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THE SAILPLANE & GLIDER

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CONTENTS.

The offices of "The Sailplane & Glider" overlook this famous old gateway, the Chancery Lane entrance to Lincoln's Inn.

SOME URGENT QUESTIONS

IN recent issues of THE SAILPLANE certain controversial matters have been raised in correspondence—some of them serious, others not so serious. There is no doubt that, apart from the present untoward financial position of the British Gliding Association, the movement generally is faced with many difficult problems. The manner in which it faces up to these will determine whether or not it will continue to prosper. We make bold to affirm that the present financial position is, perhaps, the least important of the questions now in evidence. It may be, even, that lack of funds is a blessing in disguise, for it has served to awaken people to other and more vital matters which concern motorless flying.

The truth is that during the last year the British Gliding Movement has made very considerable progress. And one of the questions now before us is the form which the future of the movement is to take, and how it is to be organised and controlled.

We do not propose, at the moment, to express an opinion on this or any other matter. Rather do we desire to see other opinions freely ventilated in these pages so that the feelings of those engaged in motorless flying in various parts of the country may be accurately gauged.

In the issue of October 28th, we published an exceedingly interesting article from the pen of Mr. Humphries, on the Gliding Movement and its Control. In this article many controversial points were raised and we had hoped to obtain several other views on them. What is the end in view in developing motorless flying? How should the movement be organised to ensure smooth and progressive running? What is the ideal controlling body? Everybody concerned with the movement should have definite views on these and other cognate matters. Mr. Humphries has not hesitated to express his opinion in an outspoken manner. Why don't *you*? Tell us, for example, why are you in the Gliding Movement? What is the ideal which you hope and expect to see attained? And what are your own personal ambitions in regard to it?

For three years now we have had experience of control by the British Gliding Association. Is this the best form of control? Is it the most efficient and economical? Can you suggest something better?

In the last issue of THE SAILPLANE Mr. Norman Wright, of the Dorset Club, suggested that "power gliding" was the real key to success, and in the present issue Mr. Lowe Wylde champions the cause of this hybrid form of aviation

in no uncertain terms. Is this the real solution? Are we aiming at developing soaring flight for soaring flight's sake, or is the British Gliding Movement simply a means of providing a cheap form of aviation which shall be available for the masses? Think about it, and let us know your opinion.

Then there is the question of finance. Should the Gliding Movement receive a Government Subsidy, or should it be self-supporting? And if a subsidy is given, how should it be allotted?

The publication, in recent issues, of details of the development of motorless flying in other countries—Switzerland, France and Poland—has not been merely an effort to provide interesting reading. These articles have been obtained with the definite idea of stimulating thought and of promoting a discussion as to whether all is well with our own Movement and with our methods.

What has been written reads more like a questionnaire than a leading article. At any rate, it contains some leading questions, and until these are answered and the correct solutions supplied, the future of the movement will continue to remain in the balance. We repeat that the British Gliding Movement has progressed. It is at the moment, in an inherently healthy state. There is no lack of ideas. We are progressing in pilotage, design, and construction; the best methods of primary training are receiving consideration, as witness recent correspondence on the subject in these columns. What is now required is definite guidance on the future organisation and control of the movement, and a clear idea as to the goal towards which activities should be pursued. If these larger matters are settled satisfactorily, the details will be arranged without difficulty.

WOLF HIRTH AT DUNSTABLE.

Arrangements have been made to organise a camp at Dunstable from December 26th to January 4th, and it is with pleasure that we learn that the services of the well-known German pilot, Wolf Hirth, have been obtained. The camp will be open to anybody, and we need hardly state that such an unparalleled opportunity of obtaining expert motorless flying training occurs but rarely.

The fee for the complete ten-day course will be seven guineas for non-members of the London Gliding Club. This will include full flying training, and two meals a day, but *not* accommodation.

ZYGMUNT LASKOWSKI.

We regret to announce the death of the Polish gliding pilot, Zygmunt Laskowski, who was killed on October 21st in an accident, when he was endeavouring to establish a new duration record.

He commenced his last flight at 7 a.m. on an S.G. 28 Sailplane, and remained in the air for five hours. A violent, squally mountain wind which sprang up suddenly forced him to land, but, at the last moment, a sudden squall overturned the machine, and the pilot was thrown out. When found by peasants it was discovered that both legs were broken and the skull fractured. He had not lost consciousness, however, and, with great presence of mind, gave instructions that the instruments should be removed from the damaged plane.

The general opinion appears to be that Mr. Laskowski might have saved his life by using his parachute, but that he was anxious to save his machine. In the words of one of his countrymen, "he died like a soldier at the post of honour."

An article by Mr. Laskowski on the Gliding Movement in Poland appears on another page.

SOARING FLIGHT COMES OF AGE.

A typical account of the doings of any early gliding experimenter is never complete without its description of how at times, for a few brief seconds, he would actually seem to be hovering motionless in the air; it is usual to add some such words as: "There is little doubt that, given further opportunities for practice, prolonged flights ot a true soaring nature . . ." and so on. But such further opportunities would somehow never materialise, and an occasional few seconds now and then was the nearest these worthies ever got to the pleasures of real soaring.

About 1909 things began to look up; Mr. Gordon England was installed in a WEISS glider and pushed over the edge of Amberley Mount into the blue, he being then an *ab initio*, without any of this preliminary fuss about A and B tests that we moderns have to go through, and he is stated to have kept up on one occasion for about two minutes. To deny that the glider was under proper control is no reflection on the skill of the pilot; you cannot control a glider without controls to control it with, and by all accounts these were almost entirely lacking in the WEISS machine.

The modern criterion of the ability of a pilot to soar indefinitely is that he should keep his glider under control for five minutes above the level of his starting-point. Judged by these standards, the honour of achieving the first successful soaring flight belongs to Orville Wright, as far as is certainly known. Towards the end of 1911 he suddenly took it into his head to resume gliding experiments at Cape Cod, in North Carolina, and, after several attempts, succeeded in hovering for 9 minutes 45 seconds above a sand dune, in the course of a flight which lasted 11 minutes altogether.

The machine was a biplane, but differed from the original gliders of 1900 to 1903, in that the elevator was right at the back, behind a pair of rudders, while another rudder was placed in front, where the elevator used to be. A contemporary photograph shows also a pole sticking out still further forwards, with what looks like a little weight dangling from its tip—possibly a packet of nails, or a bag of nuts (and bolts). Probably this arrangement of the control surfaces was subject to variation, for Ralph Barnaby, in his book, "Gliders and Gliding," states that the object of these trials was "to try out certain automatic stability devices." But Mr. Barnaby adds that it was "not for any particular interest in gliding as such" that his countryman tried and finally succeeded in achieving real soaring.

This slight upon motorless flying should not go unchallenged. Fortunately there is evidence to the contrary, including the Wrights' own writings. C. L. M. Brown puts it thus in "The Conquest of the Air" (a book which is short and cheap, but rather originally written, dealing with the subject rather from the point of view of the psychology of the various inventors): "The improvements in the aero-engine . . . had given his (Wilbur Wright's) invention a capacity for flight greater than he and his brother, in the days of their first success, had ever hoped to see. Yet he was not entirely satisfied. To the end he remained a true disciple of Lilienthal, and felt that the glider was the essential factor in heavier-than-air flight. His imagination was continually haunted by recollections of the soaring birds . . . ; it seemed to him that if only

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man could wrest this secret from the soaring birds it would be possible to construct a machine capable of sustained flight by virtue of its aerodynamic efficiency alone." And Wilbur Wright himself, writing in 1908 of his early experiments, began: "In the field of aviation there were two schools. The first, represented by such men as Professor Langley and Sir Hiram Maxim, gave chief attention to power flight; the second, represented by Lilienthal, Mouillard, and Chanute, to soaring flight. Our sympathies were with the latter school . . . ." So that settles it.

The subsequent history of this duration record is interesting. For close on ten years it remained unbeaten; only an isolated experimenter here and there came anywhere near achieving even a "C" flight. The most persistent of these was Harth, who in 1916 flew a HARTH-MESSERSCHMIDT glider for 3½ minutes without losing height, above the Heidelstein mountain, three miles south-east from the Wasserkuppe. His efforts were rewarded five years later, when on September 13th, over the same spot, he was the first to beat Wright's record with a flight of 21 minutes 37 seconds in a wind of about 25 m.p.h., landing only 40 feet below his starting level. Martens eight days before had flown for 15 minutes 40 seconds, but lost 1,600 feet of height, and is unlikely to have remained above his starting-point for long. The same applies to a flight of Klemperer's on August 30th, when he took 13½ minutes to glide from the Wasserkuppe to Gersfeld.

In the previous year many attempts had been made at the Rhön, most of them being mere prolonged descents, though Klemperer had soared once for 45 seconds in a wind of about 40 m.p.h. In the same year (1920) Peschkes had kept up for 2½ minutes in a tailless glider and landed near the starting-point. This was on August 15th, in the Black Forest. The pilot performed a figure of 8, thus being perhaps the first to anticipate the modern technique of soaring along a ridge.

If a separate record for pure hovering flight be allowed, it is claimed by Alfred Gymnisch (one of the few historians of the Rhön) that the first to supersede Wright's record in this particular department of soaring was Hackmack, who on August 24th, 1922, remained poised over the Pferdskopf (a buttress on the Wasserkuppe ridge) for a quarter of an hour, during a flight which lasted 1½ hours in all.

As to the precise date of this early flight of Orville Wright's, none of the usual authorities seems to know it for certain, beyond the fact that it took place in the year 1911. Kronfeld alone gives the date as October 24th, but an examination of the files of *Flight* of about that time has failed to confirm this or, indeed, any other date. It is, however, mentioned there that Wright was "practising the art of soaring" at that time, as well as experimenting with an "automatic stabiliser," and on November 11th a photograph is published showing his machine "stationary in the air." A flight of 1 minute 15 seconds in the middle of October is recorded, during which the glider remained motionlesss for 5 seconds at a height of 125 feet, and again at 60 feet.

But a curious fact of aeronautical history is brought to light in the issue of *Flight* for November 11th, 1911. A quotation is given, via *L'Aero*, from the *Petit Havrais* of September 17th, 1909, describing a flight by a M. Raymond Hekking at Larcouet, near Havre. This experimenter is reported to have gone up in a biplane glider of seven metres span and 25 square metres area, risen to a height of 25 metres and remained stationary for five minutes in a wind of 30 to 32 km. (19 to 20 miles) per hour. He is said to have controlled the machine by moving his body, in the manner of Lilienthal. Did he, or did he not, soar for a full five minutes? Would he have qualified for his "C" ticket? Probably we shall never know, so must fall back on Wright's achievement of 1911 as the first certainly recorded soaring flight of more than five minutes' duration.

Soaring flight, then has come of age. It has attained its "majority." Having put away childish things, it has achieved manhood, and can now put forward a legitimate claim to be taken seriously. For the past few years it has been like a youth in his late 'teens whose chief aim in life is to be treated as a man, and will not tolerate the slightest hint that he is not yet grown up.

Twenty-one years old! And perhaps in another twenty-one years the ornithologists, even the more famous ones, will have become aware that the secret of soaring flight has now been solved, and will cease to make assertions to the contrary in their text-books.

A. E. S.

IMPORTANT NOTICE.

THE SAILPLANE AND GLIDER is published on the 2nd and 4th Fridays in each month.

Club News and Copy intended for a particular issue must reach the Editor not later than the first post on Thursday morning of the week preceding publication.

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THE DEVELOPMENT OF THE GLIDING MOVEMENT IN POLAND.

By ZYGMUNT LASKOWSKI.

The "Lwow" flying over the Wasserkuppe.

[*The following interesting account of the growth of the Gliding Movement in Poland has been written specially for* THE SAILPLANE *by Mr. Laskowski, of the Aero Club, Lwów, who was head of the Polish contingent at the Rhön Competitions this year. Mr. Laskowski has, unfortunately, since been killed in a gliding accident.*—ED.]

The first attempts at gliding in Poland were made in 1923. In the summer of that year, the Association of Polish Airmen organised a gliding competition, which took place at Bialka in the Lower Carpathians. Nine machines took part in this meeting. The majority of the designers were either active or reserve officers of the Polish Air Force, while other machines were designed and built in Polish aircraft factories. One was constructed by the members of the Aeronautical Students' Association in Warsaw (the organisation which was responsible for constructing the winning machine in the last Round-Europe flight). It is remarkable that this last glider, although the first product of this now famous Association, was the only one on which a number of flights were carried out successfully. On this open type glider Mr. T. Karzsinski (the same pilot who took part in the last International Touring Competition) established the Polish record, for that period, of 3 minutes 26 seconds. This flight was destined to remain the Polish record for the next five years.

Two years later, the Association of Polish Airmen intended to organise the second gliding competition. At that time the Germans had created several records at Rossiten, which is situated on the coast near the Polish frontier. Accordingly the Association of Polish Airmen sent an expedition to find a soaring ground on the Polish coast. Considerable difficulty was experienced in finding anything suitable, and, finally, some hills near Czdynia were selected. This choice proved to be very unfortunate, for, although 21 gliders took part, some of which were of good construction for that period, not one flight exceeded one minute in duration.

The non-success of this competition had a fatal influence on the development of motorless flying in Poland. The young designers, particularly the Aeronautical Students' Association in Warsaw, began to work exclusively on power-driven aircraft. Thus ended the first period of Polish motorless flying.

The Second Phase.

At the end of 1926 there was only one small group of young men in Poland which continued working on gliding problems. This was the Aeronautical Students' Association in Lwów. One of the students, Mr. Waclow Czerwinski, designed a new type of glider, and with his companions worked on its construction in very difficult conditions for several years. It was intended to complete the machine in 1925, but it was not actually ready till 1927. There still remained, however, the question of a pilot and of a suitable soaring ground.

Just at this time Mr. Szczepan Grzeszczyk, a student from Warsaw, arrived at Lwów to study in the mechanical department of the Technical High School. This student

had worked for some time previously in a technical office of the Polish Air Force, and had had an opportunity of completing a course at a military flying school. He was, thus, just the type of man to work on new technical air problems. The Aeronautical Students' Association in Lwów elected him as Vice-President, and from that moment he began to work on motorless flying. In February, 1928, was founded in Lwów a Students' Aero Club.*

The first action of the new club was to organise, in collaboration with the Aeronautical Students' Association, a motorless flying expedition to Zloczów, south-east of Lwów, which was chosen by Czerwinski and his colleagues as a soaring ground.

At this time we possessed only one glider, the C.W. I, constructed by Czerwinski. The choice of the ground at Zloczów proved to be good. In the first flight the machine *soared* over the heads of those people who had remained at the starting point. After soaring for seven minutes, Grzeszczyk, the pilot, landed voluntarily not far from the starting point. This was *the real beginning* of soaring in Poland (May, 1928).

Alas! the second attempt finished very badly. Through lack of experience at that time we placed the glider in a bad starting position in a turbulent wind area. As a result the pilot was seriously hurt, and the machine completely destroyed.

Fortunately there were under construction at the time two new types of glider, the C.W. II and the C.W. III, both designed by W. Czerwinski. The C.W. II was designed originally as a primary type, but long before the completion of this machine Czerwinski was coming to the conclusion that for the first step in motorless flying this type of glider with a very efficient but unstable aerofoil (Gottingen 535) would be too difficult. He, therefore, designed a new type, the C.W. III as an equivalent of the German ZÖGLING, and converted the C.W. II to a secondary machine by the addition of a nacelle.

Government Assistance.

As these were nearing completion, a high official of the Air Department of the Ministry of Communications, Mr. Adamowicz, happened to see the two gliders. Thanks to him, and to Col. Filipowicz, the Chief of his Department, we received a subsidy of 5,000 zl. (about £120 at that time), which was a big sum for our modest organisation, and we were able, at last, to finish the two machines.

The "Czakja II" in flight. Below is the "C.W. III" being brought back to the start after landing.

The "C.W. III," the Polish equivalent of the "Zogling."

During the first years after the Polish-Bolshevist war only theoretical and technical work was possible. When we first tried to organise flying courses, we decided to form Students' Aero Clubs, the aims of which were to bring together people who were interested in aviation from the sporting point of view.

In the Autumn of 1929, a second soaring competition was organised, this time at Bezmiechowa in the Lower Carpathians. The ground was chosen by W. Czerwinski as he was familiar with the district as a ski-ing ground. Before taking the machines there, Mr. Grzeszczyk inspected the site and found it very promising.

Autumn is generally a beautiful season in Poland. Our expedition waited a long time but no wind came. People were discouraged, with the exception of Grzeszczyk, whose patience was rewarded with success. On November 11th, 1929, came suitable atmospheric conditions, and our champion soared continuously for 2 hours 11 minutes. The news was cabled throughout Poland, and, as usual, success brought friends. From this moment all the authorities as well as the public in Poland began to believe and take an interest in motorless flying.

We then placed the training of pilots as the first step in our programme, and Grzeszczyk remained as the leader of the whole Movement, and became the Chief Instructor. This decision was, in my opinion, very important. The training of young airmen is the principal purpose of motorless flying. The second purpose is the opportunity for designers to make full scale study of technical problems. Therefore the soaring question develops itself, when it is taken in hand by an organisation of young people. In Germany the part taken in soaring progress by Akafliegs is well known, but in our country all this work was done by the various students' organisations. These groups were later merged with the regional aero clubs, but students still form the greater proportion of members.

In our students' Aero Clubs everybody wants to fly, but only a small number of them are admitted as Reserve officers to the military flying school, and among the Polish youth, still fewer can afford the high price of private motor flight tuition.

For this reason the third expedition to Bezmiechowa was chiefly a period of training for pilots who had not yet flown gliders. At the same time Grzeszczyk began to train *ab initios* who could not fly engined aircraft. Each year, since 1930, the Aero Club of Lwów organises at Bezmiechowa, two periods of motorless flying, each lasting from six to nine weeks. The first one is in Spring and the second in Autumn. The Spring period is reserved chiefly for school work (for "B" pilots who wish to

* The two Aeronautical Students' Associations—one in Warsaw, the other in Lwów—formed the groups of future aircraft engineers.

obtain the " C " certificates); the Autumn period is mainly for advanced training of " C " pilots.

The weather at Bezmiechowa in Spring is mostly calm with weak winds, very suitable for schooling. Autumn brings just the opposite conditions, giving good opportunity for advanced training.

In the autumn of 1930, a high performance machine was used at Bezmiechowa for the first time. This was a two-seater C.W. IV designed by W. Czerwinski, and on it Grzeszczyk established several new Polish records: 2 hrs. 30 mins. in solo flight; 1 hr. 2 mins., and 1,700 feet above starting point, with passenger. But these were only the first trial flights. The machine was not completely finished at that time, and returned later to the site. However, Grzeszczyk, who had completed his studies a few months earlier, had to return to his work.

New Machine Types and Some Records.

During the Spring session of 1931 we received a new type of primary type glider, a CZAJKA, designed by A. Kocjan, of the Aeronautical Students' Association in Warsaw, where it was built.

For primary training we use the CZAJKA III with short span, and for C certificate flights the CZAJKA I with normal span. After a total of 5 hours' flying time our pupils are transferred to the CZAJKA II, which is the Mark I with nacelle.

The Lwów Aeronautical Students' Association also worked, and redesigned the very good C.W. III into a new type C.W.J.—a collaboration of W. Czerwinski with W. Jaworski. The new machine is much smaller, lighter, and cheaper, but as good for primary training as the original C.W. III.

Autumn, 1931, gave several Polish records. On the third day of the training period Capt. Jack flew for 3 hours 12 mins., while three days later, a young aeroplane pilot, Janikas, when flying for his C certificate, remained in the air for 5 hrs. 8 mins. Both flights were on the CZAJKA I. Three days later the writer flew a CZAJKA II for 5 hrs. 56 mins., reaching a maximum height above the starting point of about 2,300 feet. Four days later Grzeszczyk came to Bezmiechowa with a high performance glider of his own design called the LWOW. He flew from Warsaw via Lwów to the site, a distance of about 300 miles, towed by an aeroplane. The day after his arrival he beat the record by flying for 7 hrs. 52 mins. During the last two hours of this flight there was no wind, and he soared exclusively in thermal currents. For the first few hours he flew along the North face using a North wind, but this died away. In the evening, on the opposite slopes of the mountain, he found good thermal currents over a forest, and there he soared for the last two hours. When the wind was still strong, the writer soared a CZAJKA I, and as Grzeszczyk often pushed out from the hillside and lost height before returning to it, I sometimes found myself above him. Seeing him making turns below me, I was amazed that his 55 feet span LWOW was no less manœuvrable than the CZAJKA I of 35 feet span, the latter being, I should say, very controllable, even for its small size.

The configuration of the ground at Bezmiechowa is such that our designers must pay special attention to the manœuvrability of gliders before we begin to think of thermal flights.

In the same year the Aero Club of Lublin built two gliders, one primary and one high performance type, both designed by A. Nowobny, a companion of Czerwinski, in collaboration with J. Nalerzkiewicz. With the primary and with an old C.W. III (of the Aero Students' Association of Lwów) this Club organised a training period at Usbjanowa, some ten miles south-east of Bezmiechowa, on the same mountain range. This ground is as good, and sometimes even better than ours for soaring, but is very difficult for training. Nevertheless, 7 A, 7 B, and 7 C certificates were obtained. Lieut. Kurowski, the chief instructor, who learned gliding at Bezmiechowa the previous spring, accomplished a flight of 3 hrs. 58 mins. at Usbjanowa.

In the Aero Club of Lwów we believe that even Bezmiechowa is too difficult for primary training, and we now use for this purpose some hills near Lwów, where our pupils fly every week-end in winter. Those who obtain B certificates spend two or three weeks at Bezmiechowa for further training.

The "Czajka II" designed by A. Kocjan. This machine is popular in Poland as a training sailplane.

Our capital, Warsaw, has no grounds in proximity even for primary training, so the local Aero Club uses, during the summer holidays, the grounds at Polichno, near Kielce, which belong to the Aero Club of Kielce, and both clubs organise courses there at regular intervals during spring and summer. The site is very suitable for primary training and, for advanced work, their pupils come to Bezmiechowa.

At the Wasserkuppe.

During the past few years Polish gliding leaders have taken part, as visitors, at the Rhön gliding competitions. At last we came to the conclusion that for further development it was necessary to go to the Rhön as competitors. Therefore we arrived at the Wasserkuppe with two sailplanes: LWOW to take part in the training contest, and for the performance contest we presented an entirely new machine, the S.G. 28, also designed by Grzeszczyk. The latter was finished only a few hours before leaving Warsaw, and only two short glides had been made on it. The flights on this glider at the Rhön were, therefore, of rather an experimental character.

There was no time for varnishing, and the wings, in consequence, were badly doped, considerably reducing the efficiency of the machine.

Some weeks before the Competition, Grzeszczyk had a serious accident while taking off at Bezmiechowa, his machine, the LWOW, being badly damaged, and the pilot seriously injured; he was still suffering from the effects while at the Wasserkuppe.

I believe our pilot was the only competitor in the performance contest that year who was flying over the site for the first time. Nevertheless, he was one of the list of ten competitors making flights of more than 1,000 feet above starting point, out of an entry of thirty pilots, mostly experienced in Rhön flights.

As for the training contest, our entry, the LWOW, had been repaired hastily after a crash at Bezmiechowa, with a consequent loss of efficiency. But the pilot, Lopatnivk, who is a leader of the Bezmiechowa gliding centre, gained third place for Aggregate Flying time, in the class for advanced competitors. He also gained second prize for the Aggregate Height contest.

Lopatnivk has the honour of being the first Polish airman who has achieved a distance flight. This took place on July 28th, 1931, the only suitable day during that year's Competitions. On the other days only the experienced German pilots could perform.

Grzeszczyk started at noon, reached some 1,200 feet above the start, and turned down wind. At the Wasserkuppe, this manœuvre was possible without loss of height. Alas, one of the pedals suddenly broke, spoiling the rudder control, and our pilot was forced to land not far from our camp. Meanwhile, Lopatnivk competed in the general class of the Training Contest. In the afternoon he decided to fly for the " Daily Prize," which, for this day, was for a flight of not less than 15 kilometres.

It was 5 o'clock and the good atmospheric conditions were fading, but some German sailplanes—some of which were very beautiful—and our LWOW endeavoured to make a distance flight. Our competitor was the only one to complete it at this late hour. He landed at Nordheim, 17.3 kilometres (10.8 miles) in a straight line from the starting point.

On our return from Germany we came to the conclusion that it was much more useful for our soaring development to go to the Rhön as competitors, even though both our machines were not sufficiently prepared. This experience is in perfect agreement with the opinion expressed by Mr. Ursinus (Flugsport No. 17) after the last competitions: " It is impossible to continue the development of motorless flying by observation alone."

While dealing with our visit to Germany, I wish to acknowledge the courtesy shown by the German airmen, and especially those able leaders, Prof. Georgii, Count Ysenburg and Herr O. Ursinus.

The Present Organisation.

With regard to our organisation in Poland, two institutions were founded this year:—

(1) The Institute for Gliding Technique at the Technical High School in Lwów. This is intended for the scientific study of all soaring problems.

(2) The Polish Gliding Committee, at the Aero Club of Poland, which is to control the whole Movement in Poland, by allotting the subsidies received from the Ministry of Communications, the Executive Committee of the Polish Air League, and from other central state and social institutions. This committee is composed of the delegates of the Institute of Gliding, of the various Gliding Clubs, and of the institutions which give financial aid.

Our principal soaring ground at Bezmiechowa is, up to the present, under the control of the Aero Club of Lwów, but members of other clubs are admitted to the training courses on the same basis as our own, and this Club receives for this purpose special grants from the Polish Gliding Committee.

Only B and C pilots are eligible. The C certificate is now awarded on the new R.R.G. regulations; after five flights of a total time of 30 minutes at an altitude higher than the starting point, no flight to be less than two minutes' duration.

The Aero Club of Lublin has again opened a training centre at Usbjanowa. There are actually ten gliding clubs in Poland, and the present results are: 182 A, 150 B, and 54 C certificates.

THE EFFECT OF TOPOGRAPHY ON THE FLOW OF THE WIND.*

In spite of the advent of thermal, cloud and line-squall soaring, the effect of topography on wind flow must always remain of paramount importance to gliding and soaring flight. In a memoir of the Aeronautical Research Committee recently published, Mr. W. R. Morgans, of the Meteorological Office, presents a summary of the present state of knowledge of this aspect of atmospheric turbulence. The paper is well worth the study of all who are concerned with motorless flying.

As might be expected Mr. Morgans has drawn very largely on the experimental results obtained by the Rhön Rossiten Gesellschaft and he also uses the work of other investigators, mainly in Germany and France. The scope of the memorandum may be gathered from the following extract from Part VII, which summarises its main features: " It has been impossible to give an exact distribution of wind and its velocities at all points in the neighbourhood of a mountain, so that the complex problem has to be simplified by abstracting certain characteristics of the flow and by isolating certain types of topography. Thus, present knowledge has not solved the complex problem of the distribution of winds in all its generalities, but has been content in recognising those parts where the winds are ascending and descending, the regions where the currents are ordered and those where they are irregular, and in delimiting approximately the zones in which such topographical effects may be expected."

The first part of the memorandum discusses the height and horizontal distance of influence of obstacles. Formulæ are deduced for the expression of these factors and are then examined in the light of the experimental data available. Part II deals with the theoretical treatment of the flow of air over a mountain, and important results are deduced regarding the variations in the wind velocity. In Part III these results are compared with the evidence drawn from the experimental work of different investigators.

In Part IV the various types of eddies which occur to windward and leeward of an obstacle are considered, and the conditions for their formation and persistence examined. Part V discusses coastal effects due to friction and the effect of a slope adjacent to a coast, while Part VI deals with the effect of the lapse rate of temperature on vertical velocities.

In the last section of the memorandum Mr. Morgans discusses certain problems needing further investigation which arise from the memorandum. No reference is made in the work to the valuable co-operation which can be given by actual flying in investigations of this kind. We look forward to the day when the clubs in this country will have advanced so far as to co-operate in a programme of meteorological research which would combine ground observations with flying tests. Just as the day-to-day investigation of the upper atmosphere by aeroplanes has advanced knowledge of the structure of the air and has aided the development of modern methods of weather forecasting, so we believe that the motorless aircraft will prove to be an instrument for the furtherance of the more detailed knowledge of wind structure, which is essential if this branch of aviation is to develop beyond the present stage.

* Relation between Ground Contours, Atmospheric Turbulence, Wind Speed and Direction, by W. R. Morgans, M.Sc. Aeronautical Research Committee, R. and M. No. 1456. H.M.S.O. 2s. 3d. net,

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CORRESPONDENCE

THE PRIMARY v. THE TWO-SEATER AS A TRAINING MACHINE.

Mr. Culver Replies.

Sir,—In an endeavour to reply as briefly as possible to the letters from Messrs. Falla & Stratton in the last issue of THE SAILPLANE, I propose to take them point by point.

1. Mr. Falla says that my letter embodies no argument for or against either method of instruction. It was not meant to. I was merely disproving Capt. Stratton's statement that it was not possible for clubs to instruct by the ZOGLING method, owing to its high cost in crashing.

2. Mr. Falla claims that equal experience is necessary to instruct by either method. This is definitely incorrect: one of the most successful instructors L.G.C. ever had was Graham Humby, an *ab initio* C pilot trained by the Club (incidentally, the first *ab initio* C in this country). We should certainly not have entrusted him with a dual-control two-seater.

3. Shock cord launching. The only time I have ever heard of black-out by this method was when we unknowingly launched an *ab initio* with a crew of nine each side on the memorable day at Stoke Park farm. Virtually, "black-out" on gliders is a myth.

4. Landings on a primary type present no difficulty to even the worst *ab initio* pupils.

5. I do not agree that I have unduly stressed the "Largest and most successful club in the country." I have paused to consider the reasons for the L.G.C.'s position. It holds it by virtue of results achieved. It has always delivered the goods. Its founders realised that gliding must be carried on in the right place, and were willing to go anything up to fifty miles from London for that purpose. To call it the London Gliding Club is a misnomer. It should be either the Dunstable Gliding Club on account of its location, or the "All-England Gliding Club," on account of its membership. Of the half-dozen people who founded it, one lived in Sussex, one at Guildford, one at Watford, one at Wendover, and two in London. The inference to be drawn is that any club which puts up a good and attractive show and provides the necessary equipment can draw upon the whole country for its members, and therefore they all start equal. The L.G.C. has members living in Lancashire, Derby, and Yorkshire, who turn up regularly at week-ends.

6. My challenge was not in any way connected with training, but was to show that the method used by the L.G.C. turns out pilots of a quality that cannot be beaten by any other method.

7. Askam admittedly saw the breakage of three L.G.C. machines. Also the Wasserkuppe competitions this year saw the breakage of 60 per cent. of the machines entered. The L.G.C. entered five machines at Askam. The only other machine of relatively high performance at Askam was the FALCON, a very sturdy machine. The L.G.C. PROFESSOR was broken twice, once by a very experienced pilot, who landed it beautifully, but unfortunately right across a ditch completely filled by heather and absolutely invisible, not only from the air, but also on the ground. The second smash was by Buxton, under bad weather conditions. Possibly Mr. Falla thinks that there are many pilots in the North, or elsewhere, who could avoid smashing a machine, when Buxton could not. The two-seater suffered from a broken tail skid; on commencing repairs, we found that all the timber around the skid was rotten, presumably on account of the fact that the machine had been stored for a very long time. The KASSEL 20 was smashed by the least experienced *ab initio* pilot amongst the L.G.C. party.

8. I think it is quite possible that six *ab initios* could be trained by auto-towing to "C" standard, more quickly than by the ZOGLING method; that was not my argument. I was, and still am, of the opinion that the ZOGLING method is the most suitable one for club use, since it is economical and efficient, if not quite so rapid as the dual method. At the same time I should like to mention the fact that Mr. Collins, of the L.G.C., a complete *ab initio*, was ready for his "C" three months from the date of his joining the Club. He then had to wait for a suitable wind (which was a month coming along), and took his "C" with a fine flight of half-an-hour. If he had three flights every time he came along that would only allow him seventy-two flights, including ground slides, before he was ready.

I now get on to Capt. Stratton's letter.

1. The first point I see to take is the one concerning competent instructors. I certainly agree that because a pilot obtains his "C" he is by no means qualified to instruct. I did not suggest that he was. Certain *ab initio* "C's" who have shewn their capabilities in that direction, have been appointed instructors, but that is all.

2. I think I know the pupil that Capt. Stratton refers to as having left his club (the Surrey) and taken a course of dual. He actually made four flights in auto-towing; at the fourth he crashed the B.A.C. and gave it up, having, as he assures me, learned nothing. He then joined the L.G.C. and was taught by the same Graham Humby previously mentioned in this letter. He now has his "C" and is now a private owner; he distinguished himself a fortnight ago by doing a 40-minute flight in the dark at Dunstable.

3. Capt. Stratton's last paragraph has, no doubt, caused several quiet chuckles amongst members of the L.G.C., as they all know that I am the very last person in the whole Club who could be accused of over-confidence; in fact, my caution is quite a source of amusement to many of its members.

D. E. CULVER.

MR. LOWE WYLDE ON "POWER GLIDING."

Sir,—Mr. Wright (Dorset Club) raises a point in his letter to you last week which interests me very much in view of the experiments which, as is generally known, are being carried out by my firm.

The low-power aeroplane has a definite value in training the glider and/or sailplane pilot and, now that the idea that "Gliding costs nothing and gliders can be built for about £10" has been exploded, its potentialities can be discussed without there being a general outcry based on cost only.

Before considering the advantages of the "Motor Glider" it has to be admitted that its use is entirely precluded under present Air Ministry regulations and that nothing less than their radical alteration can alter this.

I, personally, have done over 30 hours' flying on a BAC. VII fitted with a 600 c.c. DOUGLAS engine, and as a result registered the following reactions:—

(1) During the first hour's flying, I handled it much better than pilots with only "power" experience. This I attribute to motorless flight experience.

(2) In a given time, under similar conditions, I could always attain a greater height than the "motor" pilot!

(3) From watching other people flying it, I saw that there was a great difference in the way the power pilot with soaring experience handled it, as compared with the other type of pilot.

From these observations I deduced that in flying this type of machine as against the more orthodox aircraft, similar conditions produced physical reactions readily recognisable to the Sailplane pilot, and that the application of soaring flight tactics resulted in better performance. Conversely, therefore, I consider that the *ab initio* pupil trained on this type of machine could be taken right up to the "soaring" stage of his tuition, because while the first lessons were for the purpose of teaching the use of the controls (and, after all, any type of aircraft whatever will do for this job) the machine would always be sensitive enough to record changes of conditions and thus allow the instructor to point out these influences to his pupil from the very beginning.

In the course of flight tests, it was found that, unless there was a strong wind blowing, the actual direction of take-off did not always bear any relation to wind direction, but that, on the contrary, topographical and thermal

conditions so influenced the rate of climb as to be almost a governing factor. For example, when taking-off into wind in front of a hedge, the initial climb off the ground might be quite good until the boundaries were reached, when a terrific "down-draught" would be felt. Under these conditions, taking-off "down wind" was much better and on reaching the opposite end of the aerodrome, if there was a barrier of any height, one was simply swept up into the air. And though there might be a tendency to drop a little the other side, it is better to fall out of the air after passing the hedge than just before reaching it. Thus the flying of this little machine brought out all the little points which the soaring pilot *must* know.

Now to consider the operation of this type of machine by "Soaring Flight Groups." At the risk of being termed "one-opinioned," I say definitely that the ideal way of imparting gliding instruction to the beginner under present conditions of legislation, etc., is by the use of dual control auto-towed two-seater machines and the employment of a really capable instructor.

Vide recent correspondence on the subject, it is simply no use whatever for people to sit up and say that catapult launched primary trainers have trained such and such a number of pupils at the XYZ Gliding Club, because up to the present no one has taken up the challenge and commenced to train people in earnest by the other method so as to provide the contrast. At the same time, if one frankly banishes prejudice from one's mind, it has to be admitted that there *must* be an advantage in dual control, and as regards auto-towing, the answer to this is to be found among the large number of clubs that have gone over to this method by means of varied efficiency.

Now on the score of capital outlay, the cost of the BAC. VII (which is the only dual control machine of proven instructional value in this country) is £150. To this amount must be added the cost of a suitable towing car, complete with winch and cable, etc. As, in practice, the derelict car at £5 has always failed to give either the performance or reliability that is desirable for regular functioning, we must allow at least £30 for this item.

We now have the sum of £180 as being required for one machine, and the next point for consideration is the relative working value.

Auto-towing, given a suitable site, allows of twenty minutes being spent in the air out of each hour operated. The personnel required over and above the pupil number two:—Pilot-instructor and car driver. (For safe operation, the car driver cannot be just anyone who can drive a car!). Running costs, leaving out the question of paid personnel, will amount to about 5/- per hour, this covering the petrol, oil, and tyres. (A twenty horse-power car running about an aerodrome in an intermediate gear the whole time uses a lot of petrol.)

The "motor-glider," on the other hand, can be in the air 60 minutes out of each hour operated if necessary. On the basis of cost of the BAC. VII, a suitable machine could be produced at a figure very near £180 if freed from A.M. regulations and built as a sailplane, while the running cost would be a little lower than the towing car in the other case. Actually, the DOUGLAS-engined BAC. VII uses just over 1 gallon a running hour and about half a pint of oil.

It would, therefore, appear that if a specially-designed machine were built in which the power unit was a readily removable component, and thus allow the machine to be used either as an instructional power machine or as a sailplane of moderate performance with "one up," the training of soaring pilots would be considerably facilitated without any appreciable increase of cost over what is necessary for the alternative method. The process of initial training would be a more dignified affair—and this is a much more important point than is generally appreciated—and much more satisfaction would be given to all concerned.

If only the authorities could be persuaded to allow the "motor-glider" to develop untrammelled, I know for a definite fact that new groups would spring up all over the country and as a result, in many cases of bitter experience, would be very much better organised than the average gliding club and run on sound business lines of giving

Mr. Lowe Wylde in the Douglas-engined BAC VII.
["Aeroplane" photograph

to members that which they join for.

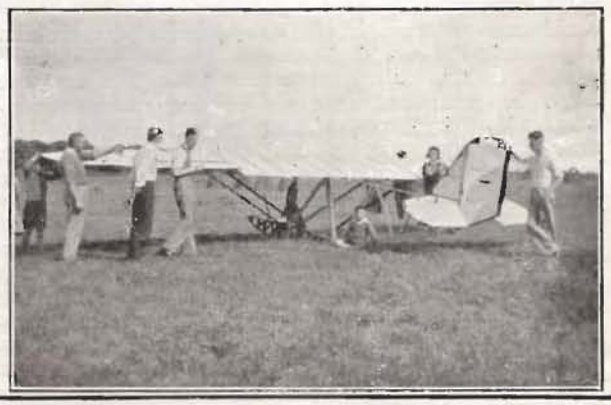
It is within my personal knowledge that many eminently desirable recruits to the Gliding Movement have been lost because they considered training methods lacking either in dignity or efficiency.

In considering the further outlook of the Gliding Movement it is not adequately understood that the great majority of people are not attracted to gliding with the idea of becoming "Soaring Aces," but because they want to fly and cannot afford power flight tuition at its present price. These people want to get into the air somehow and believe that motorless flying will be within the reach of their pocket. Very few of them have either the patience or the ability to become "C" pilots at all, but the support of the great majority is economically imperative to make possible the desires of the few with the peculiar "penchant" of becoming really able soaring pilots. So far, the clubs (with all due apologies) have entirely failed to maintain the interest, and therefore the support of the ordinary "air-minded member." As numerical support falls away so does financial support, and the demise of the club then becomes only a matter of time!

No one will deny that the present state of the clubs is entirely due to lack of members. They all started with lots of support, and if this were maintained, given wise government and adequate subscriptions, no club, whatever its peculiar activity, could fail. The remedy for the Gliding Movement is, therefore, more active support—*not Subsidy*—and I say emphatically that if every large town and/or province in Great Britain were to organise a Flying Club based on the lines I have indicated it would be enthusiastically supported. We are a nation of sportsmen, and aviation has and is appealing to the whole of British youth of both sexes. I support Mr. Wright, therefore, in his suggestion that the British Gliding Association might initiate negotiations with the authorities for the entire control of genuine motor-assisted sailplanes. In their past control of the Gliding Movement they have shown themselves capable of dealing with the technical and tactical details of administration, and I would suggest that many of their present detractors would be for ever silenced if they were to accomplish the "emancipation" of the low-powered aircraft.

C. H. LOWE WYLDE.

NEWS FROM THE CLUBS.



Primary Glider built by Mr. Renaut of South Shields.

BRADFORD AND COUNTY GLIDING CLUB.

Outdoor activities have been very much hampered lately by bad weather conditions.

September 23rd. REYNARD was flown by several members on the short slope, the landing ground of which is pock-marked with old pits about forty feet in diameter and twelve or fifteen feet deep. They are of somewhat doubtful origin, and are attributed to something doubtlessly of great interest in antiquity, but many of us have said wicked things about those holes, particularly since one, more eager than the rest, chose to drive REYNARD "to earth" in one of them. Only a landing wire was damaged, and after "digging her out," REYNARD was repaired in readiness for the morrow.

September 24th. Rain. Winds—nohow; so the company retired to the workshop for work on the DICKSON nacelle.

Sunday, October 3rd. We were favoured by a visit from Fred Slingsby, with his record-breaking BRITISH FALCON, and with the wind set fair for Beamsley Beacon, we took him up there feeling certain that we should see something good. However, on nearing the top, with FALCON ready, the A.S.I. showed the wind pretty steady about 58 m.p.h., with frequent gusts reaching 70, so FALCON was stowed carefully in a sheltered gully. We yarned and lunched, then smoked all day in brilliant sunshine, sheltered from the unkind blast, but gave it up about 5.30 p.m. when the wind still showed no sign of abating. And Slingsby smiled through it all. He had got up at six that Sunday morning and done eighty miles to try our site, only to be met by disappointment. Still he smiled. Bravo, Slingsby.

October 22nd. In little or no wind, ZOGLING was flown for "twenties" over the ponds on the North slope. Pond-hopping is one of our less exciting reliefs from the boredom of inadequate weather. Then several new members were given ground slides and low flips until one of them cartwheeled most inelegantly. After bending a few parts straight, we carried on till dusk.

October 30th. A wind N.N.W., about 10 m.p.h., urged us on to the long slope, but it blew too obliquely across the face of the hill to be of much use to us and the best time of the day was 48 secs. Speed, rather than duration, appeared uppermost in men's minds.

Sunday, November 6th. Wind S.E. by S. Very light. REYNARD was rigged early in the day and after a few short glides on a small slope, spent the remainder of the day giving training hops to two of our new members, both of whom showed good progress. About lunch time a towing party arrived with DICKSON, which has been fitted with a well-shaped nacelle and cleaned up generally. Half-an-hour later DICKSON was rigged ready for testing, and the trailer was on the way back to our repair shop laden with ZOGLING.

Five short test flights were made in DICKSON, and a very favourable verdict was given. The alterations and additions showed themselves to be fully justified, and great improvement was noticed in stability, controllability and general performance.

We were glad to welcome several old friends who visited us, particularly Mr. Addyman, of Harrogate, and Mr. Gosling.

Sunday, November 13th. Wind E., 15 m.p.h. Throughout the day DICKSON Intermediate was flown on one of our shorter slopes, and all were delighted with her conduct. On this particular slope the longest flight ever made in a primary machine was 35 seconds, and it was gratifying to note that the average length of flight for the day was 55 secs., the longest being 1 min. 5 secs., and most of the pilots enjoyed their first experience of flying a nacelled machine. The best flights of the day were made by Stedman and Tillet, who found time to potter along the short ridge and half-way back, with no apparent effort and very little loss of height. Alderson, Holdsworth and Seager also did well. Darkness intervened and the machine was dismantled by the light of car headlamps.

Construction work has now been commenced on the Club's HOLS DER TEUFEL, under the direction of Mr. Holdsworth, and this indefatigable enthusiast has also completed a very fine new fuselage and cantilever tail unit for the HOLDSWORTH Sailplane. Stedman has just embarked on the construction of a two-seater of his own design, and has sixteen compression ribs to show for his week's work. Other members are on the look-out for machines of suitable price and performance for private ownership.

Hibernation? Well, we haven't done it for the past two winters and we are not going to start now!

DORSET GLIDING CLUB.

Saturday, October 8th. Inclement weather. DORSLING brought back from our White Horse, Weymouth, site.

Sunday, October 9th. Dorsling flown by Messrs. Haslam, Laver and Secker. DAGLING flown by Messrs. Buck, Davis, Rolfe and Dickenson, the last named being our latest recruit to the ranks.

Saturday, October 15th. Light S.S.W. wind. Dickenson, in an attempt to soar after a couple of hops, stalls DAGLING, slight damage to centre section.

Sunday, October 16th. All members stripping DAGLING ready for repairs.

October 22nd and 23rd. Activities confined to DAGLING repairs.

October 29th and 30th. Whilst attendances were small DAGLING was completed and rigged, awaiting the mercy of the elements.

Saturday, November 5th. A truly firework day. A strong, gusty South wind took Haslam and DORSLING off our Maiden-Newton site into an adjoining field after being aloft a few minutes. After discussion whether to dismantle machine a successful attempt was made to launch Laver, who flew machine back home.

Tuesday, November 8th, 7.30 p.m., Half Moon Hotel, Yeovil. Committee meeting held; the Hon. Secretary reported favourably on the activities of the Club. We are still solvent to the extent of a few fivers. A dance is to be held at the Clinton Restaurant, Weymouth, on the 23rd November, 1932. If any other club members are this way we shall be pleased to see them at this social function.

Sunday, November 13th. Of course, the usual change from rain, a strong E. to N.E. wind. A good attendance confined to DAGLING, DORSLING and Hangar maintenance.

FURNESS GLIDING CLUB.

At the third annual general meeting of the Barrow Gliding Club the following officials were elected for the

ensuing year: President, Commander C. W. Craven, R.N.; chairman, Capt. John Fisher; vice-chairman, Mr. J. S. Redshaw; hon. secretary, Mr. H. S. Gross, 106, Greengate Street, Barrow; hon. treasurer, Mr. H. B. MacLaren, 30, Ocean Road, Walney; ground captain, Mr. W. A. Stevens; ground engineer, Mr. C. A. Britton; committee, Messrs. W. Butterfield, S. Burnett, R. Cuthell, V. Foster, G. J. Lock and C. J. Redshaw; auditors, Messrs. R. B. Domany and B. Winder.

An interesting programme of constructional work is being arranged for the winter months, whilst on account of the favourable winds usually prevalent during that time, a fair number of soaring flights should be accomplished. Towards this end the club has now two soaring machines available.

IMPERIAL COLLEGE GLIDING CLUB.

Summer Camp, 1932.

The Club camp opened at Gone Farm, Dorset, on September 2nd, with one part-worn DAGLING for primary training and one partly-completed secondary machine, a DAGLING, with plywood on the wings over one-third of the chord and a plywood nacelle.

The first day was spent in inspecting the various sites over which we expected to fly, the second in discovering a crack in a spar, apparently due to sheer old age, and the next two in repairing same. Eventually we started flying, and after three days of auto-launched ground-hops an *ab initio* did a beautiful cross-wind turn, using the wing-tip as a pivot, and wrote the machine off. After some discussion the Club unanimously refused to spend the rest of the camp sticking splinters together to make a glider, and two members went off to London to beg, borrow, or steal a DAGLING.

During their absence work was started on the secondary, and we were greatly cheered by a visit from the Dorset Club.

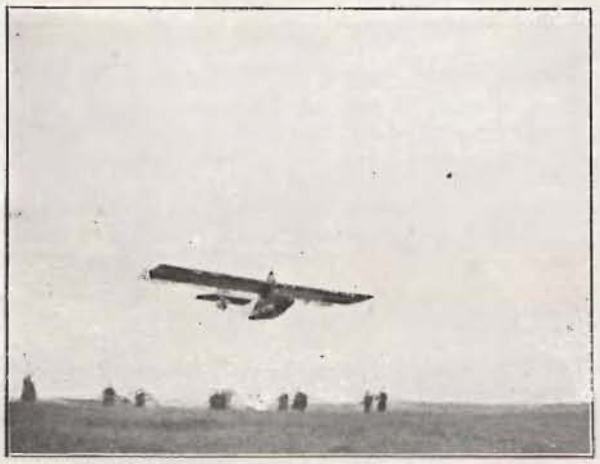
On the 14th the treasure-hunters returned at 6.30 a.m. from Nottingham, and gave us a glowing account of the joys of civilisation as represented by hot water coming out of a tap, after fourteen days in camp where such a phenomenon is unknown. However, they brought with them an ancient R.F.D. which had belonged to the Nottingham Club and was acquired through the B.G.A. Incidentally, we should rather like to know how the original owners ever flew a machine with gas-pipe tail booms and C.G. under the trailing edge; but perhaps they didn't.

On discovering that most of the tail-plane ribs needed splicing, it was decided to go ahead with the secondary, which was finished after three days' hard work, although the great Rudder Bar v. Pedals controversy threatened to break up the club. Eventually we fitted pedals, which are definitely better than a bar and eliminate the tendency to put on the rudder the wrong way.

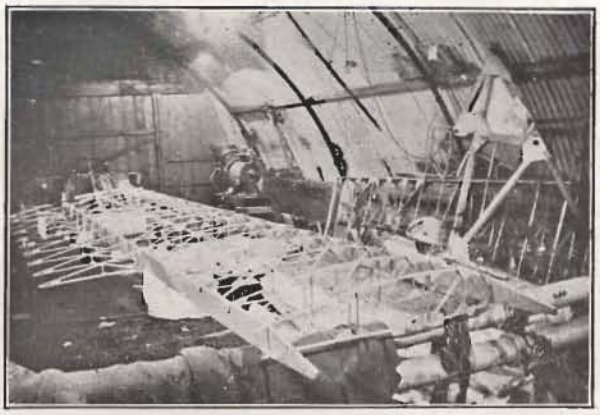
The first flight of the machine took place on September 17th and the last on the 26th. During those nine days, all members in camp flew it, and were astounded to discover that the difficulty now was not to stay up but to get down. The machine flew so far that H.T. cables, which had never troubled us before, owing to their distance, now became a source of danger, and the site had to be changed. But everywhere we went it was the same story: flying off a 400-foot hill meant landing so far away that it took all the afternoon getting the machine back over assorted hedges, ploughed fields, and barbed-wire fences, but what flying we did was most enjoyable.

On September 25th, a great effort was made to soar over an unbelievably steep hill, but it did not quite come off, owing to lack of experience in the gentle art of gaining height. The next day, being the last flying day of the camp, another attempt was made. After progressing fairly well along to the end of the ridge, the pilot lost height on the turn and settled down to go down to the bottom of the hill. Unfortunately, the wind down there was afterwards found to be blowing in a totally different direction from that at the top, with the result that the pilot went straight down wind into the hill before he could turn away. The machine was completely wrecked except for the centre section, which survived fairly well and is now being rebuilt with larger wings, when we hope to do some real soaring.

The camp ended on September 28th, and although we go hopefully out to Dunstable every week-end, we have so far only had one day suitable for flying our only R.F.D.



The "Dagling" Secondary being launched during the Imperial College Gliding Club Summer Camp.



In the Dorset Gliding Club's workshop. A new wing for "Dagling" under construction. The Petter-winch engine seen in the background drives two car type dynamos in tandem for illuminating the hangars and providing central heating.

TUITION.

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LONDON GLIDING CLUB.

Beginning in the middle of August, the wind blew up the hill on nine consecutive week-ends; we soared every week-end except one, when the breeze was only strong enough to delay descent. We are now averaging out with a run of foul breezes, to the benefit of beginners. November last year was equally blank for soaring (see personal log-books), so altogether we have no cause for complaint. The main idea now is to bring on a new wave of hill-top pilots by means of hand-launching and car-launching, and to introduce as many recent "C" pilots as possible to ground-hops in the club's PROFESSOR.

On November 5th and 6th, R.F.D.I. worked hard, the only damage being the shearing of two landing-wire pins in a heavy landing; the pupil mistook a dive for a stall, bounced off the lip of a low hill, continued in flight, landed properly, and came to a standstill with two intact wings forming a tent around him. The PROFESSOR was car-launched repeatedly with new pilots and came to no harm. It was pleasant to see this machine earning its keep in flying-money.

On November 13th we had a charming day with R.F.D.I. in a turbulent north-easter, 42 hand-launches, lots of fun, lots of flying-money, and no damage. The gang consisted of two complete beginners (Monsieur Claudel and Miss McDougall), one power-plane beginner (McDougall), one pre-"A" pilot, one "A" pilot, and six "C" pilots (including two instructors, flying incognito in wigs and false whiskers). The devotion of the launching crew is worth noting. The beginners' hops were protected from the gusty wind by the opposite slope, and were good. The full-length hops were priceless, inasmuch as there was occasionally a violent burble half-way down the slope, which puffed you to a standstill and then deposited you on the ground with the precision of a hangman's trap-door. Very stimulating altogether.

We were sorry that the Imperial College gang turned tail, but we understand that they are reasonably nauseated with a recent run of bad luck in minor crashery. The previous week-end they worked hard all day.

It appears that our visitors from India who saw the soaring in rain and a high wind were the Maharajah, the chief medical officer, and the chief flying officer, of Jodhpur. The Maharajah is keen on flying and is also interested in the possibilities of soaring flight in Indian thermal currents. We were extremely heartened by his subsequent substantial gift to club funds; it could not have come at a better time. There is something remarkably cheering about a cordial free-will offering, irrespective of its size.

The new club cat has already passed from the mascot stage into full work. The steward's first job in the mornings is to add up the mouse tails. She gives a sense of solidity to the club-house and hangars, and is a brilliant example of what can be done by honesty of purpose.

STOP PRESS.—Arrangements are being made to bring Wolf Hirth to Dunstable for ten days, commencing on Boxing Day. Terms will be published shortly. Everybody welcome, regardless of club, nationality, sex or faith.

BLUE PRINTS.

Complete Sets of Working Drawings of the **R.F.D.** primary type, and the **FALKE** secondary type machines, and the **GRUNAU BABY** Sailplane, with schedules of parts, are now available.

PRICES:

R.F.D.	£2	0	0	post free
FALKE	£7	10	0	post free
GRUNAU BABY ...	£8	8	0	post free

(Special reduction to Members of the B.G.A. or affiliated Clubs)

THE BRITISH GLIDING ASSOCIATION
19 BERKELEY STREET, LONDON, W.1

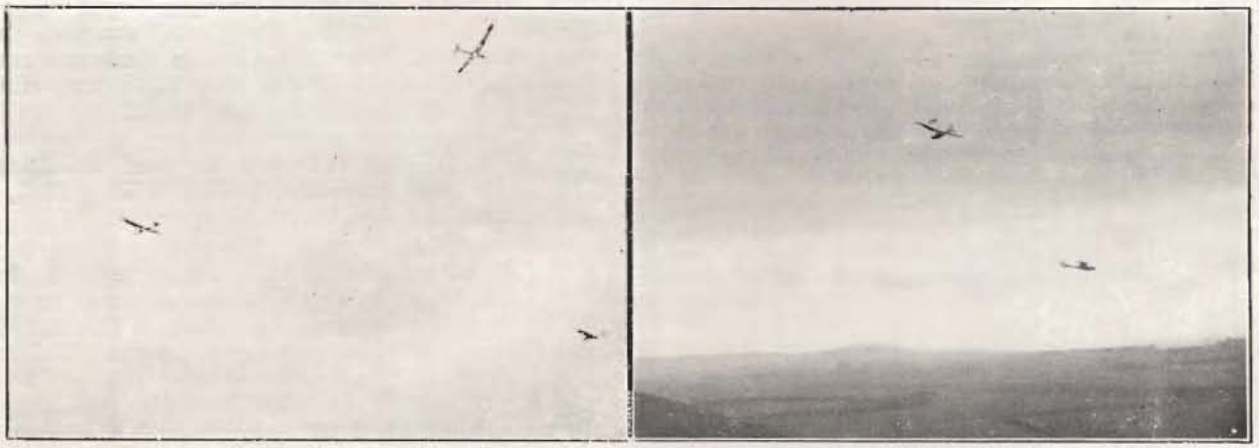
ULSTER GLIDING AND AVIATION CLUB.

Sunday, 9th October. Wind S.W., force 1—2. Autotowing was carried out in the KASSEL "20" machine on the shore at Tyrella, Co. Down. Total number of flights—20. Total flying time—about 1¼ hours.

Sunday, 23rd October. Wind S.W., force 2—3. Autotowing in KASSEL "20" at same site. Total flights—16. Flying time about 1 hr. 10 mins.

Sunday, 6th November. Wind S.S.E., force 4. Autotowing in KASSEL "20"; also at above site. Total flights —20. A new rope, of heavier gauge strand than hitherto, was used this day, length, 1,000 feet as before. Almost the only difficulty which we find in towing on the shore is the habit which the rope has of burying itself in the sand, especially when trailing free after completing a tow. The sand abrades the rope badly, any galvanising on the wire is quickly worn off, and the salt penetrating to the hemp core makes it very hygroscopic, resulting in its never getting properly dry when stowed away. We should be glad to hear any opinions from other Clubs, such as the Preston Club, who operate on the sea shore, with regard to towing gear.

Saturday, 12th November. Wind due E., force 5—6. On this day the KASSEL "20" was taken up to the Knockagh, an eminence forming part of a somewhat precipitous ridge two miles in length, the foot of which lies about one mile back from the northern shore of Belfast Lough. (You are now allowed an interval for the purpose of abstracting your "Times" Atlas from the bookcase.) The highest point of the ridge is some 911 feet above sea level, and is crowned (*vide* the local Press) with an obelisk forming the Co. Antrim War Memorial, a conspicuous object from all over Belfast Lough. Launching from here, pilots had no difficulty in soaring up to 600 feet above the start. Conditions were very steady, in spite of the strong wind, and the precipitous nature of the slope. The strong down currents behind the face were handy for losing height in landing, but otherwise rather unpleasant. Total flights —4. Flying time—1¼ hours. Messrs. Wynne, Harris, and Mrs. Mackie qualified for "C." Our hard-worked ground engineer missed making his "C" flight owing to the approach of dusk and slight damage to a pair of wing ribs in the last landing.



Soaring at Dunstable. Left--from left to right: Dewsbury on the "Crested Wren," Buxton on the "Scud II," Hiscox on "Hols der Teufel." Right--above, Buxton on the "Scud II": below, Collins on the "Hawk."

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IMPORTANT NOTICE TO ADVERTISERS.

Many advertisers have supported the "Sailplane & Glider" as a gesture of friendliness to a publication unique in the worlds of pioneering effort and sport, without calculating with too great a nicety the immediate and tangible benefits that might accrue from their investment.

The following letter from the President of the Central Scotland Air Yachting Club indicates that readers appreciate this fact, and that they are acting in that spirit which places business dealings on the right plane—a level free from depressions and adverse conditions, economic and otherwise.

Glasgow,

September 12, 1932.

The Editor, "The Sailplane."

Dear Sir,

It has been on my mind for a couple of months to let you know that I was able to put some business of a friend of mine in Glasgow in the way of your Advertisers, Messrs. Austin, Reed & Co., purely because they support the "Sailplane."

I naturally propose to follow suit myself as soon as occasion arises.

Messrs. Reed might like to know that their advertisements have been worth at least £11 to them which otherwise would have gone elsewhere.

Yours faithfully,

(Signed) E. T. H. GODFREY.

The "Sailplane & Glider" circulates in every country in Europe (except Russia and Scandinavia), Canada, Australia, New Zealand, South Africa, British East Africa, Egypt, Palestine, the United States of America and South America.

The nature of its circulation is such that each issue has at least 5000 readers, all of whom are equipped with Purchasing Power and the desire to apply it in any direction that will help the Gliding Movement.

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