, from which launches were made. Right: A "Grunau Baby II" fails to stay up in a light wind, and glides out over the Linthal.

[Photos by J. W. S. Pringle.

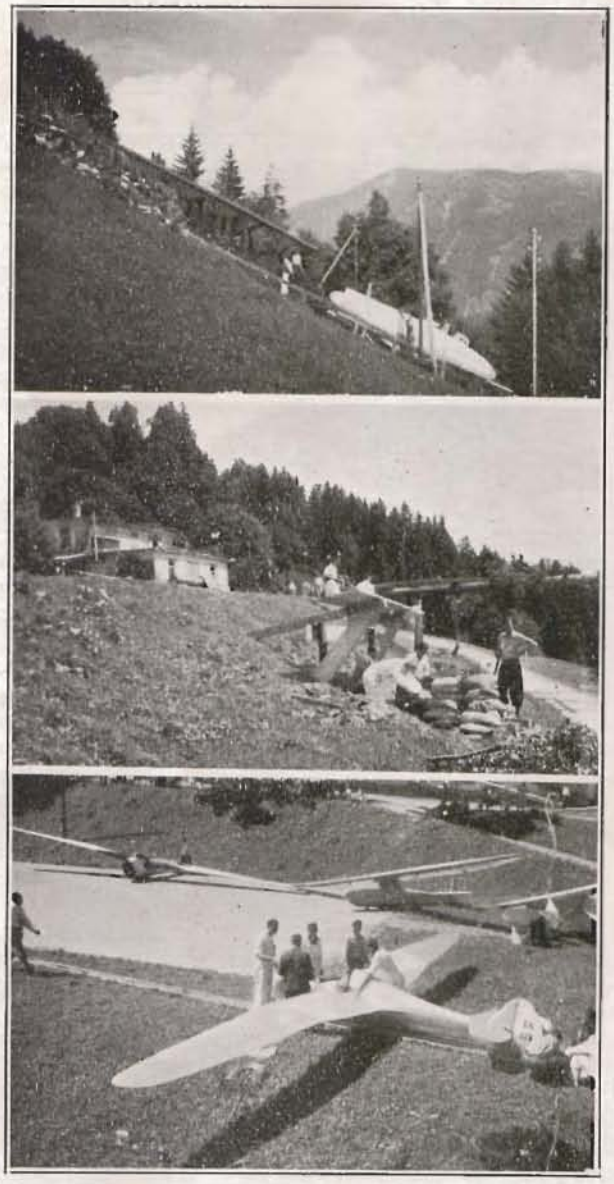
ON the way back from a holiday in the Engadine this summer I happened on the Swiss National Soaring Contests and spent two very pleasant days there taking photos and chatting with the competitors. Partly as an experiment, and partly because the pilots were offered free facilities and accommodation, the competitions this year were held at the little winter-sports colony of Braunwald, on the west side of the valley above Linthal in canton Glarus. There is no road to this place, and the six or seven hotels are reached only by paths and a funicular railway that climbs the steep sides of the valley at an average angle of one in three. The largest of these hotels, rightly supposing that it would gain more from advertisement than it lost in the custom of players, sacrificed its asphalt tennis court, the one flat place on the hillside, to provide a launching ground, and lent its barns for night storage. The Zurich club with its 60 members, the largest in North Switzerland, organised the rest of the meeting, fitted up a hand-winch to stretch the bungy at the launching point, and arranged for landing places in the valley 2,000 feet below.

To this little place were brought on July 30th some thirty sailplanes, with fifty pilots. I was there on the 31st and on August 1st, and disappointingly the wind blew lightly from the S.W. on both days. The valley faces north, and is so deep that it was practically calm in the early mornings; but on both days, as the sun got up, light puffs of wind would come up the slope and in one of these a GRUNAU BABY II held height for half-an-hour on the morning of August 1st. In the afternoon, with the sun on the far side of the valley, it was possible to launch through the down-draught and fly across to the east side, where again several machines managed to hold height for a short time. But the majority only had long glides to the bottom; I expect later on in the week they fared better.

Of the sailplanes at the meeting, over half were GRUNAU BABY II's brought by various small clubs from all over North Switzerland. Of the rest the SPYR III seemed to have the best sinking speed. There was one RHÖNSPERBER, two CONDORS, the MILAN, and a number of older types; but of undoubtedly the greatest interest was the little H28, a fast and clean-lined



An "H.28," one of the Hütter Brothers' products, took part in this year's Swiss national meeting. Here is the original "H.28" with one-piece Plexiglas cockpit-cover, photographed on Salzburg aerodrome in 1935 just after its first test flight.



Novel launching and retrieving methods were in use at the Swiss national meeting at Braunwald. Above: A "Grunau Baby" is brought up the hill by funicular, the only means of ground transport. Centre: The hand winch for stretching the bunjy. Below: An "H28" on the tennis court, with other competing machines in the background.

Photos by J. W. S. Pringle.

machine of only 40 feet span, with a reputed gliding angle of 1 in 27 at 55 m.p.h. It certainly got across the valley with a minimum loss of height. The owners of this, the first to be built in Switzerland, told me they had not had it long, but were very pleased with its performance and ease of handling; they did not seem to mind landing it at 42 m.p.h.

I talked with people from a number of clubs. The gliding movement in Switzerland is handicapped, as everywhere, by lack of funds, but they are certainly enthusiasts, and need to be to operate from such difficult sites. They say there are too many mountains. In winter an inversion below the level of the tops cuts up the climate into small areas in each valley, and cross-country flights are impossible; and in summer the uncertainty of wind direction forecasts makes for many disappointments. Aero-towing solves the problem, but is too expensive for most of them. Nevertheless, they are a cheerful and optimistic crowd, and anyone who visits them is sure of a very hearty welcome. They would like to see some English machines and pilots over there next summer.

J. W. S. P.

Reviews

Handbuch des Segelfliegens. Edited by WOLF HIRTH. Stuttgart, Franckh'sche Verlagshandlung, 1938. Pp. 286 with 156 illustrations. Price RM. 7.60.

This Handbook of Sailflying is, in the present reviewer's opinion, quite the best general book on gliding ever written. It consists of thirty-seven sections, in each of which an acknowledged expert has attempted to outline all he knows of his particular subject. The result is a volume twice as long as Hirth's former *Hohe Schule des Segelfliegens*; and it is unlikely that a sailflyer exists anywhere who could not learn something valuable from it.

Of most practical value to English readers are perhaps the three chapters on high altitude flying, by Wolfgang Späte, who will be remembered for his exploits in last year's International Competitions; he also has some interesting things to say about goal-flights, including the startling fact that he does not give up hope and decide upon his landing place until within twenty metres of the ground! Training up to this high standard of pilotage is dealt with by Fritz Stamer and the editor himself, Wolf Hirth, while Peter Riedel writes on aero-towing, and yet another chapter is devoted to car- and winch-launching; but on this subject Germany appears to have little to teach us. Wolf Hirth also contributes chapters on thermal soaring technique, and on the possibilities of the motor-sailplane.

The "Aerobatics" chapter will intrigue every reader who aspires beyond simple loops. With motor-aeroplanes becoming fast and unwieldy, it remains to sailplanes to perfect the choreography of the air; yet alas, how rarely in England is seen that most beautiful of aerial evolutions, the simple vertical stalled turn. This and several others safe for normal sailplanes may be learned from O. Braütigam.

Professor Georgii's fourteen pages on meteorology are full of meat. Brütting and Hans Jacobs write on developments in sailplane design. Thirty-three pages of readable aerodynamics, contributed by Heinz Kensche, the designer of the HELIOS, include a consideration of stability, control and spinning characteristics which, in the English language, would go far towards bridging the gap between Latimer-Needham and the advanced aeronautical literature. With regard to spinning, Kensche states that in future the cockpits of all sailplanes will contain charts showing, in terms of the pilot's weight, how much trimming ballast may, or must, be carried in order to keep the centre of gravity ahead of the permissible backward limit.

Further interesting chapters are "Instruments," "Parachutes," "Preparations for Competitions," and others of which space forbids mention.

The only serious criticism of this book is that it is not written in English.

K. W. T.

Ce qu'il faut savoir pour devenir Pilote de Vol à Voile. By CHARLES and OLGA GIROD. Chiron, Paris. Pp. 220. Price 30 Frs.

This book sets out to explain to the "man in the street" what soaring flight means, and also to act as a textbook for the sailplane pilot up to "Silver C" standard.

This is a great deal to do in 220 pages, but everything has been dealt with thoroughly except the construction of sailplanes and the history of gliding. The authors do not attempt to deal with the former, but a brief historical survey is included. This is mostly restricted to gliding in France, and little mention is made of activities in the Rhön.

The eight chapters include: Slope soaring and the "C" certificate, Meteorology, High-performance flying, Towed flight and Cloud flying. The authors realise that one of the most important parts of advanced training is the reading of accounts of high-performance flights, and give several examples of these—three being translated from Wolf Hirth's *Hohe Schule des Segelfluges*. Useful hints and directions for thermal and cross-country flying are given, but it is surprising that no barograph records are reproduced.

Outline drawings are given of several French sailplanes, including the AVIA 41.P in which Nessler made his record flight of 248 miles from Paris to La Rochelle in April. There are also some very neat little sketches by Lucien Cave, one of which shows a sailplane hanging from a cumulus cloud by parachute shroud lines.

In one place the authors nearly disgrace themselves by starting to explain the practical uses of soaring flight; however, they soon get over this and in the last chapter go all lyrical about "les vols de performance."

This is a book which should be read by every sailflyer who understands French, if only so that he can start an argument about traffic regulation while hill-soaring or about Fig. 80 on page 147.

J. E. S.

The following books have also been received by THE SAILPLANE for review:—

Synoptic and Aeronautical Meteorology. By HORACE ROBERT BYERS, Sc.D. (In Charge of Air-Mass Analysis Section, U.S. Weather Bureau.) McGraw-Hill Publishing Co., Ltd., Aldwych House, London, W.C.2. Price 21s.

The Air and its Mysteries. By C. M. BOTLEY (Fellow of the Royal Meteorological Society). With a foreword by Sir Richard Gregory, Bart., F.R.S. G. Bell & Sons, Ltd., York House, Portugal Street, London, W.C.2. Price 8s. 6d.

The Flight of Birds. By C. HORTON-SMITH, B.Sc., D.I.C. With a foreword by Sir Gilbert T. Walker, C.S.I., Sc.D., F.R.S. H. F. & G. Witherby, Ltd., 326, High Holborn, London, W.C.1. Price 7s. 6d.

Pilot's "A" Licence. Compiled by JOHN F. LEEMING (Royal Aero Club Observer for Pilots' Certificates). Eighth and Revised Edition. Sir Isaac Pitman & Sons, Ltd., Kingsway, London, W.C.2. Price 3s. 6d.

Spiel mit Wolken und Winden. By HANS DITTMER. Macmillan & Co., Ltd., St. Martin's Street, London. Price 2s. (A reader for schools; includes German-English vocabulary.)

Correspondence

Variometer Speed-Calibration

SIR,

There has been much correspondence on this subject of late, but nobody seems to have produced anything of really practical use. Accordingly I send you brief details of a gadget which should be quick and simple to use and quite easy to make.

It is just an extension of Mr. Fox's idea of putting the best flying speed alongside the variometer readings. In this gadget, instead of one set of figures there is a set for each wind speed. And all that is necessary is to rotate the drum until the required wind speed shows in the window at the bottom, and then increase the flying speed until the air-speed indicator reads the figure that appears opposite the red ball of the variometer.

The diagram is from performance figures of the RHÖNADLER. It shows the gadget set for flying against a wind of 20 m.p.h. Also there is shown a table which is really the drum flattened out, the bottom row of figures being the wind speeds (contrary to left and favourable to right), all the others flying speeds.

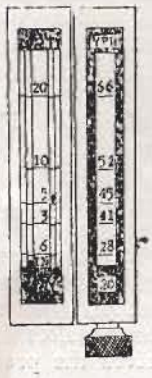
In this table the figures to the left of the dotted line should be printed in green, to show that if one stops and circles at normal speed then the machine will gain height. That is to say the machine is in rising air of more than 2 ft. per sec. although the red ball is showing.

To anyone considering making up one of these gadgets I suggest instead of putting the table on a large diameter drum they should make up the paper in a loop and use two small diameter drums as rollers rather like a barograph.

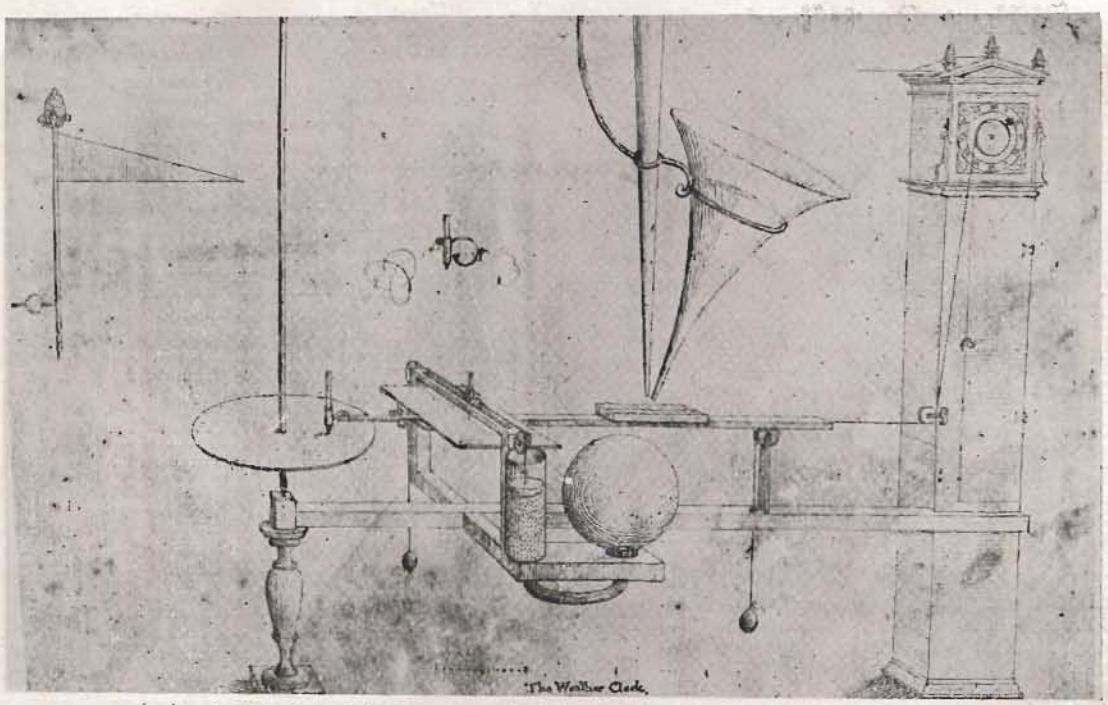
And finally a word of warning. Despite all the work done to make allowance for the wind speed, the instrument should nearly always be used set at 0 wind speed. It is only when one wants to cover a certain distance over the *ground* that it is used set at other than 0 wind speed. For example: If one has caught a thermal while hill-soaring on a windy day and wants to get back to the hill, then set it at the wind speed. But on a cross-country, when hopping from cloud to cloud (i.e., covering a certain distance through the *air*), use it set at 0 wind speed no matter whether the wind be strong or not, or whether the hop be up-wind, down-wind, or cross-wind.

K. M. CHIRGWIN.

P.S.—A note to me at the London Gliding Club and I will explain how to obtain the table from performance figures, or perhaps do the calculations for you if performance figures are enclosed.



–	–	–	78	72	66	61	57	53	50	48	47
–	–	71	64	58	52	49	46	44	42	40	38
–	71	63	55	49	45	42	39	36	34	32	28
76	67	58	50	45	41	36	33	29	28	28	28
71	61	52	43	35	28	28	28	28	28	28	28
70	60	50	40	30	20	10	0	10	20	30	40



Sir Christopher Wren's design for a home-built meteorological station, described by Mr. Wright in his letter on this page.
[Courtesy R.I.B.A. Journal.

The Compleat Weather Recorder

SIR,

The enclosed contribution to your series of ingenious devices for the use of gliding clubs is the work, not of Messrs. J. S. Fox and W. Heath Robinson in collaboration, but of Sir Christopher Wren. The drawing is taken from the heirloom copy of his *Parentalia*, and those doubting my good faith may see it reproduced in the *R.I.B.A. Journal* for February 20th last. It should give a sufficiently clear idea of this combined barograph, anemometer and rain-gauge for any handyman to run one up in a few hours.

A grandfather clock supplies the motive power (*via* a length of string) to move a travelling arm slowly from left to right. On the left-hand end of this arm is a pencil (see detail above) applied to a disc which is rotated by a weather-vane (see detail, top left), thus giving a graph of wind direction. The workings of the barograph (apparently filled with soda water) are self-explanatory. The tray below the funnel is divided into twelve compartments, and as this moves with the travelling arm, the amount of rain falling in each hour can be measured. It is not quite clear to me why this tray is further sub-divided and fed by an extra pipe, the top of which is not shown. Perhaps this carries a funnel with a wire mesh over it so that it accepts rain only, the shorter open funnel being a snow-gauge.

LAWRENCE WRIGHT.

Air-Speed Indicators

SIR,

Mr. Lavington does not agree that the cup anemometer is independent of air density. The reason is this. The anemometer rotates at a constant speed when the turning moment on one side of the axis (cup facing up-wind) equals the resisting moment on the other side (cup facing down-wind). Both moments are directly proportional to air density. Hence, on equating the two expressions, the density term vanishes and therefore does not appear in the subsequent equation connecting wind speed and rate of rotation.

With regard to the vacuum argument, one might equally well argue that as water vapour cannot exist in a vacuum, the instrument must depend on the water content of the atmosphere!

RHOVEESQUARED.

From Here and There

Robert Kronfeld.—A gossip-writer in the *Evening News* has been told by Mr. R. Kronfeld, the Austrian soaring pioneer, that he expects his British naturalisation papers to go through "at any moment."

* * *

News from Portugal.—The following is extracted from a letter to Mr. E. A. C. Barnard, of the London Gliding Club, from Herr Gunther, a German member of last year's Anglo-German camp: In Portugal last year, for the first time, two Germans came as instructors to Portugese Youth, with two GRUNAU 9 school machines, one WOLF and one KRANICH two-seater They began with a number of boys chosen by the Portugese Youth Organisation, to be trained to "A" and "B" stage. During bad weather they taught construction, and two GRUNAU 9's were being built. "We do our best," the writer says, "and it is interesting. I aerobatted the WOLF once." Three or four pupils have now gone from Portugal to Germany to get "C" certificates.

Gliding Certificates

The following gliding certificates, for which qualifying flights were made on the dates shown, were granted by the Royal Aero Club on September 27th :—

"A" Certificates

No.	*Name.*	*Club.*	*Date.*
1004	J. O. Grove	Hull	24.7.38
1005	R. E. Havercroft	Hull	24.7.38
1006	R. E. Pears	Derby and Lancs.	4.7.38
1007	H. H. Price	Oxford Univ. and City	5.7.38
1008	P. H. Morris	Hull	24.7.38
1009	R. D. Leakey	Yorkshire	23.7.38
1010	J. Harrison	Newcastle	17.7.38
1011	P. K. Renshaw	Cambridge Univ.	29.5.38
1012	H. W. Moody	Derby and Lancs.	30.6.38
1013	W. McI. Glen	London	10.6.38
1014	R. K. Stead	Derby and Lancs.	6.7.38
1015	P. Davie	London	14.6.38
1016	G. B. S. Errington	London	5.6.38
1017	C. J. Arnold	London	14.6.38
1018	H. M. Richardson	Newcastle	23.7.38
1019	H. L. Taylor	Yorkshire	17.7.38
1020	J. S. Brough	Derby and Lancs.	4.8.38
1021	A. W. Fawcett	Derby and Lancs.	2.8.38
1022	J. Stafford	Newcastle	31.7.38
1023	G. Ryle	Oxford Univ. and City	5.7.38
1024	L. C. Stenning	London	5.8.38
1025	B. A. Powell	London	5.8.38
1026	W. A. Villiers	London	7.8.38
1027	R. A. Kirkwood	London	5.8.38
1028	H. F. R. Stettiner	London	7.8.38
1029	H. F. Bremerman	London	31.7.38
1030	E. J. Lamb	London	5.8.38
1031	J. A. Norris	London	6.8.38
1032	G. Canti	London	5.8.38
1033	J. J. Gallagher	London	5.8.38
1034	Miss I. L. V. van Zanten	London	5.8.38
1035	L. W. Peters	London	5.8.38
1036	A. R. Porter	London	5.8.38
1037	J. R. Sweeting	London	5.8.38
1038	J. P. M. Wilkes	London	8.8.38
1039	G. G. Dewsbury	London	7.8.38
1040	G. M. Robinson	London	5.8.38
1041	A. F. Lovell	London	6.8.38
1042	A. D. Walker	London	8.8.38
1043	Miss P. A. U. Waldron	London	12.6.38
1044	E. Pratt	Yorkshire	31.7.38
1045	S. N. Goyal	Midland	16.4.37
1046	C. L. Bowley	Midland	26.4.38
1047	W. G. G. Goodwin	Midland	7.8.38
1048	D. Payne	Midland	16.4.38
1049	N. F. Smith	Midland	5.8.38
1050	F. A. Bailey	Midland	3.8.38
1051	W. E. Golcher	Midland	6.8.38
1052	H. K. Colcombe	Midland	1.8.38
1053	A. N. Williams	Midland	31.7.38
1054	W. Swann	Midland	31.5.37
1055	H. C. N. Goodhart	Yorkshire	14.8.38
1056	R. A. McGowan	London	7.8.38
1057	H. Hughes-Hallett	London	7.8.38
1058	J. E. S. Temple	London	7.8.38
1059	R. M. F. Jones	Cambridge Univ.	7.8.38
1060	G. L. Dixon	Yorkshire	26.8.38
1061	J. V. Williams	London	25.5.38
1062	E. Straus	London	27.8.38
1063	C. Carmichael	London	31.7.38
1064	R. L. Neill	Midland	5.3.38
1065	S. B. Wilmot	Midland	3.10.37
1066	E. G. Adams	Yorkshire	8.8.38
1067	G. R. M. Adler	Derby and Lancs.	1.8.38
1068	H. G. Wheatcroft	London	27.8.38
1069	F. M. Thomas	London	27.8.38
1070	D. Mortimer	London	13.8.38
1071	G. E. T. Scrase	London	21.8.38
1072	R. Flint	London	7.8.38
1073	H. H. E. M. Winch	London	31.7.38
1074	D. W. Fry	London	31.8.38
1075	G. Wardle	London	4.9.38
1076	G. V. Vaughan	Yorkshire	8.8.38
1077	A. J. Cook	Yorkshire	23.8.38
1078	W. S. Ollis	Yorkshire	24.8.38
1079	M. Ollis	Yorkshire	24.8.38
1080	T. G. Griffiths	Southdown	6.8.38
1081	W. A. J. Street	Yorkshire	14.8.38
1082	R. K. Page	Dorset	11.9.38
1083	G. C. Kyberd	Southdown	28.8.38
1084	H. Gildemyn	London	Belgium
1085	K. J. McKelvie	London	15.9.38
1086	J. F. V. Lart	London	15.9.38
1087	J. M. Dizer	London	15.9.38
1088	E. D. Gosschalk	London	12.9.38
1089	H. M. Coombs	London	11.9.38
1090	I. Blakeway	London	14.9.38
1091	G. H. Briggs	London	27.8.38
1092	R. E. H. Fender	London	4.9.38
1093	S. P. B. de Moyse-Bucknall	London	13.8.38
1094	S. L. Matthews	London	13.9.38
1095	W. E. P. Corbett	London	15.9.38
1096	A. M. Bonham-Carter	London	13.9.38
1097	H. D. T. Miller	London	13.9.38
1098	F. L. Glover	London	15.9.38
1099	G. R. Wight	London	15.9.38
1100	L. B. Harmer	London	4.9.38
1101	S. A. Holloway	London	13.9.38
1102	J. L. Dobbie	London	15.9.38
1103	E. R. M. Appleton	London	15.9.38
1104	J. P. Wilkinson	London	15.9.38
1105	M. H. G. MacLucas	London	15.9.38
1106	F. H. Ashdown	London	15.9.38
1107	M. P. Fellowes	Oxford Univ. and City	22.5.38
1108	L. W. Taylor	Oxford Univ. and City	14.8.38
1109	A. Archangelsky	Oxford Univ. and City	7.8.38
1110	H. J. Curtis	Oxford Univ. and City	7.8.38
1111	R. L. Beaumont	Oxford Univ. and City	12.6.38
1112	A. M. Fitz Randolph	Oxford Univ. and City	26.7.38
1113	F. H. N. Parry	Oxford Univ. and City	5.7.38
1114	K. G. Robinson	Oxford Univ. and City	12.6.38
1115	R. T. Gething	Oxford Univ. and City	31.7.38
1116	D. M. Dobell	London	13.9.38
1117	R. A. G. Morgan	Midland	19.4.38
1118	W. B. H. Cross	Croydon	14.8.38
1119	Miss P. V. Helmore	London	15.9.38
1120	C. L. R. Holdup	London	14.9.38
1121	A. Bouwens	Midland	16.4.38

"B" Certificates

1006	R. E. Pears	Derby and Lancs.	5.7.38
1009	R. D. Leakey	Yorkshire	23.7.38
1012	H. W. Moody	Derby and Lancs.	30.6.38
1011	P. K. Renshaw	Cambridge Univ.	31.7.38
1018	H. M. Richardson	Newcastle	31.7.38
1016	G. B. S. Errington	London	5.6.38
1013	W. McI. Glen	London	12.6.38
887	A. H. Yates	London	9.6.38
770	A. H. Wilson	London	26.6.38
979	R. J. Roake	London	31.7.38
801	J. V. Campbell	Scottish Gliding Union	29.7.38
1019	H. L. Taylor	Yorkshire	17.7.38
951	R. R. Somerset	Derby and Lancs.	2.8.38
604	T. R. Walker	Midland	26.3.37
954	R. F. McCartney	Ulster	16.7.38
1023	G. Ryle	Oxford Univ. and City	26.7.38
1043	Miss P. A. U. Waldron	London	8.8.38
1042	A. D. Walker	London	12.8.38
1040	G. M. Robinson	London	8.8.38
1039	G. G. Dewsbury	London	12.8.38
1037	J. R. Sweeting	London	7.8.38
1036	A. R. Porter	London	8.8.38
1035	L. W. Peters	London	6.8.38
1034	Miss I. L. V. van Zanten	London	12.8.38
1033	J. J. Gallagher	London	6.8.38
1032	G. Canti	London	10.8.38
1030	E. J. Lamb	London	8.8.38
1029	H. F. Bremerman	London	6.8.38
1027	R. A. Kirkwood	London	13.8.38
1025	B. A. Powell	London	7.8.38
1024	L. C. Stenning	London	10.8.38
983	J. W. Esmonde	London	12.8.38

Some of those who helped to swell the total of 254 gliding certificates awarded last month. They are members of the London Gliding Club's September instruction camp.

No.	*Name.*	*Club.*	*Date.*
1045	S. N. Goyal	Midland	20.4.38
1046	C. L. Bowley	Midland	26.4.38
1048	D. Payne	Midland	18.4.38
1049	N. F. Smith	Midland	6.8.38
1050	F. A. Bailey	Midland	7.8.38
1051	W. E. Golcher	Midland	7.8.38
1052	H. K. Colcombe ...	Midland	3.8.38
1053	A. N. Williams... ...	Midland	3.8.38
1054	W. Swann	Midland	9.7.38
941	R. J. Owen	Midland	7.8.38
1055	H. C. N. Goodhart ...	Yorkshire	20.8.38
1028	H. F. R. Stettiner ...	London	21.8.38
1057	H. Hughes-Hallett ...	London	12.8.38
1056	R. A. McGowan ...	London	10.8.38
187	J. T. L. Mallard ...	Derby and Lancs. ...	2.8.38
677	N. B. Griffith	Midland	4.7.38
411	K. E. Edwards... ...	Midland	19.4.36
950	O. P. Wingfield ...	Midland	3.8.38
1064	R. L. Neill	Midland	31.7.38
1063	C. Carmichael	London	6.8.38
1061	J. V. Williams... ...	London	20.7.38
1065	S. B. Wilmot	Midland	24.10.37
633	J. J. Walker	Yorkshire	21.8.38
1067	G. R. M. Adler... ...	Derby and Lancs. ...	27.8.38
1066	E. G. Adams	Yorkshire	10.8.38
1073	H. H. E. M. Winch ...	London	4.8.38
1058	J. E. S. Temple ...	London	3.9.38
1076	G. V. Vaughan... ...	Yorkshire	10.8.38
1077	A. J. Cook	Yorkshire	24.8.38
1026	W. A. Villiers	London	11.9.38
994	G. B. Brook	Derby and Lancs. ...	4.9.38
1078	W. S. Ollis...	Yorkshire	26.8.38
1079	M. Ollis	Yorkshire	25.8.38
1081	W. A. J. Street... ...	Yorkshire	17.9.38
1089	H. M. Coombs	London	14.9.38
1091	G. H. Briggs	London	12.9.38
1093	S. P. B. de Moyse-Bucknall	London	4.8.38
1070	D. Mortimer	London	11.9.38
1017	C. J. Arnold	London	11.9.38
1071	G. E. T. Scrase ...	London	11.9.38
1041	A. F. Lovell	London	12.9.38
831	B. R. Faunthorpe ...	London	11.9.38
1107	M. P. Fellowes... ...	Oxford Univ. and City	11.6.38
1110	H. J. Curtis	Oxford Univ. and City	14.8.38
1112	A. M. Fitz Randolph...	Oxford Univ. and City	27.7.38
1113	F. H. N. Parry ...	Oxford Univ. and City	27.7.38
1114	K. G. Robinson... ...	Oxford Univ. and City	6.7.38
1115	R. T. Gething	Oxford Univ. and City	31.7.38

"C" Certificates

1006	R. E. Pears	Derby and Lancs. ...	8.7.38
616	E. R. Jarvis	Derby and Lancs. ...	2.7.38
996	J. Maw	Yorkshire	28.7.38
1009	R. D. Leakey	Yorkshire	26.7.38
943	D. R. C. B. de Sarigny	Norfolk and Norwich ...	30.7.38
940	N. W. Lee	Cambridge Univ. ...	31.7.38
1012	H. W. Moody	Derby and Lancs. ...	30.6.38
1016	G. B. S. Errington ...	London	5.6.38
875	W. Wedderburn ...	Cambridge Univ. ...	15.6.38
604	T. R. Walker	Midland	25.7.38
954	R. F. McCartney ...	Ulster	16.7.38
923	L. J. Huggett	Southdown	13.8.38
1029	H. F. Bremerman ...	London	13.8.38
915	P. D. Oliver	London	13.8.38
1045	S. N. Goyal	Midland	22.4.38
1046	C. L. Bowley	Midland	26.4.38
1049	N. F. Smith	Midland	17.8.38
1052	H. K. Colcombe ...	Midland	16.8.38
1054	W. Swann	Midland	9.7.38
1055	H. C. N. Goodhart ...	Yorkshire	20.8.38
1057	H. Hughes-Hallett ...	London	12.8.38
1056	R. A. McGowan ...	London	10.8.38
889	A. R. Colman	Norfolk and Norwich ...	20.7.38
883	R. T. Cole	London	3.4.38
855	R. C. R. Savage ...	Yorkshire	19.8.38
1034	Miss I. L. V. van Zanten	Yorkshire	20.8.38
677	N. B. Griffith	Midland	4.7.38
411	K. A. Edwards	Midland	19.7.38
1064	R. L. Neill	Midland	16.8.38
1065	S. B. Wilmot	Midland	27.8.38
950	O. P. Wingfield ...	Midland	20.8.38
762	H. S. Tovey	Yorkshire	19.8.38
702	B. R. Winstone ...	Yorkshire	19.8.38
633	J. J. Walker	Yorkshire	21.8.38
951	R. R. Somerset... ...	Derby and Lancs. ...	2.9.38
187	J. T. L. Mallard ...	Derby and Lancs. ...	31.8.38
968	B. Priestman	Yorkshire	19.8.38
1077	A. J. Cook	Yorkshire	27.8.38
1076	G. V. Vaughan... ...	Yorkshire	17.8.38
994	G. B. Brook	Derby and Lancs. ...	10.9.38
981	F. P. Sutton	Yorkshire	26.7.38
1079	M. Ollis	Yorkshire	27.8.38
1078	W. S. Ollis...	Yorkshire	27.8.38
1081	W. A. J. Street... ...	Yorkshire	19.8.38
1084	H. Gildemyn	London	12.9.38
577	W. H. Benson	London	14.9.38
1061	J. V. P. Williams ...	London	14.9.38
977	N. R. F. Mortimer ...	London	14.9.38
842	H. W. E. Huxley ...	London	12.9.38
770	A. H. Wilson	London	12.9.38
916	W. E. Wilbur	London	12.9.38
583	J. Quinn	London	12.9.38
826	V. M. Waugh	London	14.9.38
1067	G. R. M. Adler... ...	Derby and Lancs. ...	10.9.38
1107	M. P. Fellowes... ...	Oxford Univ. and City	25.6.38

British Gliding Association

Subsidy Payments.

The following further payments were made by the Gliding Subsidy Trustees on October 4th. These were all claims which had been passed by the Subsidy Sub-committee on August 3rd but had to be deferred at the time as the second subsidy half-yearly payment had not been received from the Air Ministry.

	£	s.	d.
London Gliding Club	361	16	3
Newcastle Gliding Club...	89	17	3
Norfolk and Norwich Aero Club (Gliding Section)	138	1	6
Southdown Gliding Club	53	13	11
Ulster Gliding Club	71	8	0
Yorkshire Gliding Club...	171	1	3
British Gliding Association	100	0	0
Total	£990	18	2

Second-hand Gliders and Plans

Contrary to statements which have appeared in the Press, the B.G.A. does not maintain lists of second-hand gliders, nor does it now supply plans and drawings of gliders and sailplanes. The latter are only obtainable from manufacturers who advertise regularly in The Sailplane.

News from the Clubs

Gliding in New Zealand

In a letter to the British Gliding Association, Mr. L. H. Parry writes from Christchurch, N.Z.:—

I imagine that from time to time scattered reports of gliding in this corner of the globe have reached your association. Unfortunately gliding commenced at an inopportune time during the depression years, and after enjoying a short term of activity it gradually lost favour, and at the present moment there are only one or two machines operating in the Dominion.

Now, however, matters have changed considerably, both economicaly and socially, so that, once properly commenced, gliding is assured of success. The present Labour Government, too, is especially sympathetic to aviation and vast sums are being spent on aerodromes and club movement in general. No doubt in the event of gliding clubs being formed on a sound basis, and the national aspect of the situation being presented to the Government, assistance will be forthcoming.

Personally, it suffices to say that I am very interested in the scientific view of soaring, and during the past four years have built some 60 models and conducted many trips into the mountainous regions of the Southern Alps in order to obtain a better understanding of aerodynamics. Living until recently in the afforested portion of the western side of the South Island it would have been futile to have attempted any full size work, for the bush, except in the cleared river valleys, extended to the sea shore. A little work was, however, done in a light side-by-side two-seater powered craft (Robinson "Redwing") and the results were very interesting, although they would be everyday facts to your people. Perhaps the work carried out over the glaciers may be of interest, so if you should care to hear of it I should be only too pleased to let you have the results.

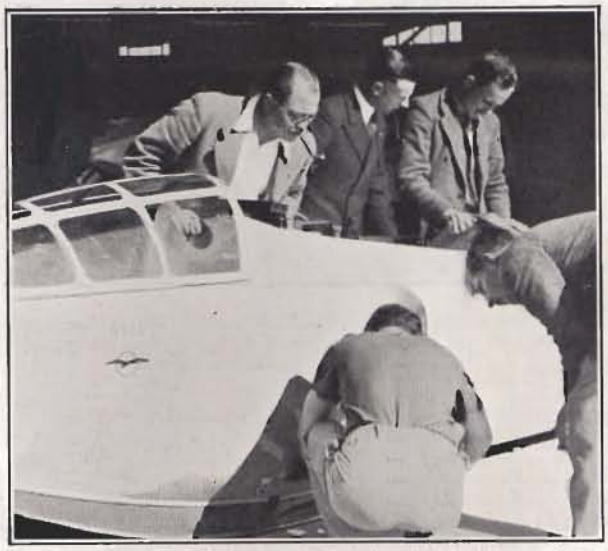
From the point of view of gliding and soaring the Canterbury plains on which Christchurch, where I reside, is situated is one of the best localities in New Zealand. For example, these plains merge north and south into subsidiary finger ranges of the main range, the Southern Alps, which are some 400 miles long and average 6,000 feet in height. The slopes over the lower portions are gentle and tussocky, and in places resemble the Downs of Dunstable, while the upper heights are the usual Alp formation of rock and ice.

The climatic conditions of New Zealand are, too, quite satisfactory in that we have a variety of winds of moderate velocity interspaced with one or two definite ones of the gusty nature. The southern portion of the Dominion is subjected to a more oceanic climate than the north, for it lies directly in the path of the cyclonic and anticyclonic depressions which cross the Tasman Sea from Australia. Taking the possibilities of gliding and soaring in New Zealand and comparing them with those of England, Germany, and America, I find that they are very favourable

Yorkshire Gliding Club

September.—On looking up last September's notes (1937) I find it recorded that more than one flight took place in which the pilot reached "Silver C" height. This September has been quite different; all soaring has been "on the hill" with more dud days than anything else. However, members have made good use of the meagre ration of weather ranging from just possible to *quite* impossible. The main feature has been the absence of wind, or more aggravating still, wind in a suitable quarter, but just not enough. Training has gone forward briskly and the foretaste of winter conditions has allowed an early commencement of winter activities. Many members, inspired by the successful high performance camp in July, are arranging for collective study in the theoretical work, navigation and map reading, and the "better machines" agitators will at last be justified, we hope, by a supply of "better pilots" to put in 'em!

In spite of grousing about the weather and the entire absence of thermal activity with the usual presence of fog and rain, we have managed 35 hours in the air during the month. On September 1st, with a N.W. wind, Cook (who is a power pilot from Scotland and had been on holiday at the club, taking his "A," "B," and "C") kept the hill warm, accompanied by Pick. A dud day followed, and on the 3rd eight pilots put in about fourteen hours between them, one being A. W. Higson, who took his "A," "B," and "C" when on holiday in July (at Sutton Bank) and found time to visit for a short week-end. He flew Slingsby's experimental KITE with the N.A.C.A. section. The 4th was a good training day with a light N.W. wind: Miss J. Wordsworth (sister of John Wordsworth) had her first training on the DAGLING. There were one and a half hours' hill soaring on the 5th, and nothing more until the 11th, which day yielded a grudging eight hours.



De-rigging the club "Gull" at the Yorkshire Club's Advanced Camp. On the left (with pips) is L. H. Heath, who was chief instructor during the camp. On extreme right, A. J. Deane-Drummond, who has just been awarded his "Silver C."

[Photo by A. St. G. Prynne.

On **Tuesday, September 13th,** Pick and Leaky turned up to fly in a 20 m.p.h. S.W. wind—conditions rather bumpy. Leaky was flying for the first time since he got his "C" in July, and unfortunately got into a spin at 400 feet, failed to recover and crashed. He was badly shaken and sustained some injury to his back, but is now out and about, in spite of plaster jacket; the NACELLED DAGLING was written off.

On **September 18th** there was a light S.W. wind, soarable until mid-day, then flat calm. Barker stupefied the multitude by taking SCUD III all the way to the Whitestone Cliff and back in no wind *whatever* from a 300 feet winch launch. He got in by about nine inches!

September 22nd.—J. W. Pick, instructed by Heath, qualified for his "A" and "B," and had dual in the two-seater; Pearson had a few winch launches.

September 25th.—Once again soarable in the morning, but after four pilots had snatched an hour and a half, the wind dropped entirely. Training was, of course, continued and Turnbull made good progress. A spot landing was organised and we think Heath won it. The "spot" was a disc with hole in the middle, and Heath stabbed it neatly; it stuck firmly under the towing hook on the KITE and refused to be dislodged. The machine was therefore towed in with the "spot" still in position and Heath demanded the garlands of victory. A. O. Pick had the last bite out of the month, flying his GRUNAU for the only two soarable hours of the day; incidentally, he has now completed 212 hours in sailplanes—142 of them this year. With the exception of two or three hours in the GULL, he has done all of it in his GRUNAU. It would be interesting to know if any pilot in this country has amassed a greater total this year.

The **Annual General Meeting** was held in the club house on September 18th, and was well attended. The secretary's report has already appeared in THE SAILPLANE; it was duly adopted together with the treasurer's report and balance sheet, and it was noted with pleasure that the club has, once more, had a record year in all its activities. Mr. Verity was re-elected chairman, and all other officers, being willing to continue in their duties, were duly re-elected.

Derbyshire and Lancashire Gliding Club

August.—Flying activities had to be suspended as usual for three weeks during the grouse shooting season, and the task that was set members this year was the concreting of the hangar floor; they responded nobly and a scene of rare activity ensued, to the detriment of many pairs of grey bags! The spectacle of so many sweating aeronauts, stripped to the waist and covered with cement dust, seemed to excite the interest of the Great British Public quite as much as more normal routine, and they would probably have paid their 6d. entrance money as cheerfully as usual; unfortunately we didn't think of it until afterwards! The effort was a success, for in the three week-ends some 50 tons of rocky clay and clinker were excavated, and about 70 tons of concrete put in, leaving only 40 tons of concrete to be put in by a contractor to finish the job.

Monday to Friday, August 1st to 5th.—Light variable winds provided splendid training weather, and a more or less impromptu members' camp resulted in "A's" for Mallard, Hallam, Adler, Fawcett, Brough, Smith, and Laverack, and "B's" for Somerset and Mallard—very satisfactory.

Saturday, August 27th.—Wind W., 15 m.p.h., which was very thoughtful of the Clerk of the Weather for our re-opening after the grouse shooting close period. Three of our visitors, Miss Johnson, G. Edwards, and Burnett, had the air to themselves in the morning and gambolled around in thermals up to 2,000 feet, but when club members turned up in the afternoon, there was just a smooth 300 feet to be had. Adler obtained his "B" later. Next day some "weather" arrived; incessant rain all day and cloud base well below the hill.

Monday, August 29th.—The N. wind swung round to N.N.W. for three hours during the afternoon while a long street of cloud was passing overhead, during which there was good lift up to 1,500 feet.

Flying time for month: 24 hours. Certificates: 7 "A," 3 "B," 1 "C."

Saturday, September 3rd.—Wind 25 m.p.h., N.W. Continuous rain and low cloud cleared off at about 6.30 so that some rough soaring could be obtained by those who wanted it. Burnett, who has joined us for a few months, was placed on the GULL list, and when he landed reported that owing to the moisture condensing inside he had been obliged to open the cockpit cover when he wanted to see what machines were in front of him. Godson's home-built KESTREL was on view and admired by all, including a little dog who walked carefully along the leading edge from the wing-tip up to the centre section and down again!

Mr. Godson rigging his home-built "Kestrel" at the Derbyshire and Lancashire Club's ground for the first time. During its construction, the shed in which it was being built caught fire, as a result one wing was burnt up and had to be rebuilt.

Sunday, September 4th.—Virtue rewarded! A gentle N.W. soaring wind for those who were ready before 11 o'clock in the morning and those who stayed after 5 o'clock in the evening, but a lifeless N. wind in between.

Saturday, September 10th.—Windless at first, but a light N.W. wind arrived in the afternoon and provided gentlemanly soaring for all. "C's" were obtained by Adler and Brooke, and a "B" by Smith.

Sunday, September 11th.—Cloud on the hill and drizzle all day. We would not mind so much if these conditions were not always accompanied by a soaring wind. Ground-hops for the hardy.

Saturday, September 17th.—Wind 25 m.p.h., S.W. A G.B. was dragged out and flown a few times, but conditions were not very pleasant.

Sunday, September 18th.—Wind W.S.W., 10 m.p.h. Conditions were on the verge of being soarable, and as the air was smooth, pilots let themselves get lower and lower after winch launches before turning in to land; at last the inevitable happened—G.B. left it until too late and was forced to land across wind on a bad patch of ground; off came the skid. A long line of black cloud passing overhead provided lift to about 700 feet for about half an hour and was followed by a shower of torrential rain. Swale, of course, in the BUSSARD was caught in it as usual! The wind dropped completely afterwards and Smith in the FALCON III, on passenger circuits, made a perfect landing back at the starting point; but he had forgotten the sopping grass. The machine went on and on and on, and but for the prompt action of Thomas, who tackled it rather like a runaway horse, might well have crashed into the stone wall at the end. Actually it had just 10 feet to spare!

Week-end, September 24th and 25th.—Calm or light variable winds. Excellent training weather, and one result was a "B" for Brough.

Flying time for month: 31¼ hours. Certificates: 2 "B," 3 "C."

London Gliding Club

Cross-country Flights.—There were several of these during the first week-end of September.

On Saturday, September 3rd, Hiscox took his GULL 57 miles to Virley Salcott, just short of Mersea Island, on the East Coast. He was trying to get to Southend, but mistook the Blackwater estuary for the Thames.

Fox, on the same day, did one of his wander-round-the-country flights in the RHÖNADLER. He flew over his home at Rickmansworth, 16 miles to the S.S.E., and from there proceeded 13 miles N.E. to Hatfield Aerodrome, where he landed. He said it was difficult to get up high in the first place, but once up it was easy to stay up, and he was between 3,800 and 4,200 feet most of the time.

The Upper Air report from Mildenhall at 6.15 a.m. shows, apart from a ground inversion which no doubt vanished later, that the lapse rate was equal to the wet adiabatic up to 6,710 feet, above which was an isothermal layer 1,600 feet thick. The weather map shows Dunstable to have been south of the tail-end of a warm front.

Through Clouds to Lympne.

Sunday, September 4th, brought a moderate N.W. wind behind the cold front.

The most spectacular flight (had it been visible) was by Wills, who took his MINIMOA 87 miles to Lympne in the hopes of getting there high enough to cross the Channel. He was most unfortunate, getting the requisite height three times on the way there, but not having it on arrival. He was launched about 11 a.m., left Dunstable at 11.30, and arrived at Lympne at 3 p.m. He had flown on a compass course and had been more or less in cloud the whole way. Twice he got up to 8,000 feet and then once to 9,000, which would have been quite enough to cross the Channel with if it had occurred at the right place. But everything became stable on the coast. After the landing he had the annoying experience of seeing huge cumulus clouds, rising to 10,000 feet, going overhead.

Nicholson also attempted Lympne in the RHÖNSPERBER, but missed the best of the lift and landed 22 miles away between Enfield and Potter's Bar. He had found cloud base at 2,300 feet, and had climbed 400 feet inside cloud. But a second cloud melted on him, and a third was no good and let him down.

Of the others, Hiscox went about 12 miles in the GULL to St. Albans, and Crease took the Imperial College KITE 13 miles to Sarratt Hill, north of Rickmansworth.

Somebody's car, left insufficiently braked, did a short cross-country glide from top to bottom of the hill, running over a KADET's wing tip on the way.

Instruction Course.—The final course of the year was held from September 9th to 18th, and was attended by 35 people. Soaring conditions were good for the first few days, when nine certificates were taken, but deteriorated towards the end, and owing to this and the large number of beginners, many of the members who passed "A" tests were unable to get "B's" in the time available. Certificates taken during the course totalled 39: 22 "A," 8 "B," and 9 "C." One member also flew the duration test for "Silver C." Total launches for the course: 1,320; flying time 27 hours.

On the 15th, during the course, we were delighted to see a strange KITE appear 5,000 feet up, and then land to disclose John Pringle from Cambridge. The flight is described elsewhere.

Flying Charges.—There have been some recent changes in these; and, as the information may be useful to those who are forming new clubs elsewhere, here is a complete list of the present charges.

Ground-hops: 3s. per day.

Descents from hill-top in PRIMARY, NACELLE, or KADET: 3s. per day.

Soaring in PRIMARY, NACELLE, or KADET: 3s. first 20 mins.; 6d. each subsequent 10 mins.

FALCON I and TUTOR: 3s. first 15 mins.; 6d. each subsequent 10 mins.

GRUNAU BABY: 4s. 6d. first 30 mins.; 6d. each subsequent 10 mins.

RHÖNBUSSARD: 9s. first 30 mins.; 6d. each subsequent 10 mins.

FALCON III two-seater: club passengers pay 5s. for first 15 mins. and 6d. each subsequent 5 mins. for soaring; 2s. 6d. for winch launch without soaring. (Members wishing to gain soaring experience for "C" attempts are given preference as passengers.) Non-members pay double these charges and are made members for the day to comply with insurance conditions, etc. Pilots who have given five or more passenger flights during the day are exempt from flying charges.

Winch launches (followed by less than 5 mins. flying): 1s. 6d. in GRUNAU BABY; 4s. in RHÖNBUSSARD.

Private owners pay 1s. 6d. per winch launch and 1s. per launch from hill-top (including haul up hill). Once in the air they are charged nothing further.

On week-days other than Wednesday and Saturday, a minimum of 5s. is charged for taking out either a club or a privately-owned machine.

A flat rate of £2 2s. is charged for cross-country flights on club machines, i.e., any flight after which, as a result of landing outside the flying ground, the machine has to be dismantled for return to the club. Members making cross-country flights must pay any charges in connection with returning the machine to the club.

Members are responsible for paying flying charges *on the day of flying*. An additional charge of 1s. will be made when flying charges are not paid on the day of flight.

Summary of Flying.

Week ending:	*Days of Flying*	*Ground-hops*	*Timed Flights*	*Flying Time hrs.*	*mins*
Sept. 4.	4	99	232	59	51
,, 11.	4	440	157	21	3
,, 18.	7	677	277	46	43
,, 25.	3	116	18	—	37
Oct. 2.	3	23	39	11	40

Flying at the Reigate site is not included in these figures.

The total flying time since January 1st is 1,426 hrs. 58 mins., with 12,084 launches.

Certificate Flights.

August 31st.—Fry, "A"; Winch, "A"; Temple, "B."

September 3rd.—Carmichael, "C"; Mrs. Crossley, "C."

September 4th.—Fender, "A"; George Wardle, "A"; G. Wardle, "A"; Bucknall, "B"; Winch, "B."

September 11th.—Marshall, "A"; Coombs, "A"; D. Mortimer, "B"; Scrase, "B"; Arnold, "B"; Villiers, "B"; Faunthorpe, "B."

September 12th.—Gosschalk, "A"; Lovell, "B"; Briggs, "B"; Wilbur, "C"; Waugh, "C"; Wilson, "C"; Huxley, "C"; Quinn, "C"; Gildemyn, "C."

September 13th.—Dobell, "A"; Holloway, "A"; Bonham-Carter, "A"; Matthews, "A"; Miller, "A."

September 14th.—Wight, "A"; Blakeway, "A"; Coombs, "B"; Mortimer, "C"; Williams, "C"; Benson, "C."

September 15th.—Harmer, "A"; Glover, "A"; Dobbie, "A"; Holdup, "A"; Wilkinson, "A"; MacLucas, "A"; Miss Helmore, "A"; Ashdown, "A"; Corbett, "A"; Dizer, "A"; Lart, "A"; Appleton, "A"; McKelvie, "A."

Reigate Site.

There has been flying at Reigate every week-end since September 17th. Dudley Hiscox's GULL, Ann Edmonds's GRUNAU, and the Cooper-Price BUSSARD have flown every week-end, and the Pasolds' BUSSARD and the GREY KITE on the week-end of the 24th. Although the wind has been light most of the time, the whole of the six-mile beat has been usable, and continuous flying possible.

Sunday, September 18th.—The first "C" test flight was made to-day. John Copeland, in the PRÜFLING he shares with Hatcher, soared well for 13¾ minutes. Hatcher also made soaring flights in the same machine. "Bonzo" Heath and Ann Edmonds flew the latter's GRUNAU, and Joan Price and Dudley Hiscox flew together at between 1,300 and 1,400 feet in the BUSSARD and GULL respectively, each putting in over an hour's flying. The ceiling of the two machines appeared to be identical.

The GULL and PRÜFLING were also flying late on the previous afternoon—late because there was at first insufficient crew to rig and launch. During the week-end the wind was straight up the hill.

On Friday, September 30th, the Cambridge KITE, flown by John Parker and Barry Jones, and Ann Edmonds's GRUNAU were able to maintain a continuous height of 1,000 feet above the hill-top on hill-lift alone, with thermal lift, which was rough enough to be almost hopeless, and cloud lift, which was dead smooth, up to 2,000 feet. Ann Edmonds reached 2,200 feet a mile up-wind from the hill, and flew two miles up-wind over Redhill town. One thermal in which both machines circled was found to be over half a mile across, but was left at little over 2,000 feet as the wind, which was about thirty m.p.h. at 1,500 feet, made it otherwise impossible to get back to the hill.

An average of over five hours' flying has been done every Sunday, and four and a half hours were flown on the Friday by the two machines.

The PRÜFLING, owned by Copeland and Hatcher, has also been flown regularly, and Mr. Sanders, by whose invitation flying is carried out, was given some winch hops in this machine

Other Gliding Clubs

Suffolk.—A Suffolk Gliding Club is in process of being formed, with headquarters at Newton Green, near Sudbury. All gliding enthusiasts in Suffolk and Essex are requested to get in touch with John Walters, Little Cornard, Sudbury, Suffolk, who will also be pleased to hear of any equipment for sale.

Kent.—The club secretary, Miss R. H. Sinclair, has now returned to live in the neighbourhood of the club. Address: Lenhurst, Harrietsham, Kent (Tel.: 378).

West Riding.—The Pennine Gliding Club was formed at a meeting held in Holmfirth on September 14th. Mr. J. B. Finlayson, of 17, Clare Hill, Huddersfield, was appointed as secretary. A site has been found at Meltham. At a meeting held on September 21st the club decided to accept an offer of affiliation to the Yorkshire Gliding Club. The terms of the offer, it is reported, were that the Yorkshire Club would finance the new club, providing one glider for the first 12 members, two for the first 20, or three for the first 25 members. The reason for the offer, it is stated, was that the Yorkshire Club had made the experiment of forming a branch club in Durham and the experiment had proved so successful that the club were anxious to start other clubs on the same basis.

Dorset.—Since the end of March the Dorset Gliding Club has been operating at Maiden Newton with an "Aeronca" from which the engine has been removed. Members of the club who have flown the machine, it is reported, "very much liked its response to the controls."

Norwich.—The gliding branch of the Aero Club, a local paper states, has acquired a KIRBY KITE, in which both Mr. Firman and Baron de Sarigny have climbed to 4,000 ft. The latter was not dressed for such a high lapse rate and had to come down because he was "almost frozen stiff." Other machines in the club fleet are an H-17, a nacelled DAGLING with pneumatic-tyred wheels, and a ZÖGLING primary. The KESTREL has been crashed.

Croydon.—The Croydon Club's site is stated to be at Titsey Hill.

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